Computing Research Association
Academic Member Highlight Book

Fall 2020

UNITING INDUSTRY, ACADEMIA, AND GOVERNMENT TO ADVANCE COMPUTING RESEARCH AND CHANGE THE WORLD.

CRA
Computing Research
Association

Table of Contents

Computer Science and Software Engineering (CSSE) by the Numbers

Twenty-five Tenure-Track Faculty, **eight** Teaching Faculty, **one** Research Faculty, and **six** Adjunct/Affiliate Faculty

Five NSF CAREER award winners, **one** Presidential Early Career Award for Scientists and Engineers award winner, **one** Rhodes Scholar, and **five** Endowed Chair Professors among the faculty

Three Undergraduate Degrees: *BS in Computer Science, Bachelor of Software Engineering, and Bachelor of Computer Science (Online)*

Four Graduate Degrees: *MS in CSSE, MS in Cybersecurity Engineering, MS in Data Science & Engineering & PhD in CSSE*

~1300 undergraduate students (~**10**% Honors students), Incoming freshmen average ACT score **29+**

~225 Master's and PhD students

#1-Ranked (US News & World Report) and largest CS Department in Alabama, one of the top in the Southeast, and among the top 100 in the nation

Cybersecurity Focus

Auburn Cyber Research Center http://cyber.auburn.edu
The McCrary Institute http://mccrary.auburn.edu

A Diverse Faculty Engaged in Cutting-edge Research & Teaching

18% Women
12% Underrepresented Minorities
An international faculty with national origins in 13 countries of the world

Research Areas

- Artificial Intelligence
- Autonomous Vehicles
- Bioinformatics
- Computational Biology
- Computational Intelligence
- Cloud Computing
- Computer Architecture
- Computer Networks
- Computer Science Education
- Computer Games
- Computer Vision
- Cybersecurity
- Cyber-Physical Systems
- Databases
- Data Science, Data Mining, Data Privacy & Data Security
- Distributed, Energy-Efficient, Embedded & High Performance Computing Systems
- Evolutionary Computing
- Human-Computer Interaction
- Image Processing
- Information Retrieval
- Internet of Things
- Machine Learning
- Mobile Device Software
- Modeling & Simulation
- Multi-Agent Systems
- Natural Language Processing
- Social Media Analytics
- Software Analytics
- Software Engineering
- Software Visualization
- Text Mining
- Wireless Networks

Research Sponsors

- National Science Foundation
- Depts. of Defense and Energy
- Intelligence Agencies
- Private Industry & Foundations

Interested in finding out more? Visit http://eng.auburn.edu/csse/index.html

AUGUSTA UNIVERSITY
SCHOOL OF COMPUTER AND CYBER SCIENCES

augusta.edu/ccs
ccs@augusta.edu

**Augusta University
Augusta, Georgia**

The **Augusta University School of Computer and Cyber Sciences** celebrated 40 years of Computer Science education in 2019. The School of Computer and Cyber Sciences is undergoing an unprecedented transformation as we are becoming a comprehensive research college, with national prominence in computer science and cybersecurity education and research. Since 2016, we have been designated a Center of Academic Excellence in Cyber Defense by the National Security Agency and the Department of Homeland Security. We are the first university in Georgia to be awarded the prestigious Department of Defense award in the Cybersecurity Scholarship Program, bringing in over $1.5M over the past four years.

Meet our New Faculty

The School of Computer and Cyber Sciences proudly welcomes our 14 new faculty members who have joined us since the Fall 2019 semester. These faculty are a part of our school's overall plan to increase the size of the faculty by at least 30 in a three-year span. Our newest faculty strengthen our research momentum in several areas including algorithms, networking and distributed systems, high performance and cloud computing, network and system security, security of cyber-physical systems, supply chain security, blockchain consensus, information systems, enterprise use of IT, robot coordination algorithms, game theory, machine learning, fault tolerance, cryptography, software engineering and formal methods.

Gagan Agrawal *Professor*	**Paul Attie** *Professor*	**Konstantin Busch** *Professor*	**Bogdan Chlebus** *Professor*	**Gokila Dorai** *Assistant Professor*	**Leszek Gasieniec** *Professor*	**Ahmad Jbara** *Assistant Professor*
Dariusz Kowalski *Professor*	**Hoda Maleki** *Assistant Professor*	**Nisha Panwar** *Assistant Professor*	**Reza Rahaemiehr** *Assistant Professor*	**Edward Tremel** *Assistant Professor*	**Jason Williams** *Assistant Professor*	**Weiming Xiang** *Assistant Professor*

Augusta, Georgia is located at the center of many academic, governmental and corporate entities critical to the nation's cyber security, including the U.S. Army Cyber Center of Excellence, the National Security Agency, Savannah River National Laboratory and most recently U.S. Army Cyber Command. The State of Georgia created the Georgia Cyber Center, a $100 million investment, the largest investment of its kind in the nation. The Cyber Center is a state-of-the-art facility, totaling 320,000 square feet, bringing together several public and private sector organizations. The Cyber Center is home to government, industry and academia partners, including the School of Computer and Cyber Sciences.

Founded in 1889, Barnard College aims to provide the highest-quality liberal arts education to promising and high-achieving young women, offering the unparalleled advantages of an outstanding residential college in partnership with a major research university. With a dedicated faculty of scholars distinguished in their respective fields, Barnard is a community of accessible teachers and engaged students who participate together in intellectual risk-taking and discovery. Barnard students develop the intellectual resources to take advantage of opportunities as new fields, new ideas, and new technologies emerge. They graduate prepared to lead lives that are professionally satisfying and successful, personally fulfilling, and enriched by a love of learning.

Through Barnard's partnership with Columbia University, Barnard students have had the opportunity to major in computer science. But Barnard did not have a program of its own until 2019. Computer Science at Barnard has grown dramatically over the last five years, nearly quadrupling the number of majors from 2015 to 2020, making it one of the ten largest majors at Barnard.

Rebecca Wright
Joined Spring 2019

Director,
Druckenmiller
Professor
Ph.D., Yale, 1994

Sarah Morrison-Smith
Joined Fall 2019

Roman Family
Teaching and
Research Fellow
Ph.D., U. Florida, 2019

Mark Santolucito
Joined Fall 2020

Assistant Professor

Ph.D., Yale, 2020

Adam Poliak
Joined Fall 2020

Roman Family
Teaching and
Research Fellow
Ph.D., JHU, 2020

Recent Highlights:

- Inaugurated a Distinguished Lectures in Computer Science series and hosted multiple speakers in our Computer Science Seminar series.
- Developed and ran an undergraduate Computer Science summer research program with an initial cohort of students working on projects ranging from improving inclusivity to healthcare.
- Received funding from Northeastern University's Center for Inclusive Computing and Craig Newmark Philanthropies to support our efforts to improve the representation and diversity of women in computing, to encourage Barnard CS students to participate in research, and to develop a new and innovative Computing Fellows program.
- Hosted and co-sponsored DivHacks Hackathon, the annual diversity hackathon organized by Columbia's Womxn in Computer Science club.

Visit us at cs.barnard.edu

Department of Computer Science
Binghamton University
https://www.binghamton.edu/computer-science/index.html

Faculty: 33 full-time faculty members: 9 professors, 9 associate professors, 11 assistant professors, 4 full-time lecturers, 1 part-time lecturer and 3 adjuncts.

Students: 971 students: 578 undergraduates, 257 MS and 70 PhD students with an additional 66 students that are part of our Dual Diploma Program with Turkey.

New Faculty Hires

Hoda Naghibijouybari, PhD, UCR. Computer Architecture, Security and Heterogeneous Computing.

Sujoy Sikdar, PhD, RPI. AI, Algorithm Design – Machine Learning, Computational Social Science, and Trust and Credibility on Social Networks.

New NSF CAREER Award Winners:
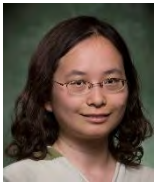
Dr. Yao Liu, "CAREER: System Research to Enable Practical Immersive Streaming: From 360-Degree Towards Volumetric Video Delivery"
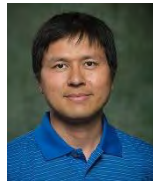
Dr. Guanhua Yan, "CAREER: Proactive Techniques for Enhancing Security and Resilience of Mobile Communication Infrastructure"
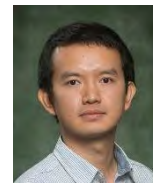
Dr. Yifan Zhang, "CAREER: Enabling Edge-hosted Private Services via Unikernel-based Lightweight Virtualization"

Selected Recent Research News:

- *Binghamton university has been designated a National Center of Academic Excellence in Cyber Research (CAE-R) by NSA & DHS. Leading the team is CS faculty Dr. Ping Yang.*
- *Kyoung-Don Kang, "CNS Core: Small: Toward Real-Time Stream Processing in Edge Devices", NSF, $500,000, 10/2021-9/2023.*
- *Shiqi Zhang, "NRI: FND: Knowledge-based Robot Sequential Decision Making under Uncertainty", NSF, $351,374, 9/2019-8/2022. He also received funding from Ford & OPPO*
- *Yao Liu, "Collaborative Research: CNS Core: Small: From Capture to Consumption: System Challenges in Pervasive 360-Degree Video Sharing", NSF, $249,999, 10/2020-9/2023.*
- *David Liu, "CNS Core: Small: Language Runtime Support for Energy-Aware Applications" NSF, $478,592, 10/2019-09/2022.*
- *Faculty continue to publish in top venues: EMNLP, CVPR, TKDE, IROS, IJTAI, AAAI, MICRO, CCS, ICDCS, MobiSys, ACM MM, DSN, Infocom, DAC, ACM FSE, TON, ICNP, …*

Other Recent Highlights:

- *Dr. Dmitry Ponomarev has been appointed Associate Chair of the Department.*
- *Dr. Madhusudhan Govindaraju, former Associate Chair of the Department, has been appointed Vice Provost for International Education and Global Affairs.*
- *Dr. Kanad Ghose was named a SUNY Distinguished Professor.*
- *Dr. Zhongfei "Mark" Zhang was named an IEEE Fellow.*
- *April St. John received a Chancellor's Award for Excellence in Professional Staff Service*

New Hires

The **Boston University Department of Computer Science** proudly welcomes our five newest faculty members. They have joined the department as part of BU's overall plan to increase the size of the computer science faculty by 50 percent in a five-year span.

Ed Chien
Assistant Professor
Computer graphics, geometry processing, machine learning

Bryan A. Plummer
Assistant Professor
AI, visual recognition, scene understanding, interpretable machine learning

Mehrnoosh Sameki
Adjunct Assistant Professor
Responsible AI, machine learning interpretability and fairness

Ioannis (John) Liagouris
Adjunct Assistant Professor
Distributed systems and databases, real-time datacenter analytics, system profiling, elasticity

Gabe Kaptchuk
Research Assistant Professor
Applied cryptography, novel applications of distributed ledgers and secure multiparty computation, privacy policy

Department News

The Department announced the new interdisciplinary major **Physics and Computer Science**.

Assistant Professor **Renato Mancuso** was awarded an NSF CISE/CCF grant on embedded systems.

Department Chair and Professor **Abraham Matta** was selected to serve on a newly formed Scientific Advisory Committee for FABRIC.

Ph.D. student **Andy Huynh** was awarded the 2020 IBM PhD Fellowship.

Computer Science & COVID-19

Professor **Ran Canetti** and Research Associate Professor **Mayank Varia**, along with their colleague in the BU College of Engineering, are working with researchers from other universities to develop an app that tracks the spread of the novel coronavirus SARS-CoV-2 on an individual level that keeps identities private.

Professor **Mark Crovella** is part of a team of researchers identifying possible COVID-19 treatments on the project titled "Identifying Human Interactors of SARS-CoV-2 Proteins and Drug Targets for COVID-19 using Network-Based Label Propagation."

2 NSF CAREER AWARDS

GIANLUCA STRINGHINI:
PROTECTING THE INTERNET FROM HATE

MANUEL EGELE:
DE-BUGING OUR IOT DEVICES

FACULTY HIGHLIGHTS

VIVEK GOYAL:
ELECTED FELLOW OF THE OPTICAL SOCIETY OF AMERICA AND RECIEVED IEEE BEST PAPER AWARD

SELIM ÜNLÜ:
ELECTED TO THE COLLEGE OF FELLOWS OF THE AMERICAN INSTITUTE FOR MEDICAL AND BIOLOGICAL ENGINEERING

ROSCOE GILES:
ELECTED FELLOW OF THE AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE

SIDDHARTH RAMACHANDRAN:
ELECTED FELLOW OF THE INTERNATIONAL SOCIETY FOR OPTICS AND PHOTONICS

MAJOR RESEARCH FUNDING

$3 MILLION
ONR MURI GRANT AWARDED TO SIDDHARTH RAMACHANDRAN TO HARNESS LIGHT FOR INCREASED NETWORK SWITCHING CAPACITY

$5 MILLION
NSF MULTI-INSTITUTIONAL GRANT AWARDED TO ORRAN KRIEGER AND MARTIN HERBORDT FOR CLOUD COMPUTING RESEARCH

15%
FUNDING GROWTH*
$35M
$25M
$15M
$12M $17M $40M
2010   2015   2020
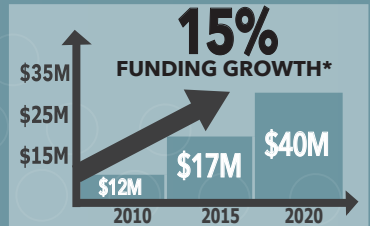
ECE AT A GLANCE

STUDENTS

494 ↑ **11%***
BACHELORS

205 ↑ **8%***
MASTERS

136 ↑ **13%***
PHD

FACULTY

FULL PROFESSORS	30	**NATIONAL ACADEMY MEMBERS**	4
ASSOCIATE PROFESSORS	12	**SOCIETY FELLOWS**	44
ASSISTANT PROFESSORS	9	**EARLY CAREER AWARDS**	29

25%
OF ECE FACULTY OVER THE LAST 5 YEARS ARE NEW HIRES

*Average annual growth rate over 10 years

Degree Offered

- Bachelor of Science in Computer Science
- Bachelor of Arts in Computer Science
- Bachelor of Science in Software Engineering
- Master of Science in Computer Science

Specializations Offered

- Digital Forensics Specialization
- Computational Data Science Specialization
- Business Systems Specialization

Certificate Program Offered

- (Online) MS Software Engineering Certificate

Interdisciplinary Program Offered

- Master of Science in Data Science
- Doctor of Philosophy in Data Science

Updates on Faculty Members

- *Dr. Yan Wu*, whose expertise is in Software Assurance, Software Engineering, Data Mining, and Knowledge Management, has been tenured and promoted to an Associate Professor.
- *Dr. Qing Tian* is hired as our new tenure-track, assistant professor. He had received his Ph.D. from McGill University in Canada and is the expert in Machine Learning, Computer Vision, Deep Neural Network Pruning, Neural Architecture Search, and Adversarial AI.

Choose Ohio First Scholarship Funding

- The BGSU Computer Science Department has been awarded Choose Ohio First Scholarship Funding ($1.14 Millions) from the State of Ohio and the Department of Higher Education (ODHE) to recruit high-achieving, underrepresented students and provide them with unique educational and advising experiences for their academic and career success.

Some of Recent Publications

- "Contextualizing Rename Decisions using Refactorings, Commit Messages, and Data Types," Journal of systems and Software. (Dr. Decker)
- "An Empirical Study of Abbreviations and Expansions in Software Artifacts," 35th IEEE Int'l Conf. on Software Maintenance and Evolution. (Dr. Decker)
- "An Open Dataset of Abbreviations and Expansions," 35th IEEE Int'l Conf. on Software Maintenance and Evolution. (Dr. Decker)
- "Distance Correlation Sure Independence Screening for Accelerated Feature Selection in Parkinson's Disease Vocal Data," arxiv.org. (Dr. Green)
- "An Extension to CrypDB," IAET Int'l Conf. on AI, Info. Systems, Engr. (Dr. Kresman)
- "Empirical Investigation of Sport Trademark Dilution by Using Contingent Valuation Method," Journal of Sport Management. (Dr. Lee)
- "An Overview of Privacy Preserving for Industrial Internet of Things," China Communication. (Dr. Li)
- "A Cross-Layer Cooperative Jamming Scheme for Social Internet of Things," TSINGHUA Science and Technology. (Dr. Li)
- "A Trajectory-Privacy Protection Method based on Location Similarity of Query Destinations in Continuous LBS Queries," Int'l Conf. of Algorithms, Systems, and Appls. of Wireless Networks. (Dr. Li)
- "An Empirical Study of Multi-level Cache Associativity," ASEE'20 Conf. (Dr. Rajaei)
- "A Healthcare Case-Study to Teach Simulation Techniques," ASEE'20 Conf. (Dr. Rajaei)
- "SBDC: SMART Building Data Center for IoT, Edge, and 5G," SpringSim'20. (Dr. Rajaei)
- "Do Metadata-based Deleted File Recovery Tools Meet NIST Guidelines?" EAI Endorsed Transactions on Security and Safety. (Dr. Roy)
- "Hybrid Analysis of Android Apps for Security Vetting using Deep Learning," IEEE Conf. on Communications and Network Security. (Dr. Roy)
- "A Review of Deep Learning Techniques Applied in Lung Cancer Diagnosis," Signal and Info. Processing, Networking and Computers. (Dr. Wu)

For more information
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BGSU. | DEPARTMENT OF
Computer
Science
BOWLING GREEN STATE UNIVERSITY

BELONG. STAND OUT. GO FAR.™
CHANGING LIVES FOR THE WORLD.

Student highlights
- CS&IS had significant increases in enrollment in Fall 2019 and Fall 2020.
- Katie Mackh was the CS&IS 2019-2020 honor student; she currently works for Accenture.
- Three undergraduates participated in the CCSC-MW (Consortium for Computing Sciences in Colleges: Midwest) programming contest in October 2019 at Benedictine University.

Faculty research highlights
- Sam Hawkins co-authored "Identification of Sarcomatoid De-Differentiation in Renal Cell Carcinoma by Machine Learning on Multiparametric MRI" in the Proceedings of the International Society for Magnetic Resonance in Medicine.
- Tachun Lin co-authored "Robust network function virtualization" in Networks. 2020. He also gave presentations at Feng Chia University in Taiwan, National Institute of Information and Communications Technology in Japan, and Taiwan Forestry Research Institute.
- Jiangbo Liu co-authored "Pinning Control of Boolean Networks via Injection Mode" for the 39th China Control Conference, July 2020.
- Young Park published "Supporting Student Success in Computing Courses Through Personalized Peer Advice" in the Proceedings of the 51st ACM Technical Symposium on Computer Science Education (SIGCSE 20) March 2020.
- Owen Schaffer authored "Guidance Is Good or Avoid Too Much Hand-Holding? Proposing a Controlled Experiment on the Impact of Clear Proximal Goals on Digital Game Enjoyment" and co-authored "The Impact of Fulfilling a Desire for Idealism on Task Engagement and Enjoyment in Digital Games" in HCII 2020, Springer. He also co-authored "Digital Game Enjoyment: A Literature Review" in HCII 2019, Springer.
- Vladimir Uskov co-authored, with students, four chapters in Smart Education and e-Learning, published by Springer. Uskov co-edited this book and chaired the international conference on this topic. He also co-authored "Reimagining and re-designing the post-Covid-19 higher education organizations to address new challenges and responses for safe and effective teaching activities" in *Law and Economics Yearly Review Journal - LEYR*.

Curriculum updates
A MS degree program Data Science and Analytics was created in May 2020. This is a collaborative program between CS&IS, MIS, and Industrial and Manufacturing Engineering.

Faculty updates
David Brennan was hired as a tenure track Instructor; he has a BS degree from Bradley and an MS degree from Carnegie Mellon University in Information Systems Management, Business Intelligence and Data Analytics. Last year David taught as a Visiting Instructor. **Owen Schaffer** defended his PhD dissertation "A Desire Fulfillment Theory of Digital Game Enjoyment" in December 2019 at DePaul University. **Scott Williams**, MS in Computer Science from Bradley and JD from Duke University, was named Associate Chair in Fall 2020.

Brandeis UNIVERSITY

Brandeis hosts world-class research in the setting of a medium-sized university located only nine miles from Boston. It is part of the vibrant industrial and research community of the greater Boston/Cambridge area and a member of the Association of American Universities, ranked in the top 35 by U.S. News & World Report.

Michtom School of Computer Science

The department offers bachelor of arts and bachelor of science degrees in computer science, as well as several master's degree programs, including an innovative two-year master's program for students with little to no background in the field. Our master's program in computational linguistics is nationally recognized, and our competitive PhD program offers full assistantships to top students who can be matched to the research areas of the faculty.

415 South Street, MS 018 Waltham, MA 02453-2728
781-736-2700 compsci@brandeis.edu

19 **Faculty**	36 **PhDs**
85 **Master's**	221 **Undergraduates**

Recent Hires
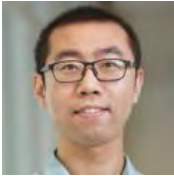
Dr. Hongfu Liu, Assistant professor

Expertise: Data mining, machine learning and related applications in social media, computer vision and bioinformatics

Dr. Constantine Lignos, Associate Professor

Expertise: Computational linguistics, natural language processing, language acquisition and change, and psycholinguistics.

Dr. Chuxu Zhang, Assistant Professor

Expertise: Data science, machine learning, deep learning, recommendation/user modeling, natural language processing, time series/spatial-temporal data analysis.

Dr. Iraklis Tsekourakis, Associate Professor

Expertise: Computer Vision, Multiple-View and Video-Based Dynamic 3-D Reconstruction.

Department Highlights

2020

With support from the Robust Intelligence program in the Division of Intelligent and Information Systems (IIS) and the NSF 2026 Fund Program in the Office of Integrated Activities, investigators at Boston College and **Professor James Pustejovsky's team** at Brandeis University are addressing the challenge of creating Artificial General Intelligence by synthesizing symbolic or logical reasoning, learning through interaction with the environment, as well as state-of-the-art neural networks.

Cracking the Genetic Code: Professors **Pengyu Hong** and **Hongfu Liu** are using machine learning and artificial intelligence to analyze the genomes of COVID-19, other relevant corona- and avian-influenza viruses and Ebola. to identify the small and crucial bit of COVID-19's genetic code that may give rise to two of its most lethal and unique attributes.

Brandeis University was a finalist in the Northeast North American Regional Final of the International Collegiate Programming Contest (ICPC).

2019

Professor **Olga Papaemmanouil** has received a prestigious AmazonResearch Award (ARA) for "Query Performance Modeling via Deep Learning" which argues for the confluence of machine learning and data management.

Professor **Antonella Di Lillo**, Associate Professor of Computer Science, has received the 2020 Louis Dembitz Brandeis Prize for Excellence in Teaching.

Carleton College

Northfield, Minnesota
cs@carleton.edu
http://cs.carleton.edu/

Carleton College is a private, coeducational, highly selective liberal arts college with approximately 2,000 students. Carleton is located in Northfield, MN, a two-college town about 45 miles south of the Twin Cities of Minneapolis and St. Paul. Nationally recognized as the nation's top college for undergraduate teaching, Carleton is known for its academic rigor, intellectual curiosity, and sense of humor.

Department Overview

The department has 10 tenure-track full-time faculty, one lecturer, one full-year visiting faculty member, and an experienced rock-star full-time system administrator. Computer Science is the largest major at Carleton; the department typically graduates between 55 and 65 majors annually. We are also delighted that over 60% of all Carleton students (of all majors) take at least one course in the CS department.

Many graduates of the department go on to industry jobs at companies such as Google, Amazon, and Target. Significant numbers of our majors also go on to graduate programs—including current Ph.D. students at Cornell, Harvard, Johns Hopkins, Michigan, Minnesota, Northwestern, Washington, and Wisconsin, among others.

Student Experiences

The department has a robust and active weekly seminar series (complete with tea!). We introduced a new off-campus study program centered on the history of computing, based in Cambridge (England), in 2019. The department supports a large cohort of students in attending the Grace Hopper Conference and Tapia Conference every year.

There are several active student groups on campus. Lovelace works to increase gender diversity in CS and technology. DevX provides a collaborative space for students interested in developing their computer science, design, or marketing skills by building projects together. A Hack4Impact chapter, which connects student software developers to socially responsible entities to create tools for social change, was founded in 2020.

Research Highlights

Faculty have active research programs across a wide range of areas in computer science, often with interdisciplinary collaborators. Faculty have received external funding from the NSF (multiple grants), as well as from internal grants.

Student researchers regularly present their research at top quality international conferences. A number of recent students have received prestigious awards including the Goldwater Scholarship and NSF Graduate Research Fellowships.

Carleton CS Faculty, 2020–2021

Eric Alexander
data visualization

Aaron Bauer
ed tech/games

Amy Csizmar Dalal
HCI, networks

Josh Davis
geometry, stats, geology

David Liben-Nowell
comp'l. social science

Dave Musicant
ML, data mining

Sneha Narayan
social computing

Layla Oesper
computational biology

Jeff Ondich
NLP, security

Anna Rafferty
ML/AI for education

James Ryan
computational media

Anya Vostinar
artificial life
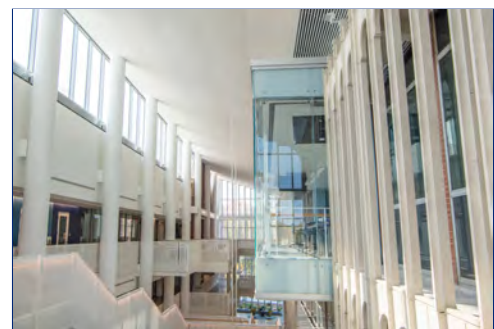
In 2020, our department moved into significantly renovated space in Carleton's Olin Hall. This 48-seat, 24-computer teaching lab is cantilevered over the main atrium of Carleton's new integrated science complex. Photo: Hannah Pietrick.

Carnegie Mellon University
Electrical & Computer Engineering

FACULTY

177 TOTAL

CORE FACULTY 79

COURTESY 59

ADJUNCT 39
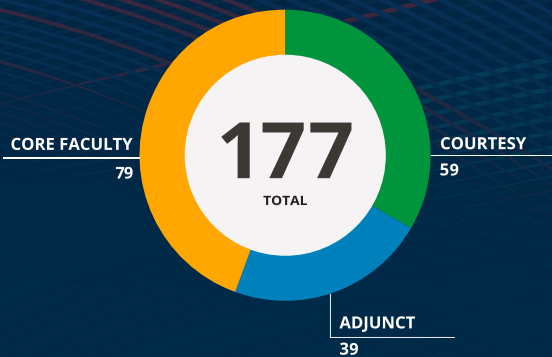
FACULTY RESEARCH HIGHLIGHTS

• Swarun Kumar creates a tire pressure sensor that will increase safety on the road, save drivers money, and ultimately, save lives.

• Brandon Lucia invented a battery-less remote image sensor powered completely by solar panels and capable of wirelessly transmitting images over kilometers, even in a crowded city environment.

• A team lead by Maysam Chamanzar is developing a novel neural interface made from stainless steel for much safer, high-density neural recording.

• Pulkit Grover is focusing on managing necessary bias in AI. Some biases in AI might be necessary to satisfy critical business requirements, but how do we know if an AI recommendation is biased strictly for business necessities and not other reasons?

• Gianluca Piazza is developing a reliable, mechanical switch the size of a DNA molecule.

COVID RESEARCH

• Osman Yağan received an NSF RAPID grant to study how COVID-19 spreads.

• Vyas Sekar underscores the importance of cybersecurity amidst the pandemic when most are working from home.

STUDENT RESEARCH HIGHLIGHTS

• Student researchers are building communication technologies to improve the safety and efficiency of firefighters. This is challenging because smoke and noise affect human senses, and they impair computer vision algorithms that provide navigational guidance.

• A team of Ph.D. students have developed RFID tattoos that can assist users with voice disabilities.

2019 STUDENT POPULATION: 1,423

526 B.S.

641 M.S.

256 Ph.D.

RANKINGS
(U.S. News & World Report 2021)

Undergraduate	Computer: 1	Electrical: 6
Graduate	Computer: 4	Electrical: 9

2019/2020 DEGREES GRANTED: 659

140 B.S.

476 M.S.

43 Ph.D.

SPONSORED RESEARCH

$48M

7 NSF Career Awards in the last five years
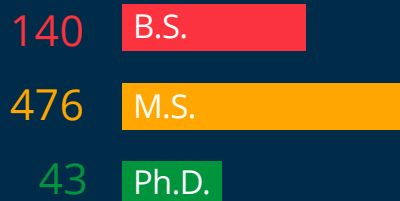
It's Happening Here...

Among the first universities to offer a CS degree and instrumental in defining the scope and potential of the field ever since, Carnegie Mellon University has led the world from the beginning. We embrace a broad view of CS, with seven degree-granting departments that focus not only on theory, but also on specific areas of study.

TOP RANKINGS

#1 U.S. News and World Report
- Artificial Intelligence
- Graduate Computer Science

#1 CSRanking.com
- Computer Science (overall)
- AI
- Computer Vision
- Machine Learning and Data Mining
- Natural Language Processing

#2 U.S. News and World Report
- Undergraduate Programs

- **Computer Science**
- **Human-Computer Interaction Institute**
- **Institute for Software Research**
- **Language Technologies Institute**
- **Computational Biology Department**
- **Machine Learning**
- **Robotics Institute**

FIRST-YEAR STUDENTS

220

6,907 Undergraduate Applications

6.5% Acceptance Rate

1546 Mean SAT

789 Math
757 Evidence-based Reading & Writing

50.2% Men **49.8%** Women

Bachelor's Degrees

Artificial Intelligence
Computational Biology
Computer Science
Human-Computer Interaction

Ph.D. Programs

Algorithms, Combinatorics and Optimization
Computational Biology
Computer Science
Computer Science/Neural Basis of Cognition
Human-Computer Interaction
Intelligent Information Systems
Language and Information Technologies
Machine Learning
Machine Learning and Public Policy
Neural Computation and Machine Learning
Pure and Applied Logic
Robotics
Societal Computing
Software Engineering
Statistics and Machine Learning

Master's Degrees

Artificial Intelligence and Innovation
Automated Science: Biological Experimentation
Computational Biology
Computational Data Science
Computer Science
Computer Vision
Educational Technology and Applied Learning Science
Human-Computer Interaction
Information Technology – Privacy Engineering
Information Technology Strategy
Language Technologies
Machine Learning
Product Management
Robotics
Robotics/Neural Basis of Cognition
Robotic Systems Development
Software Engineering
Software Engineering – Scalable Systems
Software Engineering – Embedded Systems

Some Notable Things That Happened Here

We coined the term "computer science" in the 1960s.

We created the first artificially intelligent computer program more than 60 years ago.

We were the first wired campus, then the first fully wireless campus.

We're the first college to offer a bachelor's degree in artificial intelligence.

Our Robotics Institute, Human-Computer Interaction Institute and Machine Learning Department were the first of their kind.

Dozens of startup companies spin out of SCS each year.

COMPUTER AND DATA SCIENCES

Computer and Data Sciences at the Case School of Engineering is at the core of the growth across Case with strong ties to engineering, biology, medicine, physics, statistics, epidemiology, mathematics, and business. Case computer and data scientists perform cutting edge research in algorithms, artificial and machine intelligence, bioinformatics, data science and analytics, databases and data mining, networks, security and privacy, software engineering, high performance computing, and medical imaging.

NEW FACULTY

As part of a plan to increase size of the CDS faculty significantly, the recent hires include:

Vipin Chaudhary
High Performance Computing, Big Data, and Computer Aided Diagnosis

Fanny Ye
Cybersecurity and Data Mining

Yinghui Wu
Databases and Data Analytics

Shuai Xu
Theory and Algorithms

Virtual World Lab

International Collegiate Programming Contest

ACADEMIC
NCWIT
ALLIANCE

HackCWRU HACKATHON

National Center for Women in Technology

Students attending Grace Hopper Conference

ORGANIZATIONAL NEWS

- Professor **Vipin Chaudhary** is appointed as the Kevin J. Kranzusch Professor and inaugural Chair.
- Professor **Fanny Ye** is appointed as the Theodore L. and Dana J. Schroeder Associate Professor.
- Two Computer and Data Sciences students, **Zahin Islam** and **Daniel Shao** were recipients of the Barry Goldwater scholarship.

FACULTY HIGHLIGHTS

- **Erman Ayday**, NIH, "Privacy Challenges of Genomic Data-sharing Beacons and Solutions".
- **Fanny Ye,** NSF, "RAPID: AI-driven Innovations for COVID-19 Themed Malware Detection".
- **Fanny Ye,** NSF, "RAPID: AI- and Data-driven Integrated Framework for Hierarchical Community-level Risk Assessment".
- **Fanny Ye,** NSF, "EAGER: An AI-driven Paradigm for Collective and Collaborative Community Resilience in the COVID-19 Era and Beyond".
- **Fanny Ye,** NSF, "III: Small: Mining Heterogeneous Network Built from Multiple Data Sources to Reduce Opioid Overdose Risks".
- **Soumya Ray,** NSF, "FW-HTF-P: Clinical Skill Acquisition, Retention and Atrophy with Artificial Intelligence Aids".
- **Soumya Ray,** National Ctr. For Women and Innovation Award, "Computer and Data Sciences Diversity Improvement Initiatives".
- **An Wang,** NSF, "CNS Core: Small: Mitigating Network Bottlenecks via Programmability for Distributed Machine Learning Systems".
- **An Wang,** Google Research Award, "P4TM: Accurate Traffic Matrix Estimation with Programmable Switches".
- **Jing Li,** NSF, "FET: CCF: Small: Computational Drug Prediction through Joint Learning".
- **Jing Li,** NSF, "RAPID: Genomic Variation Analysis of Coronavirus to Better Understand the Spread of COVID-19".
- **Jing Li**, Ohio Department of Education Award, "Choose Ohio First Computer Science".
- **Yinghui Wu,** NSF, "Convergence Accelerator Pilot (RAISE): Credible Open Knowledge Network".
- **Yinghui Wu,** NSF, "NSF Online Data Stream Fusion and Deep Learning for Virtual Meter in Smart Power Distribution Systems".
- **Xusheng Xiao** and **Yinghui Wu,** NSF, "SaTC: CORE: Small: Scalable Cyber Attack Investigation using Declarative Queries and Interrogative Analysis".
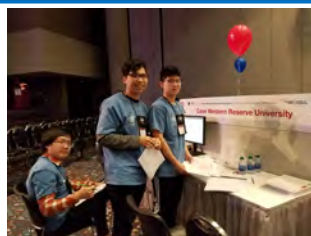
BY THE NUMBERS   **456** Undergraduates   **48** PhD   **80** MS

SCHOOL OF COMPUTING
CLEMSON UNIVERSITY

FALL 2020

Alzheimer's & AI

Stemming Hate

CUhackit

Fullbright Award

Faculty and School Highlights

- The MS CS Ready program is launched! It prepares those without undergraduate Computer Science degrees to enter the Master's of Science in Computer Science program at Clemson
- AI is being used to predict the onset of Alzheimer's disease in a collaborative relationship with the Medical University of South Carolina by Brian Dean
- Clemson Visualization research is ranked #4 by CSRankings.org in years 2016-2020
- The Artificial Intelligence Research Institute for Science and Engineering (AIRISE) was launched this year under the direction of Feng Luo
- AutoPri, an artificial intelligence system that detects photos with sensitive objects is being created by Hongxin Hu and Kelly Caine
- A new NSF MRI grant in 2020 under PI Amy Apon will enable extending the supercomputer at Clemson to support research on artificial intelligence, deep learning, and several AI application areas
- Stemming the tide of social media hate speech using AI - the HateDefender system - has been created by faculty members Long Cheng, Hongxin Hu, and Feng Luo with the help of high school student researchers
- Enodia, a collaborative visualization system is being developed by Brygg Ullmer with the support of an NSF MRI grant

Student Highlights

- A Fulbright Student Travel Award and a Swiss Research award were received by Jessica Baron, PhD student working with faculty member Eric Patterson
- Best Paper Award was received by coauthors Rohith and Roshan Venkatakrishnan at the ACM Symposium on Applied Perception (ACM SAP) 2020, both students in the Virtual Environments group led by faculty members Sabarish Babu and Andrew Robb
- Honorable Mention for Best Paper was co-authored by student David Brickler at the same conference.
- Honorable Mention for Best Presentation Award was received by both papers at ACM SAP
- Best Presentation Award was won by John Porter at the ACM Richard Tapia Conference 2020
- CUhackit returned in January 2020, with hundreds of students participating in Clemson's all-student-led hackathon, sponsored by Amazon Web Services. The event continues virtually in 2021!

3 New Faculty Members

Carrie Russell
Professor of Practice
M.S., Clemson University

More than ten years of technical and project management experience in the US military forces.

Connie Taylor
Professor of Practice
M.S., Johns Hopkins University

Thirty years of commercial software development experience building supply chain and healthcare systems.

Yin Yang
Associate Professor
Ph.D., University of Texas at Dallas

Computer graphics, animation, vision, simulation, robotics and other applied areas.

Degrees Offered

3 Undergraduate

BS Computer Science

BA Computer Science

BS Computer Info Systems

7 Graduate

PhD/MS Computer Science

PhD/MS Biomedical Data Science & Informatics

MFA/MS Digital Production Arts

PhD Human-Centered Computing

1,029 UNDERGRAD STUDENTS
As of 9/30/2020

- BS-CS
- BA-CS
- BS-CIS

267 GRADUATE STUDENTS
As of 9/30/2020
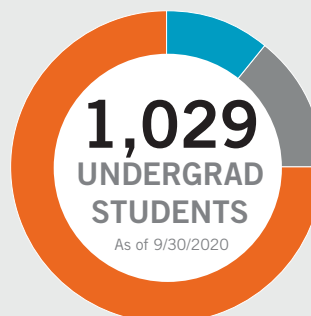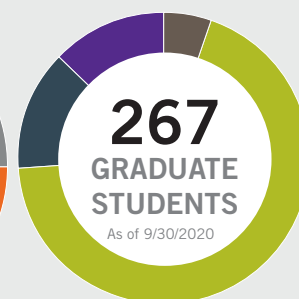
- PhD/MS CPSC
- PhD/MS BDSI
- MFA/MS DPA
- PhD HCC

Faculty

52 Total

39 Tenured/ Tenure Track

computing.clemson.edu

School of **COMPUTING**

Colgate University

Hamilton, NY USA

- Colgate University is a highly selective, private, liberal arts, undergraduate institution with roughly 2,900 students.
- We value high-quality teaching and we have a strong research culture. Our energetic faculty have active research programs and involve student researchers during the summer and the academic year.
- We are excited to have two new tenure stream Assistant Professors join the department in the 2020-21 academic year: Noah Apthorpe and Nick Diana.

Noah Apthorpe's research combines human-computer interaction, networks, and machine learning to study privacy & security implications of Internet of things devices.

Nick Diana studies how AI-driven instructional technologies can be used to help us engage in more productive civil discourse. A large part of this work involves developing value-adaptive interventions that allow users to recognize and mitigate the cognitive biases that reinforce information bubbles and political tribalism.

Research Highlights

- The department averages 15-20 undergraduate summer research fellows hosted during the summer, mentored by faculty members
- Papers co-authored with undergraduates published in each of the last three years; students have presented work at regional, national, and international conferences
- Faculty have secured external grants from NSF & DARPA as well as many internal grants, including from the Colgate Picker Interdisciplinary Science Institute

Other Highlights

- Two very active student clubs: Women in Computer Science and <ColgateCoders>
- Students run after-school coding lessons at the local elementary school
- Students won scholarships from CRA-W and other organizations to attend the Grace Hopper Conference (GHC) in each of the last four years
- The department is sending ~30 students to the virtual GHC and Tapia Conferences in 2020, and is committed to diversifying our student population

Student Numbers and Growth

- The department is committed to small class sizes; still, ~200 students take our CS1 course each year
- 250% increase in majors from class of 2015 to class of 2020, with students continuing on to top-tier industry positions and graduate programs
- Women make up nearly 50% of our majors
- We will be hiring at least 1 new tenure stream faculty member in 2021

@CSatCofC
compsci.cofc.edu

COLLEGE of CHARLESTON
COMPUTER SCIENCE
1770

CS at CofC: By the Numbers

3 floors of classroom, collaboration and research space directly on the Charleston Harbor
400+ undergraduate & graduate students
1 and only Computing in the Arts program in the state of South Carolina
32% female student population
5 undergrad degree programs
2 graduate degree programs
13 faculty members
7 research labs

Research clusters

- Health Informatics
- Cloud Computing
- Computing Education Research
- Cybersecurity and Software Security
- Earth Sciences Cyberinfrastructure
- Machine Learning and Data Science
- Data Mining and IoT Connectivity
- Acoustics, Music and Interaction

Degrees offered

BS Computer Science
BA Computer Science
BS Data Science
BA Computing in the Arts
BS Computer Information Systems

MS Data Science and Analytics
MS Computer & Information Sciences (joint program)

New Faculty Welcomed in 2020
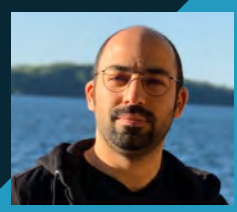
Dr. Navid Hashemi
Assistant Professor
PhD University of Georgia

Dr. Jonathan Sun
Associate Professor
PhD UC Irvine

DEPARTMENT OF COMPUTER SCIENCE

COLORADO SCHOOL OF MINES
EARTH • ENERGY • ENVIRONMENT

WELCOME! NEW FACULTY

Amelia Read
Joined Fall 2020
Assistant Professor

Phil Romig III
Joined Fall 2020
Professor of Practice

FACULTY HIGHLIGHTS

* Vibhuti Dave, CS@Mines Teaching Professor, was named **Dean of Undergraduate Studies** in April 2020.

* Dr. Hao Zhang receives tenure, promotion to Associate Professor, and an **NSF Career Award**. Dr. Zhang will receive $400,000 in funding for his project, "Robotic Reflection in Lifelong Adaptation."

* Professor Qi Han won the **Best Paper Award** at the 10th EIA MobiCASE Conference (China) and Best Student Paper at the 16th IEEE UIC Conference (UK).

* Assistant Professor Tom Williams received both the **NASA and AFOSR Early Career Awards**.

* CS@Mines Department Head Dr. Tracy Camp won **Best Paper** for the Experience Report and Tools Track at the 51st Annual ACM SIGCSE Technical Symposium.

OUTREACH PROGRAMS

* **C-START**: Offers Colorado K-12 educators professional development courses and workshops in computer science. https://cstart.mines.edu/
* **DECTech**: A program led by female students at Mines. DECTECH generates and fosters interest in STEM subjects. Offered to girls in elementary-high school. https://tech.mines.edu/
* **PATHS**: A Scholarship Program which assists academically talented students from low income areas. https://paths.mines.edu/

We have faculty openings! AND are looking for a new Dept Head!

Visit us at: cs.mines.edu

ORGANIZATIONAL NEWS

- CS@Mines launched degrees (Ph.D. and M.S.) and **Certificates in Robotics.**
- CS@Mines launched a new non-thesis master's degree in **Data Science**.
- **63 Scholarships** were awarded to students through our Computing-Mines Affiliates Partnership Program (C-MAPP).

STUDENT ACHIEVEMENTS, NUMBERS, & GROWTH

* Three CS@Mines students received a competitive 20-21 Department of Defense Cyber Scholarship (CySP) Award, which includes full tuition, room/board stipend, healthcare, a laptop, and a paid internship.

* CS@Mines M.S. students were part of a team that designed and built **MusicBox,** the best augmented reality/virtual reality platform at the 2020 Stanford TreeHacks.

* In 2020, CS@Mines graduate Hannah Lee was awarded a 5-year fellowship from the National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP). She's headed to UIUC for a Ph.D..

* Nhan Tran, a graduate student of CS, was selected as a 2020 Human-Robot Interaction (HRI) Pioneer.

* Computer Science Ph.D. candidate Ryan (Blake) Jackson was awarded the New & Future AI Educator Award at EAAI 2020.

* CS@Mines sophomore Zoe Baker was among the 396 college sophomores and juniors across the U.S. to receive the Barry Goldwater Scholarship and Excellence in Education Foundation.

* CS@Mines student Tommy Bennett was selected to attend the first inaugural Undergraduate Research Consortium held by the Association for the Advancement of Artificial Intelligence (AAAI) in NYC.

* Computer Science has grown again and is now the 2nd largest department at Mines! For Fall 2020, we have 791 undergraduate and 110 graduate students.

CS@Mines

Follow us on Twitter: @CSatMines

COMPUTER SCIENCE
COLORADO STATE UNIVERSITY

Craig Partridge
Chair

DEPARTMENT HIGHLIGHTS

- CSU named BRAID Affiliate School (2019-2020).
- Largest incoming class of women in department history (2019-2020).
- Record enrollment of women undergraduate students (2020-2021).
- $600K gift from the Center for Inclusive Computing at Northeastern University to propel diversity initiatives.
- Launched reworked undergraduate major with concentrations, the first of its kind in Colorado.
- Launched new Diversity Through Technology program in the College of Natural Sciences Learning Community.
- Partnered with College of Natural Sciences to launch and support new data science program, the first of its kind in the Rocky Mountain Region.

RESEARCH HIGHLIGHTS

- New NSF AI Institute partnerships: *Research on Trustworthy AI in Weather, Climate, and Coastal Oceanography*, and *Student-AI Teaming*.
- *Center for Cybersecurity Analytics and Automation* (NSF)
- *Software Infrastructure for Transformative Urban Sustainability Research* (NSF)
- *Communication through Gestures, Expression, and Shared Perception* (DOD Army)
- *NetBrane: Software Defined DDoS Protection Platform for Internet Services* (DHS)
- *A Scalable Infrastructure for High-precision Evapotranspiration Estimations and Effective Farm-level Decision Making* (USDA-NIFA)

FACULTY AND STUDENT HIGHLIGHTS

- **2 New Faculty** Nikhil Krishnaswamy and Nate Blanchard
- **ACM Fellow Award** Darrell Whitley
- **CSU Distinguished Administrative Professional** Debbie Bartlett
- **CSU Cochran Family Professorship** Sangmi Pallickara
- **CSU Scholarship Impact Award** Darrell Whitley
- **Most Influential Paper Award** IEEE SANER, Laura Moreno
- **Most Influential Papers of Last 30 Years** ISSRE, Yashwant Malaiya
- **Best Paper Award** ACM BDCAT, Kevin Bruhwiler and Sam Armstrong
- **First Place** ACM Tapia student research, Hajar Homayouni
- **Best Paper Award** IEEE CLUSTER, Saptashwa Mitra and Paahuni Khandelwal

34	813	171	39%	$16M
Tenure-track and Instructional Faculty	Undergraduates	Graduate Students	Women Undergraduates Online	Research Funding

Department of Computer Science
279 Computer Science Building
1873 Campus Delivery
Fort Collins, Colorado 80523-1873

Telephone: 970-491-5792

compsci.colostate.edu

#csucomputerscience

CS♕ @CU COMPUTER SCIENCE AT COLUMBIA UNIVERSITY

Major Faculty Awards

CHRISTOS PAPADIMITRIOU AWARDED THE HARVEY PRIZE

TAL MALKIN NAMED FELLOW OF THE INTERNATIONAL ASSOCIATION FOR CRYPTOLOGIC RESEARCH

EUGENE WU WINS NSF CAREER AWARD

SALVATORE STOLFO AND JASON NIEH ELECTED 2019 FELLOWS

Association for Computing Machinery

MIHALIS YANNAKAKIS NAMED RECIPIENT OF THE 2020 EATCS AWARD

MIHALIS YANNAKAKIS ELECTED TO THE AMERICAN ACADEMY OF ARTS AND SCIENCES

Test of Time Awards

MOTI YUNG — ERAN TROMER — STEVEN FEINER — SHREE NAYAR PETER BELHUMEUR

Cryptovirology: Extortion-Based Security Threats and Countermeasures (2009)
Award : IEEE Security and Privacy Test-of-Time Award
Authors : Adam Young & Moti Yung

Hey, you, get off of my cloud: exploring information leakage in third-party compute clouds (2009)
Award : ACM CCS Test-of-Time Award
Authors : Thomas Ristenpart, Eran Tromer, Hovav Shacham, and Stefan Savage

Evaluating the benefits of augmented reality for task localization in maintenance of an armored personnel carrier turret (2009)
Award : ISMAR Lasting Impact Paper
Authors : Steven Henderson & Steven Feiner

Attribute and Simile Classifiers for Face Verification (2009)
Award : ICCV Helmholtz Prize
Authors : Neeraj Kumar, Alexander C. Berg, Peter N. Belhumeur, and Shree K. Nayar

Best Paper Awards

KATHY MCKEOWN

A Good Sample is Hard to Find: Noise Injection Sampling and Self-Training for Neural Language Generation Models
INLG 2019
Authors : Chris Kedzie & Kathleen McKeown

DAN RUBENSTEIN   VISHAL MISRA

Virtual Wires: Rethinking WiFi networks
IEEE LANMAN 2019
Authors : Yudong Yang, Yuming Jiang, Vishal Misra, Dan Rubenstein

RONGHUI GU

Scaling Symbolic Evaluation for Automated Verification of Systems Code with Serval
SOSP 2019
Authors : Luke Nelson, James Bornholt, Ronghui Gu, Andrew Baumann, Emina Torlak, Xi Wang

JULIA HIRSCHBERG

SpatialNet: A Declarative Resource for Spatial Relations
NAACL 2019
Authors : Morgan Ulinski, Bob Coyne, and Julia Hirschberg

CHANGXI ZHENG   SHREE NAYAR

Audiovisual Zooming: What You See Is What You Hear
ACM Multimedia 2019
Authors : Arun Asokan, Nair Austin Reiter, Changxi Zheng, Shree Nayar

SHURAN SONG

TossingBot: Learning to Throw Arbitrary Objects with Residual Physics
RSS 2019
Authors : Andy Zeng, Shuran Song, Johnny Lee, Alberto Rodriguez, Thomas Funkhouser

ELIAS BAREINBOIM

General Identifiability with Arbitrary Surrogate Experiments
UAI-19
Authors : Sanghack Lee, Juan D. Correa, and Elias Bareinboim

KATY GERO

Mental Models of AI Agents in a Cooperative Game Setting
CHI 2020
Authors: Katy Ilonka Gero ity, Zahra Ashktorab, Casey Dugan, Qian Pan, James Johnson, Werner Geyer, Maria Ruiz, Sarah Miller, David R Millen, Murray Campbell, Sadhana Kumaravel, Wei Zhang

Department Numbers

CS@CU by the Numbers

#13 (tie) in *US News and World Report* ranking of US Computer Science Departments

1,299 CS majors / **12,521** CS class enrollments
43% of CS majors are women
(all students stats from Spring 2020)

59 Faculty
9 Elected to National Academy of Engineering
2 Elected to National Academy of Sciences
1 Elected to American Philosophical Society
1 Elected to Internet Hall of Fame
3 IEEE John von Neumann Medal Winners
5 AAAS Fellows
16 Alfred P. Sloan Foundation Fellows
19 ACM Fellows / 17 IEEE Fellows
7 Elected to American Academy of Arts and Sciences
1 Elected to National Academy of Inventors
2 ACM/IEEE Knuth Prize Winners
3 AAAI Fellows
3 ACL Fellows
3 Guggenheim Fellows
3 Packard Foundation Fellowships
NSF Awards: 3 PECASE, 31 CAREER, 2 NYI, and 4 PYI

CORNELL UNIVERSITY · FOUNDED A.D. 1865
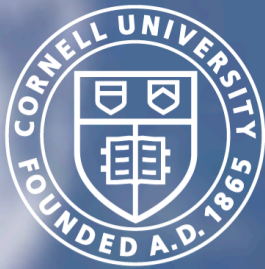
Cornell CIS
Computer Science

www.cs.cornell.edu

f @cscornell   🐦 @cs_cornell

Eight New Faculty

Abe Davis
Fall 2020, Ithaca
Graphics and Vision
Ph.D. MIT

Noah Stephens-Davidowitz
Fall 2020, Ithaca
Theory of Computing and Security
Ph.D. New York University

Anke Van Zuylen
Fall 2020, Ithaca
Algorithms
Ph.D. Cornell

Kevin Ellis
Fall 2021, Ithaca
Artificial Intelligence and Machine Learning
Ph.D. MIT

Owolabi Legunsen
Fall 2020, Ithaca
Software Engineering
Ph.D. Urbana-Champaign
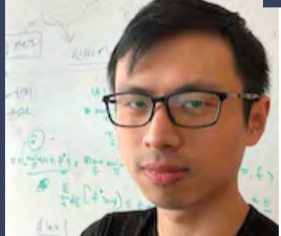
Wen Sun
Fall 2020, Ithaca
Machine Learning
Ph.D. Carnegie Mellon

Tapo Bhattacharjee
Fall 2021, Ithaca
Robotics and HCI
Ph.D. Georgia Tech

Emma Pierson
Fall 2021, New York City
Data Science and Machine Learning
Ph.D. Stanford

Faculty Highlights

ACM SIGGRAPH Graphics Achievement Award given to **Kavita Bala**

Kavita Bala and **Claire Cardie** named **ACM Fellows**

Éva Tardos elected to the **American Philosophical Society**

ACM SIGKDD Innovation Award given to **Thorsten Joachims**

USENIX Security Symposium **Distinguished Paper Awards** for **Rachit Agarwal** and **Thomas Ristenpart**

Multiple **Google Faculty Research Awards: Nate Foster and Thomas Ristenpart**

Hakim Weatherspoon won a **Microsoft Investigator Fellowship**

Amazon Research Award given to **Bharath Hariharan**

Excellence in Teaching awards to **David Bindel, Michael Clarkson, Christopher De Sa,** and **Bharath Hariharan**

Department-related News

Rediet Abebe and **Brittany Nkounkou** awarded PhDs., the CS department's first two Black female doctorates

Rediet Abebe won the **ACM SIGKDD Dissertation Award**

Cornell team, coached by **Haobin Ni**, won the bronze medal at the **International Collegiate Programming Contest**

CSMore received *Insight into Diversity*'s **Inspiring Programs in STEM Award**

Hopper-Dean gift funds establishment of **Office of Diversity and Inclusion** for Cornell CIS

Kavita Bala named **Dean** of CIS

Éva Tardos named **Chair** of Computer Science

Hakim Weatherspoon named **Interim Associate Dean** of Diversity and Inclusion

Center for Data Science for Enterprise and Society now open

By the Numbers

Faculty Members: **62**
Campuses: **2**
Undergraduate Students: **1,041**
Resident Ph.D. Students: **199**
Masters Students: **138**
Majors: **39.29% female**; **12.78% URM**
Incoming Ph.D. class: **45% female**, **5% URM**

Over 50% of all Cornell undergraduates take a class in CIS during their four-year degree; and **more than 10%** of all Cornell undergraduates major in one of the CIS fields.

One Department: Two Campuses.   Ithaca and New York City

CORNELL TECH

DEPAUL UNIVERSITY
SCHOOL OF COMPUTING

3 NEW FACULTY

Vahid Alizadeh
Software Engineering

Umer Huzaifa
Cyber-Physical Systems Engineering

Tony Lowe
Computer Science

SELECTED FACULTY GRANTS

- Lucia Dettori: *Collaborative Research: Chicago Alliance For Equity in Computer Science* (CAFÉCS) (NSF, $173,091)
- Isuru Godage: *Evolutionary Approach to Optimal Morphology and Control of Transformable Soft Robots* (NSF, $230,000)
- JP Labruyere: gift for equipment for the DePaul CyberSecurity lab ($100,000)
- Tanu Malik: *EarthCube Data Capabilities: Integration of Reproducibility into Community Cyberinfrastructure* (NSF, $331,932)
- Daniela Raicu & Jacob Furst: *REU Site: MedIX: Medical Informatics Experiences in Undergraduate Research* (NSF, $406,536)
- Thiru Ramaraj: *Sequence Resources for Cotton, a Model System for Allopolyploid Crops* (NSF, $139,025)
- DeSports: Connecting high school students' passion for gaming to future education and careers in computer science and STEM fields (CME Group Foundation)

STUDENT HIGHLIGHTS

- BS Computer Science student Tyler Nass was named one of Chicago Inno's "25 under 25" most promising and accomplished innovators in Chicago's tech and startup scene.
- DePaul's Security Daemons placed fourth nationally in the Collegiate Cyber Defense Competition (CCDC), which was held virtually this year. They were the only team showing all services up at the competition's end. The team won the Midwest Regional competition in March.
- Over 170 students from 18 colleges and universities gathered to build a software or hardware project in under 24 hours at DemonHacks, our third annual student hackathon.
- Each year, six students are selected to attend the Grace Hopper Celebration of women in computing.
- Graduate cybersecurity student Michael Vieth identified two zero-day vulnerabilities and was awarded with CVE-2019-11655 and CVE-2019-11656 from Microfocus as a result of his responsible disclosure.
- UPE hosted their third annual Women in Technology Event. About 100 attendees were able to meet and hear from keynote speaker Betty Shanahan and panelists from Google, Sprout Social, Senior Lifestyle, and ZS Associates.

STUDENT ORGANIZATIONS

Computer Science Society
DePaul Data Science Group
DePaul Fundamental Research in Academic Gaming (DeFRAG)
DePaul Information Systems Student Organization (DISSO)
DePaul's Organization for Inclusion in Tech (DOIT)
DePaul Robotics Club

HerCDM
Security Daemons
Upsilon Pi Epsilon (UPE)
WiCys (Women in CyberSecurity)
XD Roundtable

DePaul University

cdm.depaul.edu/computing

Duke UNIVERSITY | DEPARTMENT *of* COMPUTER SCIENCE

11 NEW FACULTY HIRES

Bhuwan Dhingra (2021), *NLP*

Brandon Fain (2020), *Education*

Matt Lentz (2021), *Systems*

Kartik Nayak (2019), *Security*

Michael Reiter (2021), *Security*

Ben Rossman (2020), *Theory*

Nicki Washington (2020), *Education*

Lisa Wills (2019), *Architecture*

Sam Wiseman (2021), *NLP*

Fan Zhang (2021), *Security*

Danyang Zhuo (2020), *Systems*

Jun Yang Named New Duke CS Chair

Jun Yang was named Chair of Duke Computer Science effective July 1, 2020, succeeding Pankaj Agarwal. Yang, Bishop-MacDermott Family Professor at Duke, has been with the department since 2001 and served as associate chair from 2017-2020.

RECENT STUDENT HIGHLIGHTS

Awards and Fellowships

- **CRA Awards for Outstanding Undergraduate Research:** Caroline Wang, Rohith Kuditipudi, Sachit Menon, Liang "Charles" Lyu.
- **Goldwater Scholarship:** Caroline Wang
- **Schwarzman Scholar:** Kevin Zheng
- **Google Graduate Fellowship:** Yuan Deng
- **DOD NDSEG Fellowship:** Barrett Ames
- **NSF Graduate Research Fellowship:** Vikram Aikat
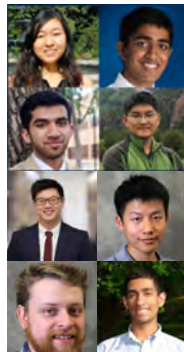
Academic Placements

Post-doctoral associates and graduating PhDs who accepted faculty positions:

- **Michael Albert:** UVA
- **Hsien-Chih Chang:** Dartmouth
- **Yu Cheng:** UI Chicago
- **Rupert Freeman:** UVA
- **Xi He:** U Waterloo
- **Seyed Zahedi:** U Waterloo

Curricular Updates

CS is the Biggest Major at Duke:
- 340 BA/BS Degrees Awarded in 2020 (35% Women)

Flexible Pathways:
- New Interdisciplinary Majors in Data Science, with Statistics and Mathematics
- New Interdisciplinary Major with Linguistics
- Plus more!
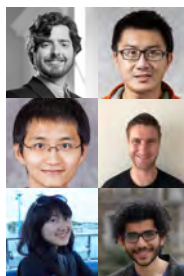
RECENT FACULTY AWARDS

- **ACM Fellow, AAAI Fellow:** Vincent Conitzer
- **ASA Fellow, IMS Fellow:** Cynthia Rudin
- **NSF CAREER Award, Sloan Fellowship:** Rong Ge
- **AAAS Fellow:** Donald Loveland, Emeritus
- **ACM Distinguished Members:** Kamesh Munagala and Jun Yang
- **ACM SIGARCH Berenbaum Distinguished Service Award:** Alvin Lebeck
- **CRA Habermann Award:** Carla Ellis, Emerita
- **Facebook Research Awards:** Kamesh Munagala and Lisa Wills
- **IEEE Booth Education Award:** Susan Rodger
- **INFORMS Innovative Applications in Analytics Award:** Cynthia Rudin
- **NSF 2026 Idea Machine Meritorious Prize:** Vincent Conitzer
- **National Center for Women and IT Undergrad Research Mentoring Award:** Susan Rodger

cs.duke.edu
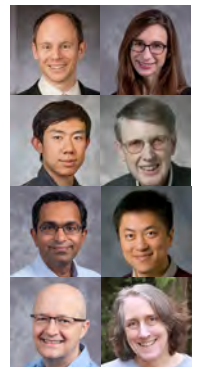
Department of Electrical Engineering and Computer Science
Embry-Riddle Aeronautical University
Daytona Beach, Florida
www.eecs.rocks

Programs and Enrollment

Program	Fall 2020(Δ)	Program	Fall 2020(Δ)
BS Computer Engineering	49 (-7)	MS Cybersecurity Engineering	14 (-7)
BS Computer Science	90 (+23)	MS Electrical and Computer Engineering	23 (-1)
BS Electrical Engineering	82 (+5)	MS Software Engineering	11 (-4)
BS Software Engineering	57 (-8)	MS Systems Engineering	5 (-3)
Undergraduate	*278 (+13)*	MS Unmanned and Autonomous Systems Engineering	10 (+1)
		PhD in Electrical Engineering and Computer Science	25 (+4)
		Graduate	*88 (-10)*

New Faculty

David Bethelmy
Assoc. Prof. CS
(Visiting)
Data mining
Aspect mining

Qi Cheng
Assoc. Prof. ECE
AI/ML, statistical
signal processing

Laxima Kandel
Asst. Prof. ECE
Wireless security
wireless sensing

Representative Grants and Contracts
- Babiceanu, "Data Link Security Analysis with Threat Modeling, Simulation Testbed and Prototype Risk Assessment Tool". Federal Aviation Administration. $1.070M/1yr.
- Butka et al., Multi-Domain Approach to Increased USV [Unmanned Surface Vehicle] Capability for Future Naval Missions, ONR, $900k, five years.
- Rojas, "Additively Manufactured 3D Reconfigurable Antennas". NSF CAREER, $515k/5yr.
- Song, "Bolstering UAV Cybersecurity Education through Curriculum Development with Hands-on Laboratory Framework". NSF Secure and Trustworthy Computing, $320k/3yr.
- Stansbury, "Integrating Expanded and Non-Segregated UAS Operations into the NAS: Impact on Traffic". FAA, $255k/2yr.
- Stansbury, "Research-based Enhancement of STEM ROTC Training in Aviation Cybersecurity". ONR, $250k/1yr.
- Wilson et al., Using Scrum to Develop an Agile Department. NSF RED, $2M/five years

Points of Note
- Research directions: Agile in academia; aviation cybersecurity; aerospace systems engineering; modeling/simulation; additive manufacturing in μwave applications
- Twenty faculty members; anticipating open positions
- Faculty affiliated with ASSURE (FAA COE for UAS), TTHP (FAA COE for Technical Training and Human Performance), EFRC (Eagle Flight Research Center), NEAR (Next-Generation Embry-Riddle Applied Research) Lab
- Hands-on undergraduate and master's programs; increasingly accurate approximation to engineering/computing practice
- Two-semester cross-disciplinary capstone (all EECS undergrad programs) using Scrum
- Near 100% placement
- Employers of recent graduates: Amazon, Boeing, Collins Aerospace, General Dynamics, Google, Harris, Intel, Lockheed Martin, Microsoft, Northrop Grumman, Thales

Student Organizations and Projects
- ACM & UPE
- Artificial Intelligence Club
- EcoCAR
- IEEE & IEEE HKN
- Robotics Association (AUVSI)
- Tech Eagles (HackRiddle hackathon)
- White Hat Eagles Cybersecurity Club

DEPARTMENT SUMMARY

- 15 Tenured and Tenure Track faculty
- 3 Faculty on Continuous Lecture Track
- Three faculty members received NSF and NIH Early Career Awards
- Faculty & Student research funded by NSF, NIH, PCORI, AFOSR, DOE, IARPA, various other corporations, agencies, and foundations.
- Major Research Areas: AI, HCI, Information Retrieval, Graph and Data Mining, Machine Learning, NLP, High Performance Computing and Storage, Security and Privacy.

UNDERGRADUATE PROGRAMS

- BS and BA Degrees in Computer Science
- Joint degrees with Math, QTM, Econ (coming)
- 269 majors, 84 degrees in 2020, 6 students with Highest Honors, 14 awards/scholarships
- ~2000 students enroll in CS each year

GRADUATE PROGRAMS

- Interdisciplinary PhD and MS programs in Computer Science and Informatics (CS, BMI, BIOS)
- 67 PhD students, 28 MS students
- Recent graduate placements include USC, UCSD, UNCC, Amazon, Facebook, Google, Microsoft, Etc

STUDENT ACTIVITIES

- Vibrant and engaged student community
- Student team wins 2019 Amazon Alexa 1st prize for Conversational AI

- Active undergraduate *ProgramHers* club promotes BPC and Women in Computing

NEW FACULTY

Emily Wall
Asst. Prof

Carl Yang
Asst. Prof

Liang Zhao
Asst. Prof

FACULTY HIGHLIGHTS

Eugene Agichtein
Promotion to Full Professor

Steve LaFleur
Promotion to Senior Lecturer

Jinho Choi
Amazon Alexa Lead/Advisor

SELECTED AWARDS AND HONORS

- Faculty Recognitions
  - Educator of the Year: *Nosayba El-Sayed*
  - Researcher of the Year: *Joyce Ho*
  - Citizen of the Year: *Dorian Arnold*
  - Professor of the Year: *Jinho Choi*

- Research and Teaching
  - Ymir Vigfusson, students Karimi & Zhang win SIGMETRICS best paper award
  - Joyce Ho and student Sotoodeh receive AMIA nomination for outstanding paper
  - Agichtein is ACM WSDM 2021 PC co-chair, Li Xiong is IEEE Big Data 2020 PC co-chair.
  - Winter School on Quantum Computing 2019
  - Davide Fossati innovates in teaching CS1 via flipped classroom and novel evaluation schemes

- Selected Grants
  - Li Xiong received NSF RAPID Covid-19 contact tracing with differential privacy
  - Liang Zhao receives NSF Career award and three other NSF grants
  - Eugene Agichtein, Jinho Choi, Li Xiong, Ymir Vigfusson, Dorian Arnold, Avani Wildani, have industry grants/partnerships.

SCHOOL OF COMPUTING & INFORMATION SCIENCES
Florida International University

FIU

Engineering & Computing

School of Computing & Information Sciences

NEW FACULTY

Hadi Amini, Ph.D., Electrical and Computer Engineering, Carnegie Mellon University (2019). His research interests include machine learning and optimization algorithms, distributed computing and intelligence, sensor networks, interdependent networks, and cyber–physical resilience.

Janki Bhimani, Ph.D., Northeastern University, Boston (2019). Her primary research focus revolves around Flash–Based Storage Systems, Big Data Processing, Cloud Computing, High–Performance Computing, and Parallel and Distributed Computing.

Amin Kharraz, Ph.D. Information Assurance – Systems Security, Northeastern University (2017). His research focuses on building systems to facilitate a data–driven approach to security.

NEW BS IN CYBERSECURITY

Starting in the fall of 2020, FIU is offering a NEW bachelor's degree in cybersecurity that will prepare graduates for careers in a high–demand field. The curriculum ties in with FIU's master's in cybersecurity, and our university research efforts.

This program joins our 3 other undergraduate programs: Computer Science (BA &BS), BS in Information Technology, as well as our 6 graduate programs: Masters in Data Science, Computer Science, Cybersecurity, Information Technology, Telecommunications and Networking, and Ph.D. in Computer Science.

FACULTY HIGHLIGHTS

- 46 faculty: 11 professors, 11 associate professors, 8 assistant professors, 16 teaching professors.
- 7 NSF CAREER Award winners and 1 DOE CAREER Award winner.
- 9 SCIS Faculty are Fellows of NAE, IEEE, ACM, AAAS and AIMBE among others.
- 4 faculty members are recognized as ACM Distinguished Scientists.
- 1 faculty member received two IEEE Computer Society Awards (Taylor Booth Award, and William E. Sayle Award), and 2 received Test of Time Awards (IEEE Research Award and ETAPS Award).
- Many of our faculty are also IEEE distinguished scientists, Fulbright scholars, SIAM Distinguished Lecturers, and ACM Distinguished National Lecturers.

RESEARCH HIGHLIGHTS

- 28 awarded grants since Jan. 2020
- 39% increase in Contracts and Grants revenue
- 22% increase in number of proposals
- 41% increase in funding requested
- 21 patents with SCIS inventors, co-inventors granted in the last 3 years.
- NSF HERD report ranks FIU #42 in computer science research expenditures, top 30 in public research universities.

STUDENT GROWTH IN 5 YEARS

↑ **42%** Bachelors   ↑ **30%** Masters   ↑ **28%** PhD

More information about the School can be found at https://www.cis.fiu.edu/

George Mason University
Department of Computer Science
https://cs.gmu.edu

Fast Facts:

- Number of faculty: 60 (45 tenured and tenure-track, 15 teaching faculty)
- Undergraduate student enrollment: 1,982 (20% growth per annum over last 5 years)
- Graduate student enrollment: 134 (Ph.D. program), 325 (in four M.S programs)
- Research Expenditures (FY 19): $14.5M

Recent Faculty Hires

PhD., University of Notre Dame

Area: Natural language processing

Antonios Anastasopoulos

PhD., North Carolina State University,

Area: Software engineering; program analysis, ethics in SE

Brittany Johnson

PhD., Massachusetts Institute of Technology

Area: Robotics, machine learning

Gregory Stein

PhD., University of Texas Austin

Area: Machine learning foundations, randomized algorithms

Xue Chen

PhD., William and Mary

Area: Software maintenance and evolution, mining software repositories

Kevin Moran

PhD., University of Illinois at Urbana-Champaign

Area: AI systems, Internet of Things, cyber-physical systems

Shuochao Yao

PhD., Massachusetts Institute of Technology

Area: AI, machine learning, computational social science

Sanmay Das

PhD., Rice University

Area: Robot motion planning

Erion Plaku
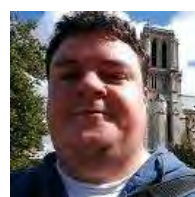
PhD., Georgia Tech

Teaching Faculty

Brian Hrolenok

PhD., University of Maryland

Area: Networked systems, video streaming, AR/VR/MR, Internet of Things

Bo Han
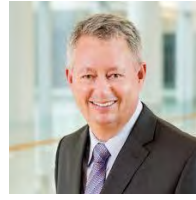
PhD., Stanford University

Area: Software engineering, distributed systems, machine learning

David Rosenblum
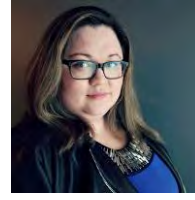
PhD., Colorado Technical University

Teaching Faculty

Shahnaz Kamberi

Recent Highlights:

- Mason launches School of Computing (SoC), the first such school in Virginia. The goal is to highlight the strategic importance of computing not only in majors such as computer and information science but also in disciplines being transformed by computational techniques, such as biochemistry, marketing, health administration, public policy and the humanities.
- Assistant Professor Lap Fai "Craig" Yu wins NSF Career Faculty Award.
- Assistant Professor Samuel Dov Gordon wins Google Faculty Research Award
- Associate Professor Emerita Pearl Y. Wang awarded Fellow of CSAB.

Georgetown University
Department of Computer Science

Georgetown University's Department of Computer Science offer BS/BA, MS and PhD programs. Our faculty perform research in many areas including algorithms, AI, bioinformatics, computer and network security, cryptography and privacy, database systems, data mining, distributed algorithms, human-computer interaction, information assurance, information retrieval, machine learning, networking, parallel algorithms, systems, theory, and visual analytics. Being in the heart of Washington, DC gives our students a strong quality of life and opportunities to engage in public and private sector internships, local computing groups, and regional events.

New tenure-line faculty since 2018:

Matt Blaze
McDevitt Chair
Cryptography, computer and network security, technology policy

Sasha Golovnev
Computational complexity, algorithms, pseudorandomness, cryptography, and learning theory

Benjamin Ujcich
Security, networking, systems, provenance, accountability, data protection

Nitin Vaidya
McDevitt Chair
Distributed computing, Secure machine-learning

New instructional faculty since 2018:

Philip Buffum
Assistant Teaching Professor
Intelligent virtual agents, game-based learning

Raymond Essick
Assistant Teaching Professor
Switched and hybrid systems control

Recent awards:

- Matt Blaze and co-authors received the IEEE Security and Privacy Test-of-Time Award for their 1996 paper titled *Decentralized Trust Management*.

- Wenchao Zhou and co-authors received the Best Paper Award for their 2020 EDBT paper titled *Provenance for Probabilistic Logic Programs*.

- Kobbi Nissim and co-authors received the 2019 Caspar Bowden PET award.

- Justin Thaler received a 2019 CAREER award from the National Science Foundation for research on "The Polynomial Method in Complexity and Cryptography".

- Cal Newport and co-authors received the Best Paper Award at the 22nd International Conference on Principles of Distributed Systems (OPODIS).

Highlights:

- Our PhD students are guaranteed 5 years of funding.

- Computer science undergraduate class of 2020 was close to gender neutral, consisting of 47% women and 53% men.

- Our women coders group (guWeCode) focuses on building digital literacy and a community of technologists across campus.

- Hoya Hacks hackathon is organized annually at Georgetown University.

CSE Transitions Under New Leadership and Provides Covid-19 Insights
@GTCSE

By the numbers:
- **Tenure-track faculty: 19**
- **Student enrollment numbers for FY20: 177 total, Male: 126, Female: 51**
- **Master's Students: 106**
- **Ph.D. Students: 71**

New Faculty Hires:
- Assocaite Professor **Elizabeth Cherry**: Cherry's research focuses on mathematical biology with an emphasis on cardiac electrophysiology and arrhythmias.
- Assistant Professor **Srijan Kumar**: Kumar's research focuses on using data science and applied machine learning to understand and improve online behaviors and how they impact society.
- Associate Professor **Aditya Prakash**: Prakash's research focuses on developing new data science and machine learning techniques for networks and sequences.
- Assistant Professor **Xiuwei Zhang:** Zhang's research focuses on data science, method development, and data analysis with an emphasis on computational biology.

Organizational News:
- Professor **Srinivas Aluru** served as the Interim Chair of CSE unil August 2020.
- Regents' Professor **Haesun Park** was named as the new Chair of CSE.

Research Highlights:
- Bolstered by a new four-year, multimillion-dollar Defense Advanced Research Projects Agency grant, a team of researchers led by Associate Professor **Polo Chau**, will create deception-resistant ML technologies with an emphasis on object detectors for the Guaranteeing AI Robustness against Deception (GARD) program.
- Associate Professor **Aditya Prakash** and Ph.D. student **Alexander Rodriguez** are lead investigators on a Covid-19 forecasting project with the Centers for Disease Control and Prevention.
- Assistant Professor **Srijan Kumar** developed a data science pipeline to leverage social media signals to measure how targeted hate and racism has spread worldwide, and how we can use data-driven solutions to forecast these attacks.

Faculty News:
- Professor **Haesun Park** and Joint Professor **Surya Kalidindi** were named Regents' Professors.
- Assistant Professor **Chao Zhang** was selected as the winner of the 2019-2020 Google Faculty Research Award for the category of structured data.
- Regents' Professor **Haesun Park** was named as a Georgia Tech Face of Inclusive Excellence.
- Assistant Professor **Tobin (Toby) Isaac** was named as the new Catherine M. and James E. Allchin Assistant Professor.
- Associate Professor **Le Song** received the 2020 College of Computing Outstanding Senior Research Faculty Award.
- Regents' Professor **Richard Fujimoto** was named a Fellow for three different organizations this year: Institute of Electrical and Electronics Engineers Fellow, a 2019 Interservice/Industry Training, Simulation and Education Conference Fellow, and the 2020 Fellow for the Society for Modeling and Simulation International
- Professor **Srinivas Aluru** and Professor and Associate Chair **Ümit V. Çatalyürek** have both been inducted into the 2020 Class of Society of Industrial and Applied Mathematics (SIAM) Fellows.
- Joint CSE Regents' Professor **Mark Borodovsky** was elected as an International Society for Computational Biology (ISCB) Fellow.

cse.gatech.edu

School of Computer Science
@gatech_scs

By the numbers:

- **39 professors**
- **168 Ph.D. students**
- **$39 million in research funding**

Faculty News

- Professor **Vivek Sarkar** is the new chair of the school.
- **Jacob Abernethy** has been promoted to associate professor, and **Hyesoon Kim** and **Santosh Pande** are now professors.
- Professor **Moinuddin K. Qureshi** joins us with his expertise in computer architecture, memory systems, hardware security, and quantum computing.

Innovations

- A team of researchers led by Assistant Professor **Joy Arulraj** applied fuzzing techniques to find bugs in database management systems with a new toolchain called APOLLO.

- Professor **Hyesoon Kim** and her students created Vortex, a reconfigurable GPGPU accelerator that uses an extended open-source reduced instruction set computer (RISC), to make research more accessible.

- Ph.D. alumnus **Ahmed Saeed** identified a new congestion problem and developed a new congestion control scheme to alleviate the slow down, Annulus.

- Ph.D. student **Prithayan Barua** worked on a control circuit for a 3-D printed ventilator that empowers patients.

- Professor **Milos Prvulovic** and other researchers discovered a new side-channel attack that can be used to extract sensitive data even if the attacker is 10 feet away or even separated by a wall.

Accolades

- Chair **Vivek Sarkar** was named an IEEE fellow.

- Professor **Alexandra Boldyreva** won a Test of Time Award from the International Conference on Practice and Theory in Public Key Cryptography (PKC) for her work on new multi-user digital signatures.

- Professor **Wenke Lee** was honored with the ACM Special Interest Group on Security, Audit and Control (SIGSAC) Outstanding Innovation Award for his pioneering contributions to network and systems security.

- Assistant Professor **Alexandros Daglis** earned a Google Faculty Research Award for his work in systems.

- Ph.D. student **Aditi Laddha** received Microsoft's Ada Lovelace Fellowship.

scs.gatech.edu

School of Interactive Computing
@ICatGT

School Leadership:
- **Ayanna Howard**, Chair
- **Amy Bruckman**, Associate Chair
- **Rosa Arriaga**, Associate Chair for Graduate Affairs
- **Ashtria Jordan**, School Administrative Officer

Organizational News:
- IC Professor **Charles Isbell** began his term as Dean of Georgia Tech's College of Computing on July 1, 2019.
- In collaboration with the College of Computing and the Ivan Allen College of Liberal Arts, IC helped launch the Ethics, Technology & Human Interaction Center for Society.
- IC Principle Research Scientist Rosa Arriaga was named Associate Chair of Graduate Affairs in the School of Interactive Computing.

Other News:
- The School was awarded $10 million in new research funding in FY20, bringing the total in its 14-year history to over $90 million.
- IC Professor **Dhruv Batra** was named a PECASE Award winner, one of three at Georgia Tech..
- **Charles Isbell** and **Ashok Goel** were named AAAI Fellows at AAAI 2019.
- Associate Professor Michael Best spoke at the United Nations during the formal release of a research report by the EQUALS Global Partnership, highlighting impacts of technology on women.
- Professor Beth Mynatt was named Regents' Professor by the University System of Georgia Board of Regents.

New Faculty Hires:
- **Sehoon Ha**, Assistant Professor, Robotics, AI, Character Animation; joined IC after a year as a research scientist at Google Brain.
- **Chris Le Dantec**, Associate Professor, Digital Media, Science and Technology Studies; joined IC after time as faculty in Georgia Tech's Ivan Allen College of Liberal Arts.
- **Andrea Grimes Parker**, Associate Professor, Human-Computer Interaction, Computer Supported Cooperative Work, Health Informatics; joined IC after time as faculty at Northeastern University.
- **Alan Ritter**, Associate Professor, Natural Language Processing, Information Extractions, Machine Learning; joined IC after time as faculty at the Ohio State University.
- **Sashank Varma**, Professor, Memory Systems Supporting Language Processing, Computational Models of High-Level Cognition; joined IC after time as faculty at the University of Minnesota.
- **Wei Xu**, Assistant Professor, Natural Language Processing, Machine Learning, Social Media; joined IC after time as faculty at the Ohio State University.

Research Highlights:
- IC Professor **Frank Dellaert** earned two separate Test of Time awards at the International Conference on Robotics and Animation and the Robotics: Science and Systems conference.
- A team of researchers led by Professor **Ashok Goel** reached the semifinals of the IBM AI XPrize competition for their work on Jill Watson, an AI teaching assistant that has helped revolutionize online learning. The addition of VERA, a system that enables students to create their own ecological models from a web browser in a biology course, and a social agent established new elements to the project.
- Professor Jim Rehg's lab was part of two separate **$5M** grants, one to develop more effective personalized treatment approaches for chronic health conditions and one to develop AI tech supporting individuals with Autism in the workplace.
- Associate Professor **Betsy DiSalvo** and collaborators earned a $1.5M grant to build smart community capacity for DataWorks, an employment and education program in data science for minoritized communities.

Student Highlights:
- **IC FY21 enrollment numbers:** 170 Ph.D. students, 127 Master's students; 276 total Ph.D. graduates to date

DEPARTMENT OF COMPUTER SCIENCE

827
HMC UNDERGRADS

50/50
OVERALL GENDER DIVERSITY

No. 6
MOST INNOVATIVE SCHOOLS
U.S. NEWS & WORLD REPORT

PERCENT FEMALE IN CS MAJORS
43% CS | **43%** CS/MATH | **74%** MATH-COMP-BIO

No. 20
COMPUTER SCIENCE PROGRAM
(HIGHEST-RANKED UNDERGRAD-ONLY COLLEGE)
U.S. NEWS & WORLD REPORT

$107,500
MEDIAN GRAD SALARY
(2019)

Harvey Mudd College offers a computer science program that provides students with a strong background blending experimentation, theory and design. Computer science majors are exposed to a balance of foundational theory and practice that includes collaborative, hands-on student-faculty research experiences. Through its internationally recognized Clinic Program, students conduct advanced research for industry, government and nonprofit clients. Well-prepared HMC graduates go on to prominent PhD programs and innovative jobs with top companies.

GRANT ACTIVITY

- "A Consortium for Cultivating Future Artificial Intelligence Researchers," NSF, $45,900
- Research Experience for Undergraduates (focusing on computer systems, with an eye toward search, artificial intelligence and data science), NSF, $382,668
- "Finding Best Representative Phylogenetic Tree Reconciliations," NSF, $498,458
- "Collaborative Research: Optimizing and Understanding Large Parameter Spaces in Storage Systems," NSF, $264,875
- "Math for America Los Angeles: Elevating Mathematics and Computer Science Instruction through Teacher Leadership," NSF, $426,629

STUDENT AWARDS

- First place, UC San Diego 2019 SD Hacks intercollegiate hackathon
  - A tool created by Harvey Mudd students helps developers consider the environmental impact of their code.
- Best Paper, "Competitive Enrollment Policies in Computing Departments Negatively Predict First-Year Students' Sense of Belonging, Self-Efficacy, and Perception of Department," SIGCSE 2020 Technical Symposium
- Best Paper, "The Bias-Expressivity Trade-off," 12th International Conference on Agents and Artificial Intelligence
- CRA 2020 Outstanding Undergraduate Researcher Awards
  - Finalist: Ivy Liu '20. Develops and applies computational methods to facilitate biomedical research.
  - Honorable mention: Daniel Bashir '20. Seeks to determine how much an algorithm will overfit or underfit the data.

NEW TENURE-TRACK FACULTY

Lucas Bang, assistant professor
Software verification and formal methods for security
PhD, University of California, Santa Barbara

George Montañez, assistant professor
Computer science, algorithmic search and mathematics
PhD, Carnegie Mellon University

Xanda Schofield '13 (CS & math alumna) assistant professor
Large-scale corpus text mining tools, distributional semantic models
PhD, Cornell University

Erin Talvitie, associate professor
Machine learning and artificial intelligence
PhD, University of Michigan

SELECTED RECENT CLINIC PROJECTS

- Los Angeles Regional Food Bank: "Food Waste Analysis Through a Handheld Scanner App"
- Lawrence Livermore National Laboratory: "GPU-Accelerated Visualization of High-order Physics"
- Dassault Systèmes BIOVIA: "Predicting Antibody Developability From Sequence Using Machine Learning"
- Google: "Google Education: Applied Machine Learning Intensive Clinic"

Located in Hempstead, New York, the **Fred DeMatteis School of Engineering and Applied Science** – ranked **#33** among 220 non-PhD-granting engineering schools in *U.S. News & World Report's* 2021 Best Colleges rankings – is home to Hofstra's Computer Science and Engineering departments. The DeMatteis School offers students hands-on research experience in state-of-the-art laboratory facilities; valuable preprofessional, on-the-job experience; and collaborative relationships with professors who are leaders in their fields.

▸ The Master of Science in Computer Science is ranked among the **30 best online master's degree programs** in computer science (Online Schools Report, 2019).

▸ **Over 90%** of recent DeMatteis students were **employed or enrolled in graduate school** within one year of graduation.†

▸ The new, interdisciplinary **Cybersecurity Innovation and Research Center** is equipped with cutting-edge technology and simulation software that trains students to detect and defend against cybercrime and create partnerships among industry, government, and education to analyze threats and strengthen network security.

DEPARTMENT OF COMPUTER SCIENCE DEGREE PROGRAMS

Students acquire a strong foundation in programming and application development, algorithms, computer architecture, operating systems, networking, and software engineering. In addition, the department offers elective courses in topics such as cybersecurity, data analytics, computer graphics, computer games, mobile and web application development, artificial intelligence, and embedded systems.

- BA, Computer Science
- BS, Computer Engineering*
- BS, Computer Science*
- BS, Computer Science and Cybersecurity
- BS, Computer Science and Mathematics
- BA/MS, Computer Science
- BS/MS, Computer Science
- MS, Computer Science
- MS, Cybersecurity (Technology)

ABET-accredited

EXPERIENTIAL LEARNING

DeMatteis Co-op Program:
Undergraduate and graduate students can work for a period of six to eight months in paid positions at one of 200 technology firms nationwide and gain hands-on experience in a field related to their major.

Advanced Summer Program in Research (ASPiRe):
Competitive stipends are offered to undergraduate engineering and computer science students who pursue advanced scientific research, with faculty guidance, in areas related to their major.

Hofstra in Silicon Valley:
This weeklong trip allows computer science students to get an inside look at top-tier West Coast technology companies.

~ NEWS ~

Professor of Computer Science **Xiang Fu, PhD**, was named Hofstra's 2020 Mentor of the Year, an annual award that honors outstanding faculty supervision of advanced undergraduate research. This is the second consecutive year that a faculty member from the DeMatteis School has received this honor.

Edden Kashi, a May 2020 Hofstra computer science graduate, earned several prestigious honors for her research on online user tracking technology, including best undergraduate poster session at the 2020 Women in Cybersecurity (WiCyS) Conference and honorable mention at the 2020 National Center for Women & Information Technology Collegiate Award competition. In addition, a research paper based on Kashi's work was accepted for peer-reviewed publication at the International Human-Computer Interaction Conference (HCII'20). Her research was done under the guidance of her faculty mentor, Dr. Angeliki Zavou. Kashi is now a graduate student at NYU.

The DeMatteis School continues to lend the extensive computing power of its **Big Data Laboratory** to a global project, the Folding@home initiative, which is studying the protein malformations that can lead to COVID-19 and diseases such as Alzheimer's disease, cystic fibrosis, and cancer.

FEATURED RESEARCHER — Simona Doboli, PhD, Professor of Computer Science

Grants:
- Facilitating the Survival and Development of Novel Ideas in Collaborative Innovation - ARO
- Automated Scenario Generation from Public Datasets for Simulation-Based Training in Surgery – Stemmler Fund

Recent Publications:
- A. Doboli, X. Liu, H. Li, S. Doboli. (2019). Modeling Group Creativity as the Evolution of Community-Level, Creative Problem Solving. Chapter 10 in P.B. Paulus and B.A. Nijstad (Eds.), *The Oxford Handbook of Group Creativity and Innovation*, Oxford University Press.
- L.E. Coursey, R.T. Gertner, B.C. Williams, J.B. Kenworthy, P.B. Paulus, S. Doboli. (2019). Linking the Divergent and Convergent Processes of Collaborative Creativity: The Impact of Expertise Levels and Elaboration Processes, *Frontiers in Psychology*, Vol. 10.
- H. Li, X. Liu, F. Jiao, A. Doboli, S. Doboli. (2018). InnovA: A Cognitive Architecture for Computational Innovation Through Robust Divergence and Its Application for Analog Circuit Design. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems 37*(10): 1943-1956.

Illinois Institute of Technology
Department of Computer Science
https://www.iit.edu/computer-science

Stats

Research Funding (2019-20):
- Awards: $5,640,000
- Expenditures: $5,375,000

Students (Fall 2020):
- Undergraduate majors: 540
- Master's students: 550
- PhD students: 62

Faculty (2020):
- Tenured/Tenure-Track: 21 faculty
- Research/Industry: 5 faculty
- Teaching: 7 faculty

- 6 NSF CAREER/DoD YIP Awardees
- 80% of Full Professors Society Fellows
- 4 best paper awards 2019-2020

Highlights

Institution
- New College of Computing, headed by Dean Lance Fortnow
- Prof. Cindy Hood leading an NCWIT Learning Circle developing new ways to increase CS student diversity
- Active student chapters of ACM, ACM-W, NCWIT, and UPE, and the ML@IIT machine learning club

Research
- Prof. Sanjiv Kapoor funded (NSF) to research relationships between shelter-in-place restrictions and COVID-19 infection rates
- Prof. Mustafa Bilgic leads an interdisciplinary team researching how to mitigate filter bubbles by developing transparent and interactive recommendation algorithms (NSF)
- Prof. Xian-He Sun leading $3M project funded by NSF to transform big data computing through intelligent very high performance I/O
- NSF-funded BigDataX (Big Data computing at eXtreme scales) summer REU program, in its sixth year, with students consistently winning awards at the IEEE/ACM Supercomputing Conference
- Dr. Christopher Hannon awarded College of Science Dissertation Excellence Award for work on energy grid security

Welcome to Our New Faculty!

Yue Duan (Aug 2020)
Gladwin Chair Asst. Professor
PhD, UC Riverside
Cybersecurity, Deep Learning

Stefan Muller (Aug 2020)
Gladwin Chair Asst. Professor
PhD, CMU
Programming Languages, Parallelism
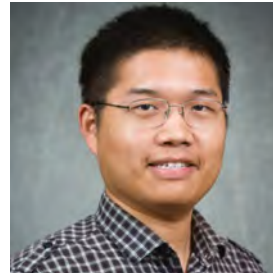
Kai Shu (Aug 2020)
Gladwin Chair Asst. Professor
PhD, Arizona State U.
Data Mining, Social Computation

Yan Yan (Jan 2021)
Gladwin Chair Asst. Professor
PhD, U. Trento (Italy)
Computer Vision, Multimedia

Degree Programs

Undergraduate Majors
- Artificial Intelligence *(First such major in the Midwest!)*
- Computer Science
- Computer Information Systems

Masters Degrees
- MSc in Computer Science
- MSc in Computational Decision Science and Operations Research
- Master of Artificial Intelligence
- Master of Computer Science
- Master of Cybersecurity
- Master of Data Science

Doctor of Philosophy in Computer Science

Enrollment Trends

(Bar chart showing Undergraduate, Masters, and PhD enrollment for 2019 and 2020; vertical axis 0 to 600)

Legend: Undergraduate | Masters | PhD

ILLINOIS TECH | College of Computing

Discover. Create. Solve.
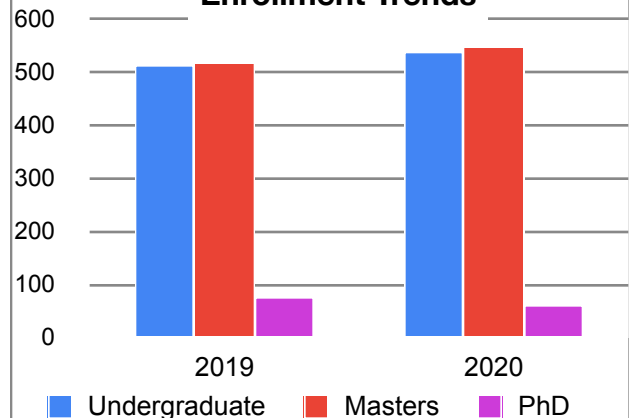
IOWA STATE UNIVERSITY
Department of Computer Science

Department Overview

29 Tenured and Tenure-track faculty   **24%** TT faculty are **women**

8 NSF CAREER award winners, **1** AFOSR Young Investigator Award, **1** Fullbright Scholar, **3** ACM Distinguished Members, **1** IEEE Fellow, AAAS Fellow and European Academy of Sciences Fellow

More than **$5 Million** of NEW external funding since 2018

#11 in Software Engineering

#19 in Embedded and Real Time Systems

#33 in Robotics

#60 in Artificial Intelligience

{csrankings.org} Sept. 2020

CLUSTERS OF RESEARCH EXPERTISE:

- Artificial intelligence and machine learning
- Bioinformatics
- Data Science
- Robotics
- Software engineering, programming languages and formal methods
- Systems and Networking
- Theoretical computer science

MULTI-DISCIPLINARY RESEARCH IN:

- Computational biology
- Human computer interaction
- Information security

undergraduate

680 Computer Science

49 Data Science

784 Software Engineering

graduate

56 M.S.

128 Ph.D.

New Faculty

since Fall 2017

Forrest Bao

Myra Cohen

Hongyang Gao

Ali Jannesari

Jim Lathrop

Qi Li

Chris Quinn

Tichakorn Wongpiromsarn

1 of 17 land-grant members of

Association of American Universities
Inquiry · Innovation · Impact

RESEARCH

$2.5 M EXPENDITURES

$5.5 M NEWLY AWARDED GRANTS

4 CORE AREAS

CYBERSECURITY

AI AND DATA SCIENCE

CYBERPHYSCIAL SYSTEMS

HIGH ASSURANCE SOFTWARE

HEADLINES
(click links)

🔗 **NEW CERTIFICATE IN COMPUTER SCIENCE**

🔗 **NSF RENEWS CYBERCORPS SFS PROGRAM FOR 5 YEARS**

🔗🔗🔗 **4 CHAIR AND SCHOLAR POSITIONS AWARDED TO CS FACULTY YEARS**

STUDENTS

DEGREES AWARDED

576 UNDERGRADUATES
33 MASTERS
54 PHD

NUMBER OF STUDENTS

119 UNDERGRADUATES
13 MASTERS
2 PHD

FACULTY STATS

16 TENURE TRACK

8 INSTRUCTIONAL

10 ENDOWED POSITIONS

7 NSF CAREER AWARDS

1 ONR YOUNG INVESTIGATOR AWARD

NEW FACULTY

GEORGE LAVEZZI   **EMILY ALFS-VOTIPKA**

OTHER FACTS

88.9% FRESHMAN TO SOPHOMORE RETENTION RATE

29.1% 5 YEAR GROWTH IN STUDENTS

39.5% 5 YEAR GROWTH IN FEMALE STUDENTS

163.2% 5 YEAR GROWTH IN HISPANIC STUDENTS

54.3% 5 YEAR GROWTH IN PHD STUDENTS

700% 5 YEAR GROWTH IN MULTICULTURAL STUDENT GRADATIONS

ABET ACCREDITED DEGREES

COMPUTER SCIENCE (BS, MS, PHD)

COMPUTER SCIENCE CYBERSECURITY (BS)

COMPUTER SCIENCE ENTREPRENEURSHIP (BS)

COMPUTER SCIENCE (BS) + MBA

KANSAS STATE UNIVERSITY
COMPUTER SCIENCE 2019-2020

Kean University | School of Computer Science and Technology

Research and Mentoring Highlights

- **Dr. Jing-Chiou Liou** received a US Patent for his cybersecurity authentication technique.
- **Dr. Deahan Kwak** mentored ten students accepted to the 2020 National Council on Undergraduate Research (NCUR) conference.

Faculty Distinctions

- **Dr. Jenny Li** and **Dr. Mira Franke** participated in the 2020 Computing Alliance for Hispanic Serving Institution (CAHSI) virtual REU summer, using the Affinity Research Group (ARG) model to mentor undergraduate researchers.
- **Dr. Ching-Yu Huang** co-authored research papers with his students on data visualization for web-based applications.
- **Dr. Jean Chu** published her Career Education course, which provides pre-professional skills for CS and IT major success.

Student Highlights & Distinctions

- Student awards this year included Great Minds in STEM (GMiS), Hopper Celebration and Tapia Conference Scholarships.
- Our students enjoy internship and co-op opportunities throughout the academic year, with employers such as Northrup Grumman, New Jersey Transit, Lockheed Martin, and Google.
- 2020 graduates joined a variety of companies including Ernst and Young, Admera Health, Lockheed Martin, and Cisco Systems.
- ACM, ACM-W, WiCyS, and National Cyberwatch Chapters provide leadership opportunities for all our students.

New Faculty
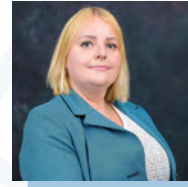
Dr. Yulia Kumar

Ph.D. Russian Academy of Science
Data Mining, Database Systems

Prof. James Novotny

M.S. Ball State University
Robotics, Technology Education

Program by the Numbers

- **Faculty:** 7-tenure-track, 5-teaching,
- 25- affiliated/associated.
- **50%** of our full-time faculty are female.
- **Students:** 660+ CS/IT majors, 50+ students in MS program.
- **56%** of our major students identify as Hispanic or Black.
- **25%** increase in female major enrollment over the last 2 years.

New Educational Programs

- A new B.S in Computer Science (Data Science) is available, to accompany the B.S. Computer Science (Cybersecurity) and B.S in Information Technology (Cybersecurity), in response to industry trends and student demand.
- Our Computer Science education minor is the first CS Education minor in NJ and one of the few in the USA, designed to address the shortage of CS teachers in K-12 education.
- Our 5-year BS/MS program includes both Computer Science and Information Technology majors.

Organizational News

- The first annual Explore Research for Women event was held in 2019, hosting 50+ undergraduate women and 20 faculty to discuss pathways to successful research careers.
- New Jersey's Counselors for Computing (C4C) event, hosted jointly with NCWIT, included 60+ school counselors from all over.
- HackKean, our student-led outreach event, celebrated its 6th year in April 2020!
- The School of Computer Science and Technology is a member of the North Region of the Computing Alliance for Hispanic Serving Institutions (CAHSI), a NSF INCLUDES Alliance.

LEHIGH
UNIVERSITY ™

Department of Computer Science and Engineering
http://www.cse.lehigh.edu

Eleven New Faculty Members Join Lehigh's CSE Department

- (Top row, left to right): Prof. and Chair Jeff Trinkle, robot manipulation; Asst. Prof. Dominic DiFranzo, social computing; Asst. Prof. Lifang He, biomedical informatics; Asst. Prof. David Saldaña, robot autonomy; Asst. Prof. Aparna Bharati, visual media forensics and trust; Prof. of Practice Corey Montella, robot intelligence and programming language design.
- (Bottom row, left to right): Prof. of Practice Houria Odghiri, scheduling algorithms; Prof. of Practice Bill Phillips, operating systems; Prof. of Practice Ahmed Hassan, distributed computing; Prof. of Practice George Witmer, computer science and business; Prof. of Practice Kallie Ziltz, computer science education.

Research and Other Highlights:

- Prof. Eric Baumer was awarded an NSF CAREER award for his proposal to develop participatory methods for human-centered design of algorithmic systems.
- Prof. Dan Lopresti named Vice Chair of the Computing Community Consortium (CCC) Council.
- Prof. Héctor Muñoz-Avila hosted an NSF-funded Robotics Learning workshop aimed at bringing together leading researchers in the emerging field of robot learning to foster interdisciplinary communication and collaboration.
- Prof. Dominic DiFranzo received an NSF grant titled "EAGER: SaTC: Collaborative: Addressing Social Media-Related Cybersecurity and Privacy Risks with Experiential Learning Interventions".
- The National Institutes of Health recently awarded Prof. Brian Chen a four-year nearly $1 million grant for "Algorithmic Identification of Binding Specificity Mechanisms In Proteins".
- Prof. Mooi Choo Chuah was awarded a Qualcomm Faculty Award which "supports key professors through a $75k charitable donation to their university. The topic for this award is computer vision.
- Prof. Sihong Xie received a 3-year NSF grant titled "SaTC: CORE: Small: Collaborative: Learning Dynamic and Robust Defenses Against Co-adaptive Spammers".
- Prof. Liang Cheng is part of a multi-university initiative (CIAMTIS) funded by the US Dept of Transportation (USDOT) to improve durability and life of transportation infrastructure.
- Prof. Jeff Trinkle received $417k as part of a $2M grant on Soft Robotics. The grant is funded through NSF's Emerging Frontiers in Research and Innovation (EFRI) program.

Department of Computer Science
LOYOLA UNIVERSITY CHICAGO

NEW FACULTY & STAFF

Dr. Neil Klingensmith
(UW-Madison)
Cybersecurity and IOT

Dr. Tianyi Li
(Virginia Tech)
Crowd Computing, Human-AI Interaction

Dr. Mohammed Abuhamad
(Univ. of Central Florida)
Deep-Learning and Information Security

Marina Hart
(Indiana University)
Administrative Assistant

DOYLE HALL

Home of the Computer Science Department

FACULTY AFFILIATIONS

LOYOLA UNIVERSITY CHICAGO
STRITCH SCHOOL *of* MEDICINE

Boston Children's Hospital
Until every child is well

Argonne NATIONAL LABORATORY

National Center of Academic Excellence in Cyber Defense Education for BS: Cybersecurity (2020-2025)

New Graduate Certificate Programs

Networking and Information Security

Web Programming

Technology Management

RECENT FACULTY GRANTS AND ACCOMPLISHMENTS

Dmitriy Dligach (site PI/Co-I). R01. NIH/NLM. Temporal relation discovery for clinical text. Site PI. Loyola budget: $202,301.

Dmitriy Dligach (site PI/Co-I). R01. NIH/NLM. Learning Universal Patient Representations from Clinical Text with Hierarchical Recurrent Neural Networks. Site PI. Loyola budget: $229,248.

Eric Chan-Tin and Shelia Kennison. "SaTC: EDU: Collaborative: Personalized Cybersecurity Education and Training", $477,524 ($202,654 for Loyola), Lead PI: Eric Chan-Tin, Lead Institution: Loyola University Chicago, National Science Foundation (NSF).

George Thiruvathukal, Collaborative Research: Statistical Analysis of Partially Observed Shapes in Two Dimensions, $75,028.

Ronald Greenberg, and **George Thiruvathukal**, Collaborative Research: Chicago Alliance for Equity in Computer Science, $72,497.

Chandra N Sekharan - Commissioner, Computing Accreditation Commission and IEEE Senior Member, 2020.

STUDENT THESES

Predicting Drug Misuse Status Using Machine Learning on Electronic Health Records (Robert Kania, May 2020)

Wayfinder Application for Autistic Occupational Assistance (Nathaniel Hishon, October 2020)

DEPARTMENT PROJECT PRESENTATION AWARDS

Tyler Arndt & Sam Siner for Elevate Chicago (Android app of CTA elevator status) – Fall 2019

Nicholas Synovic for Accessing Legislative Data with Python – Fall 2019

Haris Qazi for Raspberry Pi Robot – Fall 2019

STUDENT AWARDS

John Mikos won a 2019 LUROP Provost Fellowship

Marcell Gyongy, Claudia Holtsclaw, Hans Johnson, Jessica Medintz, Abdul Salam, and **Michael White** participated in the DoE CyberForce competition and ranked 2nd (out of 104 teams) in "Operational Support".

Xin Su spent the summer of 2019 working on Track 1 of the N2C2 shared task (n2c2.dbmi.hms.harvard.edu; clinical sentence similarity). His system (BERT/XLNet -based ensemble) ranked 4th.

FACULTY RESEARCH AREAS

Machine Learning, Big Data, Distributed Systems, IoT, Security, Computer Systems, Software Engineering, Programming Languages, AI/Deep-Learning-based Information Security, Crowd Computing, Human-AI Interaction, Sense-Making, Computer Science Education

Computer Science at MIT

EECS RE-ORGANIZATION

Jointly part of the School of Engineering and Schwarzman College of Computing, EECS is now composed of three overlapping sub-units in electrical engineering (EE), computer science (CS), and artificial intelligence and decision-making (AI+D), which brings together computer science-heritage AI and machine learning with electrical engineering-heritage information and decision systems to exploit their significant synergies.

RECENT FACULTY AWARDS

- **American Academy of Arts and Sciences, member:** Dimitri Antoniadis, Anantha Chandrakasan, David Karger
- **ACM Inaugural ACM-W Rising Star Award:** Vivienne Sze
- **ACM SIGPLAN Symposium on Programming Language Design and Implementation (PLDI) Distinguished Paper Award:** Julian Shun
- **ACM Symposium on User Interface Software and Technology (UIST) Best Paper Award and Best Talk Award:** Stefanie Mueller
- **Association for the Advancement of Artificial Intelligence Squirrel AI Award:** Regina Barzilay
- **Ho-Am Foundation Laureate:** Jae Lim
- **IEEE Cledo Brunetti Award:** Jesús del Alamo
- **IEEE Computer Society's Technical Committee on Pattern Analysis and Machine Intelligence (PAMI) Distinguished Researcher Award:** William Freeman
- **IEEE Koji Kobayashi Computers and Communications Award:** Hari Balakrishnan
- **IEEE Robotics and Automation Award:** Tomás Lozano Pérez
- **Japan Prize Laureate:** Robert Gallager
- **National Academy of Engineering:** Joel Emer, Muriel Médard
- **National Academy of Medicine, member:** Sangeeta Bhatia
- **National Science Foundation Career Award:** Guy Bresler, Song Han
- **Sloan Research Fellowship in Computer Science:** Michael Carbin, Stefanie Mueller
- **VMware Systems Research Award 2019:** Mohammad Alizadeh

TEACHING INNOVATIONS

Like universities across the U.S., MIT has reimagined much of its teaching during COVID. Here are just a few of our innovations for remote instruction:

- The implementation of Piazza for questions and Wiki-style help
- The extension of CAT-SOOP to assist in expanded office hour queuing, interactive content presentation, and other key remote needs.
- Take-home kits for our "Feedback System Design" course so that students could bring lab learning into their homes.
- The creation and deployment of open-source online meeting software to ease multiauthor collaboration on unsolved problems in theoretical computer science, by EECS professor Erik Demaine.
- Within the popular "Introduction to Machine Learning", the replacement of traditional large lab section with smaller "pod" groups to strengthen social bonds between students and teaching staff.
- The implementation of WHOOSH!, a Zoom alternative (created by EECS Principal Lecturer Max Goldman for 6.031 "Software Construction") that allows a large class to be divided into pairs or small groups, while seeing video from instructors. Includes web tools and live help from TAs.

The conversion to remote teaching brought out the best in our faculty, who recorded dozens of live lectures for asynchronous delivery; rapidly developed an office hours queue system to deliver thousands of hours of personalized help to students; and even coordinated the global dispersion of LAs and TAs to provide help across all time zones. We are proud to report that many of the innovations necessitated by the pandemic will continue to enrich the MIT experience for years to come.

Recent Ranking Highlights

#1 in Computer Science and Information Systems: QS World University Rankings 2020 (2021 rankings not yet released)

#1 in Computer Science: U.S. News and World Report 2021

Michigan Technological University
Computer Science
1885

Highlights 2019-2020

Now part of the newly formed College of Computing

Statistics

Faculty
    15 Tenure-track/Tenured
    4 Lecturer Track

Students
Computer Science	BS	433
	MS	86
	PhD	28
Software Engineering	BS	86
Cybersecurity (new Fall 2019)	MS	4

New Degree Programs

BS Cybersecurity
MS Cybersecurity
BS Mathematics and Computer Science

New Faculty

Yakov Nekrich
Associate Professor
PhD University of Bonn

Areas of Expertise:
- String Algorithms
- Compressed Data Structures
- Computational Geometry

Recognitions

2020 NCWIT Extension Services Transformation (NEXT) Award Honorable Mention for significant progress in recruiting and retaining women.

An ITiCSE Working Group report co-authored by Dr. Linda Ott was named a finalist for Top Working Group report in the conference's first 25 years.

Successful ABET accreditation visit for CS and SE BS degree programs

Funding Highlights

Onder, S., *SHF: Medium: Collaborative Research: Statically Controlled Asynchronous Lane Execution (SCALE),* NSF

Vertanen, K. D., Kuhl, S. A. *CHS: Small: Rich Surface Interaction for Augmented Environments*, NSF

Vertanen, K. D., *CHS: Small: Collaborative Research: Improving Mobile Device Input for Users who are Blind or Low Vision,* NSF

Chen, B., *SaTC: CORE: Small: Collaborative: Hardware-Assisted Plausibly Deniable System for Mobile Devices,* NSF

Cai, Y., Chen, B., Van Wagner, T. A. *EAGER: Enabling Secure Data Recovery for Mobile Devices against Malicious Attacks,* NSF

Havens, T., *Machine Learning for Human-Based Visual Detection Metrics*, Signature Research Inc.

Havens, T., *Duty Cycle Aggregation, Warranty Mitigation, and Fleet Prognostics using Customer Usage Data*, Ford Motor Company

Watkins, D. W. Wallace, C. R., Handler, R. M., Schelly, C. L., *RAPID: COVID-19 Consumption and Multi-dimensional Analysis of Risk (C-CAR)*, NSF

Scarlett, S. F, Pastel, R. L., Trepal, D. J., Lafreniere, D. J., *Digital Accessibility Upgrades for Archival Records in the Keweenaw Time Traveler*, US Dept of the Interior

Student Highlights

Dylan Gaines, National Science Foundation Graduate Research Fellowship Award

The MTU RedTeam ranked 13th out of 162 teams in a 24-hour Cybar OSINT Capture The Flag (CTF) cybersecurity competition.

Gianforte School of Computing

Montana State University

https://www.cs.montana.edu/

Faculty Hires for 2020-2021

- Carson Gross, Instructor: Web Development, Programming Languages

Research Highlights

- Our organization's research expenditures fell slightly, from an all-time high of $1,197K in fiscal year 2019 to $1,162 in fiscal year 2020.
- Laura Stanley (PI) and John Sheppard (co-PI) received a multi-institutional $1.2M NSF/NIH grant entitled A*n Intelligent Pervasive Augmented reaLity Therapy (iPAL) for Opioid Use Disorder and Recovery*.
- Clem Izurieta (PI) and Brendan Mumey (co-PI) received a three year, $405K NSF grant entitled *REU Site: On the Operations of Cybersecurity Algorithms in SecDevOps Environments*.
- Brittany Terese Fasy (PI) received a multi-institutional $404K NSF grant entitled *Focused Research Groups in the Mathematical Sciences*.
- Clem Izurieta (PI) received $200K from the Air Force to conduct software assurance research with Montana State University's TechLink Office.

Student Numbers and Growth

- 569 students in Fall 2020 (including B.S., M.S. and Ph.D. students)
- 568 students in Fall 2019 (including B.S., M.S. and Ph.D. students)
- Awarded 4 Ph.D. degrees, 11 M.S. degrees and 101 B.S. degrees in AY 2019-20

Organizational News

- A Data Science minor became available in Spring 2020. 27 students have already declared it.
- Clem Izurieta received the College of Engineering's Lloyd Berg Faculty Mentorship Award.
- During Spring 2020, all courses made an abrupt transition to online delivery due to COVID.

MOUNTHOLYOKE

Computer Science Department

Faculty Awards

Heather Pon-Barry received tenure, promotion to Associate Prof., and an **NSF CAREER award** for Dialogue Engagement for Educational Robots. The grant will support Heather's Interactive Computing Research Lab, addressing questions about how humans use spoken language when communicating (i) with other humans, (ii) with computers, and (iii) with robots, working toward the design of intelligent, adaptive human-robot interactions.

Recent Hires

Melody Su received her Ph.D. at the University of Washington. Her research focuses on exploring methods to improve robotic teleoperation experience by integrating computer vision and AI algorithms to provide vision-based haptic feedback, particularly in the context of surgical robotics. Melody is also passionate about STEM outreach programs and has been closely involved in IEEE TryEngineering, and multiple summer robotics camps.

Murphy McCauley received his Ph.D. at UC Berkeley. His research is in the broad areas of computer systems and networks, typically working to make systems and protocols simpler, more reliable, more scalable, or more flexible. This means asking (and answering!) questions like, "How can we continue to accommodate the incredible growth of the Internet while expanding the capabilities it supports?" and "What should an operating system look like if every program takes only milliseconds to complete?" Beyond his direct research areas, he often finds himself involved in projects involving computer imaging or programming languages.

Highlights

- Microsoft, "discovering the success of MaGE," (a Google-funded inclusive academic peer mentorship program) initiated a partnership with CS professors Audrey St. John and Heather Pon-Barry in collaboration with Psych & Ed professor Becky Wai-Ling Packard. The Fall 2020 pilot of a new mentorship program features early-career Microsoft employees coaching intro CS students on factors and strategies that impact resilience in the tech industry. Core to the program is a set of short animated videos created by Lydia Cheah '20.
- CS continues to be one of the top majors at the college
- CS contributes (courses and leadership) to the new Data Science major
- The ACM-W chapter once again sponsored the successful HackHolyoke hackathon with approximately 200 participants
- One student received Honorable Mention in the CRA Undergraduate Research Award

Department of Computer Science

Naval Postgraduate School
Monterey, California
my.nps.edu/web/cs

Our Mission

We offer graduate level computer science education and research to support the combat effectiveness of the US Navy.

Our Students

Our students are primarily US military officers with 5-10 years experience who have been selected for graduate education in computing. We graduate 50-60 students annually, with around 100 on board at any time, including international students from several countries. Our students are highly disciplined, hard-working, and enthusiastic. They bring a strong dose of pragmatism, seeking to bring theory and practice together in their masters theses.

Our Faculty

We have 22 tenure track faculty, 4 lecturers, and about a dozen research faculty.

Our Curricula

We offer masters and PhD degrees in Computer Science. Our two-year masters curriculum requires every student to complete a thesis. Our specialty areas are: Artificial Intelligence, Cyber Security, Data Science, Mobile Computing, Modeling and Simulations, Networking, and Software Engineering. We also offer 3- and 4-course graduate certificates, both locally and remotely, in Cyber Security, AI, Data Science, and Innovation and Design.

Our Research

We examine hard national security problems, developing theories for general solutions and proof-of-concept prototypes. Cyber security and AI are top priorities; we specialize in architectures that are demonstrably secure and implementable in the Cloud and also on cryptographic protocols and advanced architectures such as quantum computing. In artificial intelligence -- autonomous, robotic, and deep learning systems -- we search for safe and reliable self-learning systems. Networking is another priority; we focus on design, characterization, measurement, and validation of communication protocols for tactical networks, unmanned systems, self-organized mobile networks, software-defined data centers, and the Internet.

Much of our research is multidisciplinary, involving students and faculty from mathematics, operations research, electrical engineering, mechanical engineering, and physics. Our research environment is unique in its blend of theory and practice, and with students' determination to put their thesis results into practice. Many student theses have led to publications in major conferences and frequent best-paper awards.

Ying Wu College of Computing

New Faculty

David Bader
Distinguished Professor
PhD, University of
Maryland

Przem Musialski
Associate Professor
PhD, Vienna University
of Technology

Pan Xu
Assistant Professor
PhD, University of
Maryland

Jacob Chakaresky
Associate Professor
PhD, Rice University

Tomer Weiss
Associate Professor
PhD, University of
California-Los Angeles

Mark Cartwright
Associate Professor
PhD, Northwestern
University

New Academic Programs

NJIT's certificate programs have been cited for excellence by the American Council of Graduate Schools. Certificate News also rated the NJIT certificate programs among the best programs in the nation. Certificates are available in the following areas:

- **Big Data Essentials**
- **Business and Information Systems Implementation**
- **Data Mining**
- **Data Visualization**
- **Information Security**
- **IT Administration**
- **Network Security and Information Assurance**
- **Software Engineering, Analysis and Design**

Recent Funding

Ying Wu researchers continue to explore the limits and potential of today's computing science and technology. Between October 2019 and September 2020, the college secured **$6,094,493 in research funding** from federal and state agencies, academic institutions, and the private sector.

Entrepreneurship Activities

Duality Technologies, co-founded by Ying Wu Professor Kurt Rohloff, recently received a substantial investment from a startup foundry supported by industry giants including Microsoft, AT&T, Nokia and Walmart. Duality has developed "homomorphic encryption", an encryption technique that allows organizations to encrypt their data so that computations may be performed on the data in its encrypted form.

Reopening college campuses during the COVID-19 pandemic lead Ying Wu Professor and **Agean AI** co-founder, Pantelis Monogioudis, and his team to create **backtoclassroom.app**. The app implements NJIT's detailed Pandemic Recovery Plan, which lays out attendance limits and protocols and establishes a round-robin policy for classroom attendance. NJIT used the app to implement converged learning classes for its fall 2020 semester.

The **Innovation and Entrepreneurship Education program** at Ying Wu works with NJ's largest tech and life science incubator (VentureLink) to give students even more hands-on, cooperative, experiential learning opportunities. The Center houses close to 90 companies that employ over 700 people, including NJIT students and alumni.

YWCC by The Numbers

3,119 Students as of Fall 2020
- PhD 110
- MS 753
- BS 2,256

607 New Students for Fall 2020
- PhD 26
- MS 206
- BS 375

851 Graduates 2019-2020
- PhD 16
- MS 415
- BS 430

NJIT@JerseyCity

To address the growing demand for post-graduate programs for working professionals from New York City's booming tech hub, Ying Wu opened NJIT@JerseyCity in the fall of 2019. Minutes from Manhattan and neighboring business communities, the Jersey City location has grown quickly, offering three master's programs and five graduate certificates with more programs expected in the coming year.

NM STATE

BE BOLD. Shape the Future.
New Mexico State University
Department of Computer Science

By the numbers...

Undergraduate Enrollment (fall)

Legend: BS, BA

Research Expenditures

5mil. USD
4mil. USD
3mil. USD
1mil. USD
0mil. USD
2017 2018 2019 2020

Graduate Enrollment (fall)

100
75
50
25
0
2017 2018 2019 2020

Legend: MS, PhD

Degrees Awarded

70
52.5
35
17.5
0
2017 2018 2019

Legend: BS, BA, MS, PhD
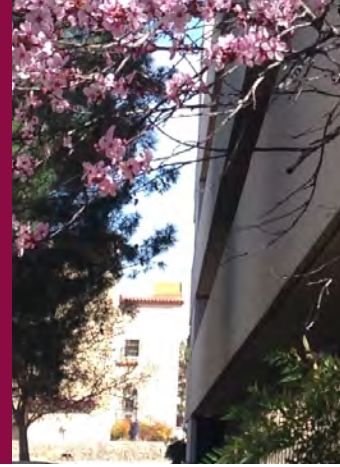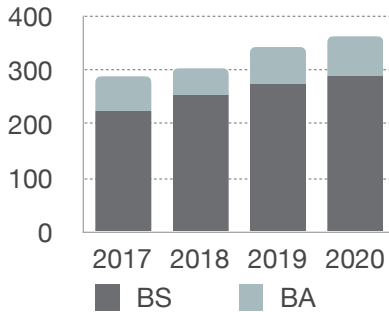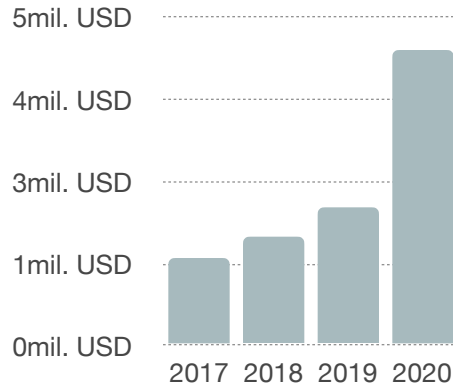
New Faculty

Shah Muhammad Hamdi (2020)

Ph.D. Georgia State University

Data mining, machine learning on graphs; time series, spatiotemporal, high-dimensional data; dimensionality reduction with tensor decomposition & feature selection; deep learning.

Tuan Le (2019)

Ph.D. Singapore Management University

Text mining; visualization; graph mining.

Tao Wang (2019)

Ph.D. University of South Florida

Wireless, mobile system security; cyber physical systems and IoT security; network and web security; mobile computing; adversary machine learning.
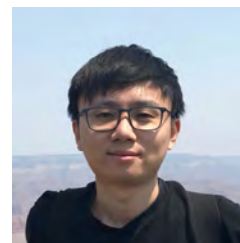
Bill Hamilton (2018)

Ph.D. Texas A&M University

Live media design; human-computer interaction; computer supported collaborative work & play; online communities; online education; digital game design and culture.
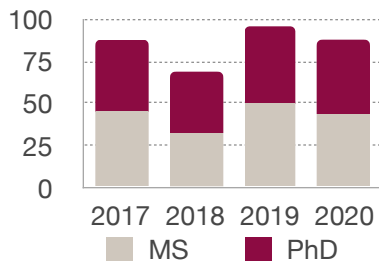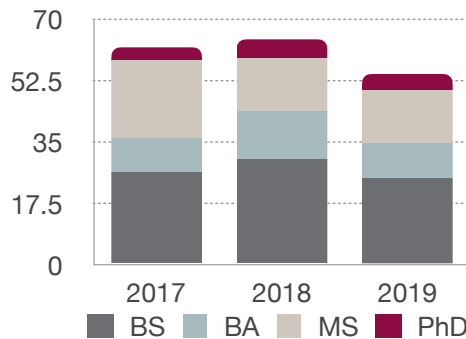
Strengthening our Smart Grid Center

NMSU Computer Science is a central part of the NM SMART Grid Center and the Interdisciplinary Center of Research Excellence ($20 million) in the Design of Intelligent Technologies for Smart Grids ($5 million). Both centers are NSF-funded and are working toward new technologies to support human needs for electricity that minimize impact on the environment and infrastructure while maximizing resilience. Projects within the centers address modeling human consumption of electricity, considering how networks and power storage affect use and distribution; developing secure and resilient distribution networks; and considering how best to support people using electricity with a variety of smart devices.

Research Specialties

Smart grids; cyber & computer security; bioinformatics; artificial intelligence & knowledge representation; software engineering & programming languages; computer & wireless networks; data mining & machine learning; game design & human-computer interaction; high performance computing; assistive technologies.

Recently established NYU Tandon online programs demonstrate sustained growth: Two newly established programs open the M.S. computer science program to students with non-traditional background and thus significantly contribute to an increase of diversity in our programs.

- **A Bridge Program to NYU Tandon**: Created in 2016 for individuals with non-engineering backgrounds by Nasir Memon, the program provides the tools needed to be admitted into select graduate-level programs at NYU Tandon School of Engineering. Bridge enrollment is close to 1000 students in Fall 2020, up from 600 (F2019) and 350 (F2018). This semester, over 160 former Bridge students are enrolled in the regular M.S. program, with 80 students admitted in F2020.
- **NYU Cyber Fellows**: The Cyber Fellows program — launched by NYU Tandon under the leadership of Nasir Memon in partnership with firms, government institutions and the New York City Cyber Command (NYC3) — offers scholarships that result in one of the lowest-cost online master's degrees in the country and develops highly skilled technical graduates ready to step into the growing cybersecurity gap. Starting in AY18/19 with 100 students, we could see steep growth with 250 students in AY19/20 and 540 in AY20/21.

Department (CSE)

Major Research Areas: Cyber Security, Data Science, Theory & Algorithms, Visualization, Geometric and Urban Computing, Systems, Medical Image Analysis.

Faculty: 26 TT/T Faculty (20 FTE, incl. 8 joint faculty with NYU Shanghai, ECE, CDS, Steinhardt, Global Public Health), 13 clinical/contract faculty, 15 adjuncts teaching any semester, 10 affiliated/associated faculty.

Distinctions: 2 Sloan, 2 ACM, 4 IEEE, 1 SPIE, 1 AIMBE, 1 Fullbright, 12 CAREER.

Current Enrollments: 889 CS majors (721 CSE, 168 CompE with ECE), 74 CS minors, 1013 students in two CS M.S. programs (482 CS, 531 cybersec, incl. 382 online), 72 PhD students.

NYU Global: Tandon CSE maintains joint PhD programs with NYU Abu Dhabi and NYU Shanghai.

New Distinctions and Awards:
- Fellow of the IAPR 2020: Nasir Memon
- IEEE CIS Outstanding Early Career Award 2020: Julian Togelius
- IEEE Visualization Academy Inductee 2019: Claudio Silva

New TT Faculty
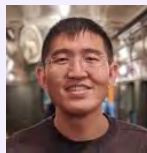
Qi Sun, PhD Stony Brook University, previously at Adobe Research. Research Areas: Perceptual Computer Graphics, human-computer interaction, VR/AR. Joint Assistant Professor position with NYU CUSP, joined Fall 2020.

New Industry/Contract Faculty

Peter DePasquale, PhD Virginia Tech. Previously: Villanova University, Research Areas: Computer Science Education, Cloud Computing, Web Security, Industry Assistant Professor, joined Fall 2019.

Darryl Reeves, PhD Cornell University, previously Long Island University. Research Areas: Symbolic systems, computational biology, bioinformatics. Industry Assistant Professor, joined in Fall 2020.

Ratan Dey, PhD NYU CSE, previous affiliation: NYU Shanghai. Research Areas: Online Privacy and security, big data, ML, social search and mining. Industry Assistant Professor, joined January 2021.

Notable Highlights 2019/2020:

- New York City Economic Development Corporation: MEGA - Cyber NYC - Applied Learning Initiative - Stackable Credentials ($2,920,000).
- NSF ASPIRE: An SFS Program for Interdisciplinary Research and Education (>$5 million).
- National Center for Women and Information Technology Extension Services Transformation (NEXT) Award for excellence in recruiting and retaining women in computing education; CSE was placed second nationwide.

NYU Tandon Computer Science and Engineering Department (CSE) maintains a close, collaborative effort with NYU Courant's Computer Science Department (CS), with shared efforts in faculty hiring, research and PhD education.

NAMING GIFT

In December 2018, the college was renamed the Khoury College of Computer Sciences, following an endowed gift from Amin & Julie Khoury.

INSTITUTES & CENTERS

The Center for Inclusive Computing was launched in 2019 with a goal to increase women in computing programs across the country. (cic.khoury.northeastern.edu).

Khoury College houses the Cybersecurity and Privacy Institute (cyber. khoury.northeastern.edu).

NUFLEX

For Fall 2020 Northeastern has implemented NUFlex, which allows students to learn from anywhere—in an on-campus classroom or remotely. This technology allows students at a distance to participate in the activities of a class.

BY THE NUMBERS

- **64 TT/T faculty total** - (27% interdisciplinary with another college)
- **4 PhD programs** - Computer Science, Cybersecurity, Personal Health Informatics, Network Science
- **244 PhD Students**

COOPERATIVE EDUCATION

Cooperative Education (co-op) is a cornerstone of our MS and undergraduate programs. Khoury College places 1,000 students in co-ops at over 500 companies annually.

LOCATIONS

Khoury College has a global network of campuses with locations in Boston, London, Portland, San Francisco, San Jose, Seattle, Vancouver and Toronto.

LATEST TENURED/TENURE-TRACK AND TEACHING FACULTY HIRES

- **26** tenured and tenure-track faculty over the past five years
- **20+** more new hires anticipated over the next three years
- **37** teaching faculty across all ranks over the past five years

RESEARCH HIGHLIGHTS

BEST PAPER AWARDS

2015-2020 Khoury College faculty and students won best paper/test of time awards at the following conferences, forums and workshops:
AAMAS, ACL, AISEC, ANRW, CCS, CHI, CNS, COSN, CSCW, DSN, EAPLS, FDG, FPF, ICDM, ISSRE, ISWC, NDSS, PETS, SecDev, SIGCOMM, SIGKDD, SIGSOFT, SOSYM, S&P, TACAS, USENIX FAST, USENIX Security, VEE, WISEC

CAREER, YOUNG INVESTIGATOR & SLOAN FELLOWSHIP AWARDS

From 2016-2020, the following members were awarded the Sloan Research Fellowship, Young Investigator, NSF CAREER or DARPA Young Faculty Awards:
Chris Amato, Michelle Borkin, David Choffnes, Seth Cooper, Ehsan Elhamifar, Raymond Fu, Wolfgang Gatterbauer, Long Lu, Huy Le Nguyen, Robert Platt, Christoph Riedl, Jonathan Ullman, Olga Vitek, Byron Wallace, Lu Wang, Daniel Wichs, Christo Wilson

CONFERENCE GENERAL OR CO-CHAIRS

2015-2020 Khoury College faculty have been general chair or co-chair for the following conferences:
AAMAS, ACSAC, AsiaCCS, CHI, CNS, Curry On, DSAA, DSN, ECCB, ECOOP, ESOP, FAT, FMCAD, ICNP, IDSC, IMC, ISMB, ISSTA, MLHC, MSST, NDSS, NetSci, PAM, PMLDC, PROBPROG, SIGKDD, SIGIR, SIGSOFT, STOC, USENIX Security, WebSci, WISEC, WoWMoM

2020

Jonathan Bell
Assistant Professor
PhD, Columbia University

Arjun Guha
Associate Professor
PhD, Brown University

Ji Yong Shin
Assistant Professor
PhD, Cornell University

Ari Waldman
Professor
PhD, Columbia University

Alexandra To
Assistant Professor
PhD, Carnegie Mellon University

2019

Hongyang Zhang
Assistant Professor
PhD, Stanford University

2018

Lawson Wong
Assistant Professor
PhD, Massachusetts Institute of Technology

Paul Hand
Associate Professor
PhD, New York University

Predrag Radivojac
Professor
PhD, Temple University

Don Fallis
Professor
PhD, University of California, Irvine

Renee Miller
Professor
PhD, University of Wisconsin

2017

Wolfgang Gatterbauer
Associate Professor
PhD, Vienna University of Technology

Woodrow Hartzog
Professor
PhD, University of North Carolina at Chapel Hill

Long Lu
Assistant Professor
PhD, Georgia Institute of Technology

Aanjhan Ranganathan
Assistant Professor
Doctor of Science, ETH Zürich
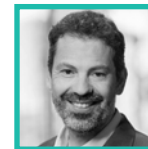
Stavros Tripakis
Associate Professor
PhD, Joseph Fourier University

2016

Christopher Amato
Assistant Professor
PhD, University of Massachusetts

Cody Dunne
Assistant Professor
PhD, University of Maryland

Tina Eliassi-Rad
Associate Professor
PhD, University of Wisconsin

Huy Lê Nguyen
Assistant Professor
PhD, Princeton University

Alina Oprea
Associate Professor
PhD, Carnegie Mellon University

Abhi Shelat
Associate Professor
PhD, Massachusetts Institute of Technology

Frank Tip
Professor
PhD, University of Amsterdam

Jan-Willem van de Meent
Assistant Professor
PhD, Leiden University
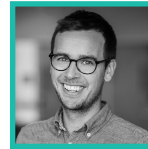
Byron Wallace
Assistant Professor
PhD, Tufts University

Interdisciplinary Faculty

Department of Computer Science
cs.nku.edu

New Faculty

Ankur Chattopadhyay
Assistant Professor
Visual Privacy
Cybersecurity Education

John Musgrave
Visiting Assistant Professor
Data Science
Artificial Intelligence

Awad Mussa
Assistant Professor
Software Security
Cybersecurity

Current Programs

Undergraduate Majors
- Applied Software Engineering   (*New program*)
- Computer Information Technology
- Computer Science
- Cybersecurity (*New program*)
- Data Science

Graduate Degree Programs
- Master of Science in Computer Information Technology
- Master of Science in Computer Science

Department News
- NKU's designation as a National Center of Academic Excellence in Cyber Defense Education (CAE-CDE) for the Bachelor of Science in Computer Information Technology, Cybersecurity Track has been renewed until 2024 by the National Security Agency and the Department of Homeland Security.
- Northern Kentucky University tops in Kentucky for awarding computer science degrees to women. The CS Department ranked 40th nationally, awarding 171 degrees in Computer Science with 21.1 percent going to women.
- The Bachelor of Science in Data Science is ranked as the 4th best program in the nation by the Data Science Degree Programs Guide (DSD) in 2020.

CS Department by the Numbers

Faculty:
- 25 full-time faculty, including 10 Full Professors, 2 Associate Professors, 8 Assistant Professors, 1 Professor of Practice, and 4 Lecturers

Students:
- Over 700 current majors, with over 300 majors in each of the Computer Information Technology and Computer Science undergraduate programs.
- 4.1 average time to degree.
- $70,000 average starting salary for Computer Information Technology, Computer Science, and Data Science graduates.
- 75% of students stay in Northern Kentucky/Greater-Cincinnati region after graduation.

Degree Awarded - NKU CS Department

2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
118	131	156	137	165	174	156	156
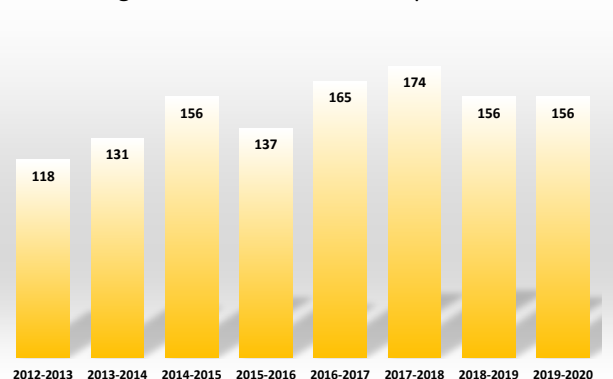
Technical excellence. Whole-brain thinking. Highly interdisciplinary work.

Computer Science at Northwestern University embodies these three core values. Now in our fourth year of an ambitious growth initiative, we are in the process of hiring 20 tenure-track faculty members, more than doubling the size of our faculty. We are driven by the goal of constantly pushing the boundaries of the field with exceptional work in programming languages, machine learning, robotics, network security, theoretical computer science, artificial intelligence, computational imaging, human computer interaction, high-performance computing, networking, and personalized education.

New Faculty

Jointly Appointed CS+X Faculty

Four tenure-track faculty joined in "CS+X" collaborations with other disciplines:

Ben Golub *(Harvard / economics)* theory of social and economic networks

Maia Jacobs *(Harvard / preventative medicine)* new technology design to support chronic disease management

Matthew Kay *(University of Michigan / communication)* uncertainty communication, usable statistics, personal informatics

Annie Lang *(University of Pennsylvania / economics)* economic theory, applied machine learning methods in social sciences

Faculty of Instruction

Two teaching faculty joined in response to continued CS course demand: **Kate Compton** *(UC Santa Cruz)* and **Branden Ghena** *(UC Berkeley)*.

By the Numbers

Faculty: 42 tenure track, 9 teaching track

Undergraduate Students: ~700 majors *(up 50% over 5 years; 28% women)*

Graduate Students: 109 PhD, 104 MS in CS

Enrollment: 7,550 *(up 88% over 5 years)*

Programs

Partnering with the Kellogg School of Management, **we launched the MBAi program**, a joint degree program addressing the intersection of business and technology management.

We congratulated our **inaugural Master's in AI class**. Graduates landed full-time positions as software engineers, data scientists, and consultants at Fortune 500 companies, including Amazon, Encyclopedia Britannica, Microsoft, Capital One, and Deloitte.

Diversity Initiatives

Northwestern will become a **BRAID affiliate**. BRAID trains faculty/chairs to support diversity within CS departments.

This year **we welcomed six faculty members**, of which three are women, making this the most gender-balanced hiring season in recent years.

We sent more than 60 students to the Grace Hopper Celebration and more than 40 to the Richard Tapia Celebration of Diversity in Computing.

COVID-related Work

Our researchers developed a time-saving **AI tool for COVID researchers**. CAVIDOTS searches scientific literature, predicting the most useful results and generating a short, easy-to-skim summary of each.

Northwestern Engineering collaborated with Chicago startup Rheaply to create **Emergency Resource Exchange (ERx)**, a central hub that connects Illinois healthcare providers with PPE, test kits, ventilators, and other supplies.

CS+X Connections

CS+X Our **CS+X** interdisciplinary initiatives continue to flourish.

Our **new Institute for Data, Econometrics, Algorithms, and Learning (IDEAL)** unites Northwestern University, Toyota Technological Institute at Chicago, and University of Chicago to answer theoretical data science questions.

In collaboration with the School of Communication, **we launched the Center for Human-Computer Interaction + Design**, which will develop the future of HCI at home, work, and play.

The **CS+Law Faculty Talks** gathered faculty interested in the intersection of CS and law, fostering research collaboration and leading to several joint NSF grants to address access to justice.

Awards

Ulyana Kurylo ('20), Alisa Liu ('20), Maxine Whitely ('20) received **honorable mentions in CRA Undergraduate Research Awards**.

Akshat Thirani ('16) Philip House ('15), Sachin Lal ('16), James Hedrick (PhD '19) were listed in **Forbes' "30 Under 30"** for cofounding Amper Technologies.

Professor/Chair Samir Khuller received the **2020 CRA-E Undergraduate Research Faculty Mentoring Award** for outstanding mentorship on admission of students to research-focused graduate programs.

Professor Ken Forbus and PhD student Kezhen Chen received **Best Paper Award at KR2ML Workshop at NeurIPS 2019**.

Professor Ian Horswill was honored with a **University Teaching Award**.

Department of Computer Science and Engineering

$8.5 million
Research expenditures in the 2018-2019 academic year

31
NSF Career Awards held by current and past CSE faculty

15
Current and past ACM and IEEE Fellows

49
Tenure-track, research and clinical faculty members

Department Highlights

- One of the earliest established computer sciene departments

- Ranked highly for research in high-performance computing and networking with growing strength in Data Science and Analytics

- Contributes to campus-wide Translational Data Analyics Institue with both the current and the fomer lead belonging to CSE faculty

- Created a unique undergraduate degree program in data analytics in partnership with Department of Statistics and multiple other units

- CSE faculty helped launched an innovative professional graduate program that incorpirates data analytics with design thinking

- Home to one of the oldest operating ACM-W Student Chapters that is held as a nationwide model for how to build a strong student chapter to support women studying computing

- OHI/O, a CSE program for informal technological learning, runs numerous programs incl. HackOHI/O which is Ohio's largest hackathon with 750 student participants and numerous industry sponsors

- Choose Ohio First scholarships for underrepresented groups strengthen the state's workforce in technology fields such as coding and cybersecurity

CSE 50
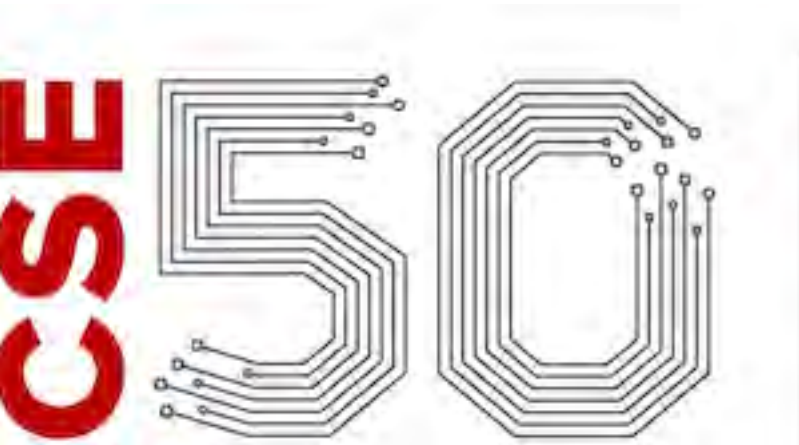
50TH ANNIVERSARY
OF COMPUTER SCIENCE AND ENGINEERING AT OHIO STATE

cse.osu.edu

THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

"Without continual growth and progress, such words as improvement, achievement, and success have no meaning." Benjamin Franklin

Esra Akbas receives FY 21 ASR+1 and Grace Hopper Faculty Scholar 2019. Dr. Akbas' broad research areas are data mining and machine learning.

Specifically, with her group in Data engineering Lab (DeLab), she works on graph (network) mining, text mining, and social network analysis. One aspect of her research is developing novel effective and efficient graph processing methods. Another aspect is to conduct biomedical knowledge mining to track public health issues in social networks.

Sathyanarayanan Aakur was awarded a $1M NSF grant as part of a multi-university research project. CSE faculty Dr. Aakur is part of a multi-university collaborative project awarded a $1M National Science Foundation (NSF) grant to carry on fundamental research for the project entitled "Collaborative Research: RI:Medium: Understanding Events from Streaming Video - Joint Deep and Graph Representations, Commonsense Priors, and Predictive Learning".

Leading for a Better Computational Future- More funds received!!!

Accelerating Research Discoveries with GPU-enabled Computing	Computer Science awarded grant to help with COVID-19 response
Funder: Oklahoma State University's Core Facility Support Program 16 NVIDIA RTX6000 GPUs to be hosted at OSU's HPCC. Lead: Dr. Thanh Thieu and Dr. Sathya Aakur Narasimhan	Funder: National Science Foundation Developing virtual reality-based training simulators for COVID-19 first responders. Lead: Dr. Joe Cecil

Arunkumar Bagavathi has taken steps forward by getting his research published in multiple venues this year. His work on i) Quantitative and Qualitative models on online hate speech detection with text and network embedding models was published at SBP-BRiMS'2020, ii) A quantitative approach to identify influential factors in social media discussions related to health problems like Zika vaccination at JMIR Public Health and Surveillance 2020. More publications can be found at https://scholar.google.com/citations?hl=en&authuser=1&user=1dPUUSkAAAAJ

Thanh Thieu's team presentation won 1st place award at CADRE conference: *Software Comparison for Clinical Named Entity Recognition (NER).* The paper is a Phase-1 Study for Developing A Computer Assisted Medical Claims Billing and Coding System. in Coalition for Advancing Digital Research & Education (CADRE) Conference. Also, welcome to the new Language And Intelligence Lab. Please visit the lab at http://languageandintelligence.cs.okstate.edu/

Rittika Shamsuddin won the Fall 2019 President's Fellows Funding, FY21 The Arts & Sciences Summer Research and Supplemental Travel, and Grace Hopper Faculty Scholar, 2020. The President's Award allows Dr. Shamsuddin to design a programming course to students from all majors focusing on those who has never programmed before in their life. The Summer Award allowed her to prepare and apply NSF CISE grant and the Scholar Award will allow her to establish important networking connections.

Faculty
- 60 Tenured/tenure-track faculty
- 29 Instructors
- 2 Members of the National Academy of Engineering
- 3 Fellows of the National Academy of Inventors
- 15 ACM/IEEE fellows
- 1 Fellow of the Association for the Advancement of Artificial Intelligence
- 25 Young investigator/CAREER awards

Research
- $12.9M in research expenditures (2019–2020)
- 14 spinoff companies + licenses

Research Areas of Excellence
- Artificial intelligence and robotics
- Communications and signal processing
- Computer graphics and visualization
- Computer science education
- Cybersecurity
- Data science and engineering
- Electronic materials and devices
- Energy systems
- Health engineering
- Integrated electronics
- Networking and computer systems
- Programming languages
- Software engineering and human computer interaction
- Theoretical computer science

Affiliated Centers and Institutes
- Center for Design of Analog and Mixed-Signal Circuits (CDADIC)
- Cyber Resilient Energy Delivery Consortium (CREDC)
- Collaborative Robotics and Intelligent Systems Institute (CoRIS)
- O.H. Hinsdale Wave Research Laboratory
- Northwest Alliance for Computational Science and Engineering (NACSE)
- Pacific Marine Energy Center (PMEC)
- Pervasive Personalized Intelligence Center (PPI)

2019-2020 National Awards
- David Allstot: National Academy of Engineering
- Margaret Burnett: iGIANT Champion Award; appointed to DARPA Information Science and Technology (ISAT) Study Group
- Lizhong Chen: IEEE Computer Society High-Performance Computer Architecture Hall of Fame
- Liang Huang: Keynote speech, 2019 Association for Computational Linguistics (ACL)
- Stephen Ramsey: Zoetis Research Excellence Award
- Cherri Pancake: ACM President

Programs and Students
- Electrical and computer engineering (BS, MS, MEng, PhD)
- Computer science (BS, MS, MEng, PhD)
- Artificial intelligence (MS, PhD)
- Online postbaccalaureate degree in computer science (BS)
- Online 4-year degree in computer science (BS)
- Enrollment (Fall 2019)
  - 3,504 undergraduate students
  - 257 master's students
  - 210 doctoral students
- Degrees awarded (2019–2020)

	Bachelor's	Master's	Doctoral
ECE	120	51	18
CS	651*	94	17

One of the top in the nation

The **Center on Pervasive Personalized Intelligence for IoT Systems** is a partnership between the University of Colorado Boulder, Oregon State University, and industry. This NSF Industry-University Cooperative Research Center supports the next big growth in Internet of Things systems that push Pervasive Personalized Intelligence to the edge of the network, where latency is critical, and mobility, privacy, and context awareness are essential qualities to enable an entirely new class of applications with intelligence that is predictive instead of reactive.

AWARDS AND RECOGNITION

Assistant professor **Benjamin Hanrahan** earns NSF CAREER award to explore how digital tools to automate and remotely manage workers may negatively impact workers and their rights

James Wang, professor, and **Xinyu Xing**, assistant professor, receive 2019 Amazon Research Awards

Peng Liu, Raymond G. Tronzo, MD Professor of Cybersecurity, receives 10-year Test-of-Time Award from the 2020 IEEE/IFIP International Conference on Dependable Systems and Networks

Yueqi Chen and **Wenbo Guo**, Ph.D. candidates, earn 2020 IBM Ph.D. Fellowships

Associate professors **Carleen Maitland** and **Anna Squicciarini** earn Fulbright Global Scholar and Cyber Security Awards, respectively

Michael Cao '22 and **Kathyleen '20 O'Leary** named Top 50 Hackers by Major League Hacking

Andrea Tapia, professor, named Big Ten Academic Alliance Academic Leadership Program fellow

Jessica Strait '21 named a 2020 Cargill Global Scholar

Zach Sowa '20 ends three-year run as Nittany Lion mascot

BY THE NUMBERS

$8.7 Million
New research funding for FY20

4 Research Areas
Data Sciences and AI
Human-Computer Interaction
Security and Privacy
Social and Organizational Informatics

72 Full-time Faculty
45 Tenure/Tenure-track
25 Teaching Faculty
2 Professors of Practice

#6 USNWR
Best Online
Computer IT Programs

3,552 Students
Undergraduate: 3,057
University Park: 1,850
World Campus: 1,207

Graduate: 495
University Park: 175
World Campus: 320

HIGHLIGHTS

» **Justin Silverman**, assistant professor, leads nationally trending research showing initial COVID-19 infection rate may have been 80 times greater than originally reported

» **Sharon Huang**, associate professor, part of $3.7 million NSF grant to study the evolution of viruses

» Andrew Sears, dean, and Prasenjit Mitra, associate dean for research, lead creation of **new Penn State Center for Socially Responsible Artificial Intelligence**

» Twenty-three spring 2020 graduates earn University's **first bachelor's degrees in cybersecurity analytics and operations**

» IST launches **three new degrees** in fall 2020: residential B.S. in enterprise technology integration, and residential M.S. and online MPS in cybersecurity analytics and operations

NEW FACULTY HIRES

Tenure/Tenure-Track

Jeffrey Bardzell
professor; Human-Computer Interaction

Shaowen Bardzell
professor; Human-Computer Interaction

Hadi Hosseini
assistant professor; Data Sciences and Artificial Intelligence

Hong Hu
assistant professor; Security and Privacy

Justin Silverman
assistant professor; Data Sciences and Artificial Intelligence

Teaching

Margaret Fisher
lecturer; Human-Computer Interaction

Mohamed Meky
assistant teaching professor; Security and Privacy

Henry Moeller
lecturer; Security and Privacy

Kaamran Raahemifar
teaching professor; Data Sciences and Artificial Intelligence
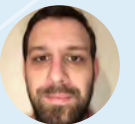
Dan Welch
assistant teaching professor; Human-Computer Interaction

Penn State Computer Science and Engineering

HIGHLIGHTS

New Hires:

Abutalib Aghayev
Operating Systems and Storage Systems

Chunhao Wang
Theoretical Computer Science

Mohammad Hajiabadi
Theoretical Computer Science

Dong Xie
Operating Systems and Database Management

Syed Hussain
Security and Privacy

Rui Zhang
Natural Language Processing and Machine Learning

Selected Awards:

Danfeng Zhang, assistant professor
NSF CAREER Award

Guohong Cao, distinguished professor
American Association for the Advancement of Science Fellow

Vijaykrishnan Narayan, A. Robert Noll Chair
Northeastern Association of Grad Schools Geoffrey Marshal Mentoring Award

Department by the Numbers:

#18
Computer Engineering
U.S. News & World Report
Undergraduate Rankings
(2020)

Research Expenditures (2019-20)
$17.9M

1,115
JUNIORS AND SENIORS

38
TENURE TRACK FACULTY

140
PH.D. STUDENTS

108
M.S. + M.ENG. STUDENTS

Institutes / Labs / Special Projects:

- NSF Frontier: Center for Trustworthy Machine Learning
- NSF: Visual Cortex on Silicon
- ARL: Collaborative Research Alliance on CyberSecurity
- ARL: Collaborative Technology Alliance on Network Science
- Center for Machine Learning and Applications
- Center for Computational Biology and Bioinformatics
- Institute of Networking and Security Research
- Computer Systems Lab
- High Performance Computing Lab
- Laboratory for Perception, Action, and Cognition
- Mobile Computing and Networking Lab
- Microsystems Design Lab
- Natural Language Processing Lab
- Scalable Computing Lab

PennState
College of Engineering

PURDUE UNIVERSITY®

Department of Computer Science

NEW FACULTY FOR 2020

PROFESSOR

TAMAL DEY
PhD, Purdue University

ASSOCIATE PROFESSORS

PAUL VALIANT
PhD, Massachusetts Institute of Technology

VASSILIS ZIKAS
PhD, ETH Zurich

ASSISTANT PROFESSORS

KAMYAR AZIZZADENESHELI
PhD, University of California, Berkley

PAN LI
PhD, University of Illinois Urbana - Champaign

ASSISTANT PROFESSORS

ALEX PSOMAS
PhD, University of California, Berkley

MUHAMMAD SHAHBAZ
PhD, Princeton University

JIANGUO WANG
PhD, University of California, San Diego

YONGLE ZHANG
PhD, University of Toronto

POP

HISHAM BENOTMAN
PhD, Portland State University

FACULTY MEMBERS

67 TENURED / TENURE TRACK

5 PROFESSORS OF PRACTICE

DEGREES AWARDED 2019 - 2020
453 BS | 58 MS | 28 PhD

US NEWS RANKS PURDUE

#20 OVERALL

#6 IN CYBERSECURITY

#14 IN PROGRAMMING LANGUAGES

#15 IN SYSTEMS

AWARDS AND PROMOTIONS

ELISA BERTINO // Named the 2019-2020 Athena Lecturer by the ACM // Received the IEEE Innovation in Societal Infrastructure Award // Elected as ACM Secretary/Treasurer // Awarded the Kristian Beckman Award // Authored CCC White Paper on 5G Security and Privacy

EUGENE SPAFFORD // Named to American Academy of Arts and Sciences // Received IEEE Security and Privacy Test-of-Time Award

NINGHUI LI // Named Editor-In-Chief of ACM's Transactions on Privacy and Security

MIKHAIL ATALLAH// Received Best Demo Award at the IEEE ICLoT'20

WOJCIECH SZPANKOWSKI // 2020 recipient of the Philippe Flajolet Lecture Prize

CHRIS CLIFTON // Received the 2020 ACM SIGSAC CODASPY Lasting Research Award in Data and Applications Security and Privacy

BRUNO RIBEIRO // Received an NSF CAREER Award

LIN TAN // Won ACM SIGSOFT Distinguished Paper Award at ASE 2020 // Named Mary J. Elmore New Frontiers Associate Professor of Data Science

HE WANG // Awarded Best Paper at ACM International Conference EWSN

ANIKET KATE // Promoted to Associate Professor

CHUNYI PENG // Promoted to Associate Professor

TIARK ROMPF // Promoted to Associate Professor

MUHAMMAD SHAHBAZ // Named Kevin C. and Suzanne L. Kahn New Frontiers Assistant Professor of Computer Science

SUNIL PRABHAKAR // Named the Department Head of Computer Science

DONGYAN XU // Named Director of CERIAS

NEW RESEARCH LABORATORY LAUNCHED
SOL4CE (Scalable Open Laboratory for Cyber Experimentation) collaboration betwen CERIAS and Sandia National Laboratory

SECURITY PROFESSORS RECEIVED $3.9M DARPA GRANT
To fund research to improve the process of patching code in vulnerable embedded systems.

Professors Antonio Bianchi, Dave Tian, and Dongyan Xu

AN ERA OF GROWTH
272% Increase growth in undergrad population over 10 years (2010-2020)
1725 CS Majors (9 Tracks)
321 Data Science Majors (program started 2017)
282% Increase growth in DS Major over 2 years (2018-2020)

2 UNDERGRADUATE DEGREES
Computer Science | Data Science

TOTAL UNDERGRADUATE WOMEN POPULATION
Freshman class 2020-2021 – 24%
Undergraduates 2020-2021 – 22%

SUPPORT
140 RAs | 147 TAs | 12 Fellowships

GRADUATE STUDENTS
355 MS and PhD Students
49% Increase growth in grad population over 10 years
25% Women Grad Students

$18.1 MILLION

RESEARCH EXPENDITURES
FY2019-20

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cs.purdue.edu

Areas of Research

- Network Science & Social & Cognitive Networks
- Semantic Web & Data Infrastructure
- Machine Learning, Data Mining, Artificial Intelligence
- Theory of Computation & Algorithms
- Pervasive Computing & Distributed Systems
- Programming Languages & Software Engineering
- Computational Science & Engineering
- Computer Graphics
- Bioinformatics
- Computational Cognitive Modeling
- Logic-Based Artificial Intelligence
- Database Systems
- Computational Geometry
- Computer Vision

Our Department in Numbers

Bachelors: 1,238 (19.4% Female)
Masters: 23 (4.3% Female)
PhD: 65 (23.1% Female)

Of our 24 Faculty, 29.2% are Female

Faculty Promotions

Carlos Varela
Promoted to Full Professor

Department Highlights

- Fran Berman is the 2020 recipient of the Paul Evan Peters award which recognizes achievements in the innovative use of network-based services and was elected to the National Academy of Public Administration
- George Slota was selected for a SIAM Science Policy Fellowship
- Elliot Anshelevich received a $360K NSF grant to study and design algorithms for voting, facility location, and other settings with limited information about user preferences
- Submitty, the open source assignment submission system developed by CSRPI was accepted for participation in Google Summer of Code 2020
- Rensselaer Offers access to AiMOS, (one of the most powerful supercomputers in the world) Supercomputing Capabilities to battle COVID-19
- Jim Hendler & Chris Carothers among those representing Rensselaer on the National COVID-19 High Performance Computing Consortium
- Malik Magdon-Ismail developed a machine learning model that can predict COVID-19 peak under different social distancing levels in smaller populations
- Jim Hendler was chosen as one of the Federation of American Scientists' experts for the "COVID-19 Rapid Response Force" advising policy makers on the disease
- Mohammed Zaki and his co-author published the 2nd edition of their best-selling textbook "Data Mining and Machine Learning: Fundamental Concepts and Algorithms". Cambridge University Press, 2020
- Lirong Xia was awarded an NSF grant to collaborate with researchers at Tulane University, IHBMC, and IBM on modeling and learning ethical principles for group decision support, published a book on learning and decision-making from rank data, and was appointed as the associate editor for the IEEE Transactions on Artificial Intelligence

RIT
B. Thomas Golisano College of Computing and Information Sciences
Department of Computer Science
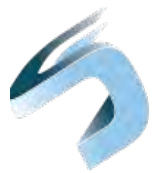
331	**98%**	**124**	**#52**	**#68**
Graduations in 2019-20	Average Employment Rate	Peer-reviewed Publications in 2019	Undergraduate Computer Science	College Graduate Program

US News & World Report

Recent Hires

Michael Mior
Data Science
Ph.D., University of Waterloo
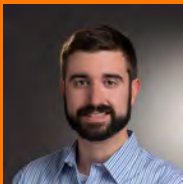
Alex Ororbia
Machine Learning
Ph.D., Penn State

M. Mustafa Rafique
High-Performance Computing
Ph.D., Virginia Tech

Faculty highlights

· **Ifeoma Nwogu** won an NSF CAREER Award, titled "A Computational Approach to the Study of Behavior and Social Interaction."

· **Richard Zanibbi**, launched MathDeck, a Math-aware search interface with funding from the National Science Foundation and the Alfred P. Sloan Foundation.
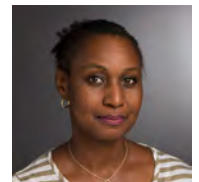
Student highlights

· Air Force ROTC cadet **Peter Cinibulk** honored as Distinguished Graduate in Northeast Region.
· BS/MS student **Andrew Searns** received an Honorable Mention for the CRA Outstanding Undergraduate Researchers Award.
· Recent doctorate **David Narváez** is a recipient of the CRA Computing Innovation Fellowship.

Interdisciplinary Science and Engineering (ISE) building opened in Summer 2020

- Innovative teaching environments and flexible lab spaces
- 10,000 ft² in research space
- Active learning classroom
- A research computing and data visualization support center

MS in Artificial Intelligence launched in 2020

Saint Louis University's master's program in artificial intelligence prepares students to apply artificial intelligence methods, both efficiently and ethically, in order to solve difficult problems and impact the well-being of society.

Faculty Highlights

Flavio Esposito
NSF Award on Edge Computing
Comcast Innovation Fund on ML for Networks

Kate Holdener
Innovation Teaching Fellow
Software Architecture is re-designed for the Learning Studio.

Jie Hou
Advance Protein Structure Prediction using Machine Learning and Data Mining

David Letscher
Innovation Teaching Fellow
Data Structures is re-designed for the Learning Studio.

Abby Stylianou
National Institute of Justice Award
Computer Vision and Machine Learning to Combat Human Trafficking

Reza Tourani
Intel Award
Security and Privacy in Pervasive Edge Computing Ecosystem

Department Highlights

- Outstanding faculty, known for their advanced knowledge of the field and enthusiasm in teaching
- Strong computing ecosystem in the St. Louis region, including many tech startups and Fortune 500 companies
- All undergraduate and graduate-level courses taught in small labs or lectures; extensive one-on-one interaction with faculty
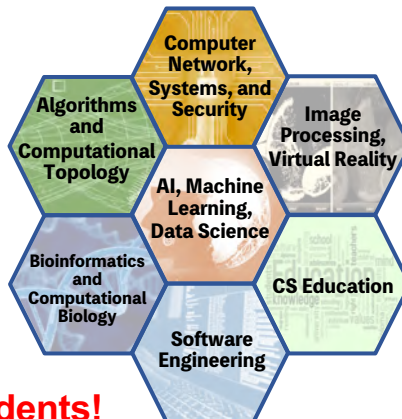
We're hiring graduate students!

Research Clusters

- Computer Network, Systems, and Security
- Algorithms and Computational Topology
- Image Processing, Virtual Reality
- AI, Machine Learning, Data Science
- Bioinformatics and Computational Biology
- CS Education
- Software Engineering

About Saint Louis University

Founded in **1818**, Saint Louis University is one of the nation's oldest and most prestigious Catholic universities. SLU, which also has a campus in Madrid, Spain, is recognized for world-class academics, life-changing research, compassionate health care, and a strong commitment to faith and service.

Fast Facts about SLU

12,649
Students from all 50 states and 78 foreign countries

$1.2B
Endowment

190+
Undergraduate and graduate programs

2,348
Faculty members

New SSM Health Saint Louis University Hospital Opened 2020

Fast Facts about CS@SLU

13 Computer science faculty

150+ Undergraduate and graduate students

19 Average CS class size

$3.3M Research funding of current active awards

Degrees Offered

BA in Computer Science
BS in Computer Science
BS in Data Science

MS in Artificial Intelligence
MS in Bioinformatics
MS in Computer Science
MS in Software Engineering

cs.slu.edu

SAINT LOUIS UNIVERSITY. — EST. 1818 —

Simmons
UNIVERSITY

The College of Organizational, Computational, and Information Sciences

The information, computing, and business disciplines at Simmons University combine theory with professional practice to enable students to succeed, thrive, and become leaders in their fields.

The Simmons mission as a women-centered institution is to provide transformative learning that links passion with lifelong purpose. We support small classes, combine practice with theory, and provide a supportive, innovative environment. We make use of the vibrant technology, business, library and cultural heritage, and education communities in Boston to enhance our faculty and student experiences.

The Division of Mathematics, Computing, and Statistics (MCS) houses undergraduate degree programs in **Computer Science**, **Information Technology**, **Data Science & Analytics**, **Web Design and Development**, **Mathematics**, and **Statistics**. The School of Library and Information Science (SLIS) offers graduate programs in **Library and Information Science**, with specializations in **Archives**, **Cultural Heritage**, and **Information Science and Technology**, as well as a dual degree in **Archives Management and History**. The School of Business offers BSBA degrees in **Accounting**, **Business & Management**, **Finance**, **Marketing**, and **Retail Management**.

Simmons also welcomes its ninth president, Lynn Perry Wooten. Dr. Wooten is a scholar and academic, coming from Cornell University's Charles H. Dyson School of Applied Economics and Management, where she served as the David J. Nolan Dean and Professor of Management and Organizations. Dr. Wooten also joins the faculty in the School of Business.

The College of Organizational, Computational, and Information Sciences, which recently earned AACSB reaccreditation, nurtures a supportive and collaborative environment by embracing the principles of diversity and identity inclusion, developing the next generation of critical thinkers, problem solvers, and principled leaders who can solve the global challenges of the 21st century.

COCIS At A Glance

1,049
STUDENTS
Undergrad: 98
Graduate: 877
Doctoral: 22

29
MAJORS & PROGRAMS
Undergrad: 22
Graduate: 6
Doctoral: 1

408
DEGREES GRANTED
Undergrad: 43
Graduate: 313

79
FACULTY
Tenured: 24   Contract: 17
Tenure-Track: 14   Adjunct: 46

FACULTY AWARDS & ACCOMPLISHMENTS

Associate Professor Naresh Agarwal was elected President of the Association for Information Science and Technology (ASIS&T).

Assistant Professor Rebecca Davis received a Laura Bush 21st Century Early Career Development Grant for research on the experience and use of academic libraries by African American undergrads.

Dean Marie desJardins received the 2020 AAAI/EAAI Outstanding Educator Award for her leadership and contributions in the field of artificial intelligence education and diversity.

Professor of Practice Todd Herrmann received the Healthcare Strategist of the Year award from the New England Society for Healthcare Strategy.

Assistant Professor Sarah E. Pratt is the Simmons Community Engagement Faculty Fellow for 2020-2021, bringing her passion for social justice and community engagement in archival studies to students.

Associate Professor Laura Saunders was presented with the Provost's Award for Student-Centeredness in Graduate Teaching.

Associate Professor Rong Tang received a 2019 Laura Bush 21st Century Librarian Program award for the project "Retooling the Librarian Workforce: Innovative Post-Master's Certificate Program for Developing Inter-Professional Informationists (IPI)."

Professor and MCS Director Nanette Veilleux and **Associate Professor Lisa Hussey** traveled with students to Nyamata, Rwanda, to collaborate with the CS instructors and organize the library at the Maranyundo Girls School.

NEW FACULTY
- Sumayya Ahmed (LIS)
- Adam Kriesberg (LIS)
- Rhiannon Bettivia (LIS)
- Denise Carroll (MCS)
- Kwamie Dunbar (Business)
- Arianna Lechan (LIS)
- Ray Pfeiffer (Business)
- Sarah Pratt (LIS)
- Lynn Perry Wooten (Business)

NEW LEADERSHIP
- Ray Pfeiffer, Director (Business)
- Amber Stubbs, Director (MCS)

simmons.edu/cocis

SCHOOL OF COMPUTING SCIENCE

SIMON FRASER UNIVERSITY

The School of Computing Science at Simon Fraser University (SFU) is comprised of world-class researchers, talented instructors and an enthusiastic group of staff, all dedicated to the success of students and advancing knowledge dissemination and cutting-edge research in computer science.

SFU is among the top four Canadian schools in computer science and has an internationally competitive program. For more computer science rankings, see the right column of this page.

ACADEMY AND SOCIETY FELLOWS

3 Royal Society of Canada Fellows • 1 ACM Fellow 2 IEEE Fellows • 1 SIAM Fellow • 2 Fellows of the Canadian Academy of Engineering • 1 IEEE VIS Fellow • 1 ACM CHI Academy • 1 SIGGRAPH Academy

MAJOR FACULTY AWARDS AND GRANTS

2 NSERC Steacie Memorial Fellowships • 14 NSERC Discovery Accelerator Awards • 6 Google Faculty Research Awards

TEST OF TIME PAPER AWARDS

ACM SIGKDD • IEEE PAMI Longuet-Higgins INFOCOMM • ICDE • ICCV Helmholtz

MAJOR AWARDS AND HONOURS IN 2019-2020

- Royal Society of Canada Fellows: **Martin Ester, Jian Pei**.
- ACM SIGGRAPH Academy: **Eugene Fiume**.
- IEEE Visualization Academy: **Sheelagh Carpendale**.
- CIFAR AI Chair: **Angel Chang**.
- IEEE PAMI Louguet-Higgins Prize: **Yasutaka Furukawa**.
- CVPR 2020 Best Student Paper: **Zhiqin Chen, Richard (Hao) Zhang**.
- Distinguished SFU Professor: **Richard (Hao) Zhang**.

NEW FACULTY HIRES IN 2019-2020
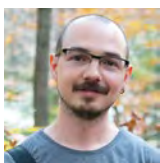
Yagiz Aksoy
Assistant Professor
Computer graphics, computational photography. PhD, ETH, 2019.

Alaa Alameldeen
Associate Professor
Computer architecture, memory systems. Last at Intel Labs. PhD, Wisconsin, 2006.
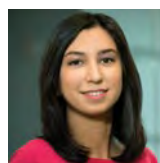
Saba Alimadadi
Assistant Professor
Software engineering, program analysis. Postdoc, Northeastern. PhD, UBC, 2017.

Angel Chang
Assistant Professor, CIFAR AI Chair
Natural language processing, computer graphics. Postdoc, Princeton. PhD, Stanford, 2015.

Steven Ko
Associate Professor
Distributed systems, networking. Last at University of Buffalo. PhD, UIUC, 2009.

Ke Li
Assistant Professor
Machine learning, computer vision. Last at Google and member of IAS, Princeton. PhD, Berkeley, 2019.

Hang Ma
Assistant Professor
AI, robotics, machine learning. PhD, USC, 2019.

Tao Wang
Assistant Professor
Computer security and privacy, machine learning. Last at HKUST. PhD, Waterloo, 2015.

68
FACULTY MEMBERS

411
GRADUATE STUDENTS (PHD & MSC)[1]

2,545
UNDERGRADUATE STUDENTS[1]

2020 CS RANKINGS[2]

COMPUTER VISION

# 01	# 23
IN CANADA	IN THE WORLD

COMPUTER GRAPHICS

# 03	# 12
IN CANADA	IN THE WORLD

DATABASES

# 02	# 28
IN CANADA	IN THE WORLD

VISUALIZATION

# 03	# 44
IN CANADA	IN THE WORLD

OVERALL

# 04	# 58
IN CANADA	IN THE WORLD

1. SFU Institutional Research and Planning (2019-20)
2. CSRankings.org (2010-2020)

CANADA'S ENGAGED UNIVERSITY

Find out more at sfu.ca/computing

SFU | SIMON FRASER UNIVERSITY

RESEARCH FOCUS AREAS

CREATE COMPUTING TECHNOLOGY AND SYSTEMS

ARTIFICIAL INTELLIGENCE & DATA SCIENCE
- Data Management & Analytics
- Intelligent Systems & Optimization
- Machine Learning & Intelligence

HUMAN-MACHINE COLLABORATIVE SYSTEMS
- Pervasive Sensing & Systems
- Multimedia
- Human-Machine Interaction

INFORMATION SYSTEMS & TECHNOLOGY
- Software Engineering & Systems
- Cybersecurity
- Information Systems Management

FACULTY AND RESEARCH HIGHLIGHTS

Associate Professor David LO and his Ph.D. student **Mr. Abhishek SHARMA** received the ACM Distinguished Paper Award for their paper titled "A Machine Learning Approach for Vulnerability Curation", at the 2020 IEEE/ACM International Conference on Mining Software Repositories.

Professor LIM Ee Peng and **Associate Professor JIANG Jing** received the Test of Time Award at the 2020 ACM WSDM Conference for their paper titled "TwitterRank: finding topic-sensitive influential twitterers".

At PAKDD 2019, **Professor LIM Ee Peng** received the Distinguished Contributions Award, while **Associate Professor ZHU Feida** received the Early Career Award.

Associate Professor Pradeep VARAKANTHAM was elected to Senior Member of AAAI. He also won the Best Application Paper Award at ICAPS 2019 for his paper titled "ZAC: A Zone pAth Construction Approach for Effective Real Time Ride Sharing".

Professor Steven HOI and **Associate Professor David LO** were selected as ACM Distinguished Members.

Associate Professor TAN Hwee Pink won the 2019 SuperNova Award (AI and Augmented Humanity Category) given by Constellation Research Inc.

Professor Robert DENG was elected as Fellow of Academy of Engineering, Singapore.

EDUCATION HIGHLIGHTS

Our **Master of IT in Business**, a postgraduate professional degree, is placed 1st in Asia in the 2020 QS World University Rankings for Masters in Business Analytics, for the second year in a row.

Assistant Professor Alan MEGARGEL and **Professor Venky SHANKARARAMAN** received the Best Paper Award at AIS SIG-ED 2019 for their paper titled "SMU Teaching Bank: Case Study of a Multiyear Development Project Utilizing Student Resources".

Undergraduate student **Mr. WONG Wai Tuck** is a winner of the 2019 Cybersecurity Awards (Student Category) given by the Association of Information Security Professionals.

Undergraduate student **Mr. KER Wei Xiang** won 1st Prize in Facebook Singapore Hack 2019.

Team TankBellCurve, comprising undergraduate students **Mr. Winston HO Min Kit**, **Mr. TOH Zi Jie**, **Mr. SIM Cher Boon** and **Mr. TAN Kee Hock**, was the first runner-up at the EY Asia-Pacific Hackathon held in Hong Kong on 3 March 2019.

Team Badoop, including undergraduate students **Mr. Gabriel M SIDIK**, **Ms. Jolene TEO**, **Mr. Zul YANG**, emerged champions in Amazon Web Services (AWS) Singapore Hackdays Hackathon.

The paper by undergraduate student **Ms. Mallika NITIN** titled "Cognitive and Social Interaction Analysis in Graduate Discussion Forums" was a Best Student Paper Finalist at the 2019 International Conference on Computers in Education.

SMU
SINGAPORE MANAGEMENT UNIVERSITY

FACULTY

39 Tenure Track Faculty

26 Term Track Faculty

Search is underway for multiple faculty positions, across all ranks and all tracks.

77 PhD Students

507 Professional Masters Students

1863 Students in BSc Programmes

STUDENTS

SCHOOL OF INFORMATION SYSTEMS

Updated as of September 2020

New Faculty Hires

- Four new faculty members joined the department from Fall 2020 bringing the total faculty strength to 56.
  - Yifan Sun (optimizations, machine learning)
  - Shubham Jain (smart environments, pervasive sensing, cyber-physical systems)
  - Stanley Bak (formal verification, cyber-physical systems)
  - Joydeep Mitra (software security)

Faculty and Funding Success

- Nick Nikiforakis won both NSF CAREER award and ONR Young Investigator Program Award (ONR YIP).
- Arie Kaufman, former chair and distinguished professor, was inducted into the inaugural class of the *IEEE Visualization Academy*.
- Steve Skiena and Haibin Ling independently received *Yahoo Research Faculty and Research Engagement Program Awards.*
- Multiple large research grants awarded within the last year led by the department's faculty
  - Niranjan Balasubramanian and Minh Hoai Nguyen - $4.2 million DARPA award
  - Annie Liu and Scott Stoller - $1M NSF award
  - IV Ramakrishnan and Xiaojun Bi - $1M+ DARPA award
  - Andrew Schwartz – $2.5M NIH award
  - Omkant Pandey – $1M DARPA award
- Annual research expenditures rose to over $10M, an all-time high

Rankings

- Stony Brook Computer Science ranks #27 overall in CSrankings.org with Computer Vision and Visualization sub-fields ranked within the top 10.
- *US News and World Report* ranked the undergraduate program top #48 in the country.

Broadening Participation

- Computing for all: Enrollment in the new freshman *Digital Intelligence* class co-taught by Computer Science and Humanities faculty crossed 550+.
- The CS department won a grant from the *Center of Inclusive Computing* at Northeastern University to improve the representation of women in the CS undergraduate program.

By the Numbers

1200+ Undergraduates

500+ Masters students

220+ PhD students

44 tenured/tenured track faculty, 12 teaching faculty

$10M+ annual research expenditure

Computer Science at SU

- **Artificial Intelligence and Machine Learning**
- **Cognitive wireless systems**
- **Cybersecurity**
- **Electromagnetics and Photonics**

- **Green computing**
- **Programming languages**
- **Smart Grid systems**

NSF Career Award

Reza Zafarani
Assistant Professor
Received NSF CAREER Award to study the intersection of humans and networks

New Faculty Secure NSF Awards within a Year

Endadul Hoque
Assistant Professor
NSF grant for developing a transformative defense mechanism to retrofit modern, but insecure, IoT ecosystems

Bryan Kim
Assistant Professor
NSF grant for a three year project rethinking storage interfaces from a solid state drive from a holistic perspective

Fernando Fioretto
Assistant Professor
NSF grant for a project aimed at leveraging robust artificial intelligence for transforming the electrical power grid

Fanxin Kong
Assistant Professor
NSF grant for design and Deployment of Scalable, Secure, and Smart Mission Critical IoT Systems

406
Undergraduates

375
Masters Students

44
Ph.D. Students

Transform together.

The College of Engineering & Computer Science is an inclusive, intimate, and collaborative community of innovators set within Syracuse University's gorgeous campus of extensive academic offerings and quintessential college experiences.

With undeniable spirit, our students master in-demand disciplines, gain real-world, integrative skills, and graduate prepared to succeed in their careers and shape the future.

206
RESEARCH PUBLICATIONS

607
UNDERGRADUATE STUDENTS

1107
GRADUATE STUDENTS

44%
OF STUDENT BODY ARE WOMEN

$2.8M
IN RESEARCH FUNDING

Research Highlights

Josh Introne Wins NSF Grant for Misinformation Research

Dr. Introne will investigate how people in online networks work together to combine misinformation to create and defend public health narratives.

Ingrid Erickson Wins NSF Grant for Capacity Augmentation Research

Dr. Erickson will explore how independent workers use technology to manage their daily work, family, home, and volunteer responsibilities, and will provide design inspiration for ensuring a more humane work experience in the future.

Knight Foundation Funds Research on Paid Political Ads on Social Media

Illuminating 2020, led by Jennifer Stromer-Galley and Jeff Hemsley, provides comprehensive information about the content and reach of political social media ads to help journalists covering the 2020 presidential campaign.

Jian Qin Wins NIH Grant for Collaboration Research

Dr. Qin is developing a collaboration capacity framework to evaluate the capacity of science teams and explore related policy implications.

Bei Yu Named Microsoft Investigator Fellow

Dr. Yu's research focuses on applying natural language processing (NLP) techniques to assess the quality of information, especially in healthcare, on the web and social media.

New Faculty Hires

Jasmina Tacheva
Assistant Professor

Jasmina earned her Ph.D. from the University at Buffalo's (UB) School of Management, where she was part of the NAVIGATE Project, an NSF-sponsored initiative for supporting women in STEM. Her research on the social networks of digital volunteers on Twitter won the best poster award at this year's Northeast Regional Conference on Complex Systems.

Yang Yang
Assistant Professor

A computer scientist by training, Yang studies performance and achievement of individuals and organizations, with an emphasis on innovation, knowledge spillover and entrepreneurship. His research interest also lies in the area of artificial intelligence/machine learning, big data, and data mining.

Md Tariqul Islam 'Pavel'
Assistant Professor

Joining us from the University of Kentucky, Pavel focuses on the security and fault tolerance of distributed computing systems. His aim is to devise novel schemes, algorithms, and protocols that support the development of secure, reliable, and trustworthy distributed networks (e.g., cloud, edge, and vehicular networks).

Department of
Computer & Information Sciences

Temple University
College of Science and Technology

Temple CIS is committed to exploring new opportunities in training students and expanding research strengths in data science, large-scale networked computing and machine learning to support future visions of computing. Internationally-recognized faculty, staff and more than 1,200 undergraduate and graduate students are fueling the department's rise towards the next level of excellence in academic programs and research endeavors.

Core Research Areas

Artificial Intelligence
Computer Vision
Machine Learning
Data Mining
Natural Language and Processing
Information Retrieval
Computer Architecture
Computer Networks
Computer Security

Data Science
Design Automation
Embedded & Real-time Systems
High-performance Computing
Mobile and Ubiquitous Computing
Measurement & Perf. Analysis

Edge Computing
Wireless Sensor Networks
Software Engineering
Algorithms & Complexity
Bioinformatics
Economics & Computation
Human Computer Interaction
Robotics
Visualization

Academic Programs

Computer Science BA, BS
Information Science and Technology BA, BS
Data Science BS
Mathematics and Computer Science BS
Mathematics and Computer Science with Teaching BS
Physics and Computer Science BS

Computational Data Science MS
Computer Science MS
Information Science and Technology MS
Cyber Defense and Information Assurance PSM
Bioinformatics PhD
Computer and Information Science PhD

DEI Initiatives

- Headquarters of STARS Computing Corps Alliance for Broadening Participation in Computing
- BRAID Affiliate
- NCWIT Learning Circles Member
- Sponsored student/faculty participation in Grace Hopper Celebration of Women in Computing
- Sponsored student/faculty participation in Tapia Celebration of Diversity in Computing

Read CIS Update 2020 for the latest news • Learn more about Temple CIS

Research Centers

- **Center for Data Analytics and Biomedical Informatics**
- **Center for Cognitive Computing**
- **Center for Networked Computing**
- **Center for Research in Intelligent Storage**

Recent Faculty Hires

Xinghua Shi, Associate Professor, comes to CIS from the University of North Carolina at Charlotte, where she was an assistant professor in the Department of Bioinformatics and Genomics. Shi earned her PhD in computer science from the University of Chicago.

Yan Wang, Assistant Professor, comes to CIS from SUNY Binghamton, where he was an assistant professor in the Department of Computer Science. He earned his PhD from Stevens Institute of Technology, specializing in computer engineering.

Yu Wang, Professor, comes to CST from the University of North Carolina at Charlotte, where he was professor and senior associate chair in the Department of Computer Science. He earned his PhD in computer science from the Illinois Institute of Technology.

Hongchang Gao, Assistant Professor, joined CIS in Fall 2020 after earning his PhD in Computer Engineering from the University of Pittsburgh. He brings expertise in machine learning to the department, with a focus on making fundamental contributions to the development of stochastic optimization algorithms for training large-scale machine learning models and efficient training methods for deep neural networks that operate over large-scale data sets.

Tennessee Technological University

Computer Science

Student Numbers and Growth

	2018	2019	2020
Ph.D.	22	25	29
Master's	33	29	38
Bachelor's	478	523	567
Total Students	533	577	634

Average Annual Enrollment Growth Over 3 Years

Ph.D **32%** Master's **15%** Bachelor's **19%**
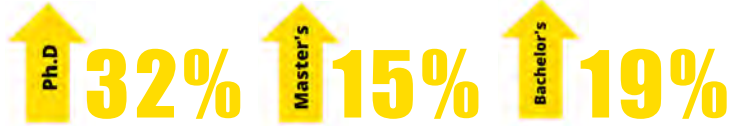
Faculty Highlights

Muhammad Ismail Receives Award for Best Paper

Dr. Muhammad Ismail, assistant professor of computer science, has received the Best Paper Award from the 10th IEEE International Conference on Intelligent Systems for the paper Data-Driven Smart Handover in Mobile RF/Optical HetNets. Ismail recently published "Efficient Integration of 5G and beyond Heterogeneous Networks." A book that allows readers to gain an in-depth grasp on how to integrate coexisting networks at high-frequency bands in a cooperative manner, yielding reliable and high-speed 5G+ HetNets.

Claire L. Felbinger Award recipient for Diversity and Inclusion

Dr. Ambareen Sirai, professor of computer science and Director of CEROC, is this year's ABET Claire L. Felbinger Award recipient. ABET is the professional accreditation agency providing leadership and quality assurance in applied science, computing, engineering and engineering technology education. This award recognizes U.S. based educational units, individuals, associations, and firms for extraordinary success in achieving or facilitating diversity and inclusiveness in the technological segments of our society.

Susmit Shannigrahi and hits a new high for number of grants

Dr. Susmit Shannigrahi, assistant professor of computer science, recently joined the department in August 2019. Shannigrahi has received seven grants this fiscal year. On four of those seven he is the principal investigator. These grants include the National Science Foundation, Cisco Systems and Google.

Cybersecurity Education, Research, and Outreach Center Highlights

CyberCorps SFS and DoD CySP Programs

CEROC (NSA CAE-CDE Designated) is the first and largest CyberCorps SFS program in the state of Tennessee. Combining its participation in the DoD CySP program, CEROC is among an elite group in the cybersecurity education community. The center has additionally been a part of select pilot programs servicing community college transitions. The center also has the longest standing NSA/DHS GenCyber program in the state.

CEROC Outreach Expansion

CEROC expanded its outreach efforts through recent grants from DoD. The C3E project will focus on developing the 2-year to 4-year program pipeline through community college engagement. Another grant focuses on the development of resources supporting workforce development and training opportunities for students attending HBCU and MSI institutions. CEROC, in coordination with SANS, will expand the Cyber Encounters program to focus on JROTC pro-

Funding

$4.7 million in new grant activations since August 2019 from CS and CEROC faculty.

Faculty Numbers

19 tenure track professors

3 regular adjunct professors

Student Organizations

- CyberEagles Club / WiCyS
- Game Development Club
- ACM / ACM - W
- Autonomous Robotics Club
- Data Science League
- Computer Science Graduate Student Club
- Sports Analytics Club

BY THE **NUMBERS**

FACULTY 2019-20

46 Tenured/ Tenure Track

19 Academic Professional Track

1 Chair | **3** Professorships | **5** Faculty Fellowships

ENROLLMENT 2020

1,774 Undergraduates

209 Graduates

180 Ph.D.

STUDENT SUCCESS

356 Engineering Honors Track

121 Undergraduate Scholarships

100% Classes are Under 100 Students

2,706 Students Took Our Introductory Programming Course *(Fall 2019-Spring 2020)*

NEW **FACULTY**

Pauline Wade
Associate Professor of Practice

Paul Taele
Instructional Assistant Professor

Khanh Nguyen
Assistant Professor

RESEARCH HIGHLIGHTS

Texas A&M and Intel Labs design tool to locate performance bugs:

tx.ag/DeepLearningAlgorithm

Texas A&M researchers receive $3.6 million grant to continuously monitor blood pressure during sleep:

tx.ag/CufflessBPMonitor

Improving the use of social media for disaster management:

tx.ag/EventRecognition

Computer scientists utilize artificial intelligence to fight secondary effects of COVID-19:

tx.ag/AIcures

Huang receives NSF Faculty Early Career Development Award for work on document-level event graphs:

tx.ag/EventGraphs

TEXAS ★ STATE ®
COMPUTER SCIENCE

Organizational News

The department has partnered with Facebook to create an Engineer-in-Residence program to increase diversity in tech workforce.

Faculty Highlights

- Dr. Oleg Komogortsev was selected as a keynote speaker for the 2020 ICIEV and helped organize Open Eyes workshop at European Conference on Computer Vision (ECCV 2020).
- Dr. Ted Lehr joined Austin's Smart City Team and Governor's Innovation Task Force during Covid-19.
- Dr. Ziliang Zong won the 2020 Presidential Distinction Award for Excellence in Scholarly/Creative Activities.
- Dr. Jill Seaman won the 2020 Presidential Distinction Award for Excellence in Service.
- Dr. Mina Guirguis won the 2020 Presidential Distinction Award for Excellence in Teaching.
- Dr. Vangelis Metsis was tenured and promoted to Associate Professor.
- Dr. Tanzima Islam won the 2019-2020 R&D 100 award in collaboration with Lawrence Livermore National Laboratory.
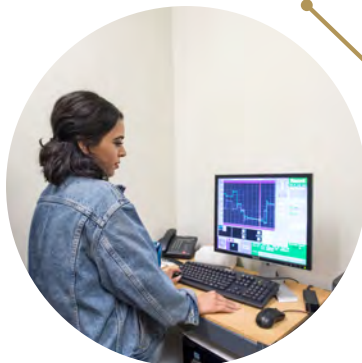
By the Numbers

1289
Undergraduate Students

116
Master's Students

31
PhD Students

22
Tenured/Tenure-track Faculty

Student Highlights

- Morgan Byers, CS undergraduate, won the summer 2020 NSF REU Poster Competition.
- PhD student Samantha Aziz was awarded NSF Graduate Research Fellowship.
- Noushin Azami was awarded P.E.O. (Philanthropic Educational Organization) International Peace Scholarship.
- CS students won 1st and 2nd place in a Cyber Security Challenge at the 2019 SHPE (Society of Hispanic Professional Engineers) National Convention in Phoenix, AZ.
- Three CS student organizations (VRDG, EXE, and ACM Student Chapter) hosted several hackathons to increase student engagement.

Research Highlights

- Computer Science hosted summer 2020 NSF REU group. The REU students presented posters in August.
- Dr. Martin Burtscher, Dr. Apan Qasem, Dr. Yan Yan, and Dr. Ziliang Zong were awarded NSF research grants.
- Dr. Oleg Komogortsev was awarded a Facebook research grant.
- Dr. Yan Yan, Dr. Ted Lehr and others were awarded AMD Covid-19 HPC grant to help fight the pandemic.

Department of Computer Science
Texas Tech University (TTU)
http://www.depts.ttu.edu/cs/

Recent Faculty Hire

Bashir I. Morshed, Ph.D. in ECE
Associate Professor, University of Memphis
Associate Professor
Embedded systems, Cyber-physical systems, Inkjet-printed flexible electronics, Edge-computing AI

Research Highlights

- Dr. Victor Sheng received the Test-of-Time Award at the 2020 ACM Special Interest Group on Knowledge Discovery and Data Mining (SIGKDD) Conference. The SIGKDD Test-of-Time Award recognizes outstanding papers from past KDD conferences beyond the last decade that have had an important impact on the data-mining research community.

- Dr. Zhenkai Zhang received the IEEE 2020 International Symposium on Real-Time Distributed Computing (ISORC) Best Paper Nomination and the IEEE 2020 International Symposium on Hardware Oriented Security and Trust (HOST) Best Paper/Best Student Paper Nomination for his outstanding research in Cyber-physical System security and hardware security. HOST is a premier symposium that facilitates the rapid growth of hardware-based security research and development.

Victor Sheng, Ph.D. in CS,
Associate Professor
Big data analytics, machine learning and data science

Other Highlights

- Ph.D. students Huyen N. Nguyen (second-year) and Jake Gonzalez (first-year), advised by Dr. Tommy Dang, won the Honorable Mention Award at the IEEE 2020 VAST Challenge, organized by IEEE VIS Conference, for their Interactive Visual Analytics System for Misclassification Correction and Analysis.

- Ph.D. student Misha Ahmadian won the Best Student Poster Award at the ACM International Conference on Practice & Experience in Advanced Research Computing (PEARC) for his research study of "Reducing Faulty Jobs by Job Submission Verifier in Grid Engine".

Zhenkai Zhang, Ph.D. in CS
Assistant Professor
Hardware security and cyber-physical systems

Organizational News

- Quantum Computing is TTU top priority. The dean of college of engineering commits hiring two positions in the college; one in Quantum information in CS and the other one in Quantum sensing and communication in department of Electrical and Computer Engineering.

Student Numbers

765	161	109	24
Undergraduate Student Enrollment	Graduate Student Enrollment including 59 Ph.D. students	Undergraduate Degrees Awarded	Graduate Degrees Awarded

Research Highlights

- Julia Chuzhoy was awarded the 2020 National Academy of Sciences Held Prize for her work in graph algorithms, hardness of approximation, and structural graph theory.
- Steve Hanneke won the COLT 2020 Best Paper Award.
- Julia Chuzhoy was Program Chair for STOC 2020.
- Karen Livescu was keynote speaker at the New York Academy of Science Symposium on Natural Language, Dialog, and Speech.
- Students Mingda Chen and Blake Woodworth were awarded Google PhD Fellowships. The ALBERT system created by Mingda, his advisor Kevin Gimpel, and researchers from Google, received substantial popular press.
- TTIC faculty received significant funding awards from the NSF, NIH, DARPA, the Simons Foundation, and many corporate sponsors.

PhD Graduates and Alumni News

- Congratulations to 2020 PhD graduates Takeshi Onishi, Siqi Sun, and Hai Wang!
- Mohammadreza Mostajabi (PhD 2019) is now a Research Engineer at Zendar.
- Somaye Hashemifar (PhD 2017) is now a Senior AI Scientist at Genentech.
- Behnam Neyshabur (PhD 2017) is now a Senior Research Scientist at Google.
- Hao Tang (PhD 2017) is now a Lecturer (Assistant Professor) at the University of Edinburgh.
- Jianzhu Ma (PhD 2015) is now a Walther Assistant Professor in Cancer Molecular Genetics and Assistant Professor of Computer Science at Purdue University.
- Jian Peng (PhD 2013) received the 2020 International Society of Computational Biology Overton Prize.

Research Assistant Professor Placements

- Mrinmaya Sachan joined ETH Zurich as an Assistant Professor.
- Dougal Sutherland is joining the University of British Columbia as an Assistant Professor in December 2020.
- Thatchaphol Saranurak is joining the University of Michigan, Ann Arbor as an Assistant Professor in Winter 2021.

New Faculty Hires

Filip Hanzely
Research Assistant Professor

Optimization, Machine learning, Randomized algorithms, Distributed and federated optimization.

Mina Karzand
Research Assistant Professor

Machine learning, information theory, statistics, theoretical computer science and applied probability theory.

Audrey Sedal
Research Assistant Professor

Robotics, including the design, modeling and control of "soft" robots made from rubber and other compliant materials; computational mechanics.

Bradly Stadie
Research Assistant Professor

Robotics and reinforcement learning, including exploration, imitation learning, and meta learning.

TTIC By the Numbers	Tenure-track Faculty	Research Assistant Prof. (3-year position)	PhD Students
	12	12	45

WWW.TTIC.EDU   6045 S. KENWOOD AVE. | CHICAGO, IL 60637

Department of Computer Science
Tufts University
https://engineering.tufts.edu/cs/

Faculty

- 32 faculty members with research foci in programming languages, human-robot interaction, machine learning and data science, computational biology, theory, HCI, cybersecurity and policy, networks, and computational geometry.
- Searches for three additional tenure-track and teaching professors are underway in 2020-2021.

New Faculty for Fall 2020

Bert Huang
Assistant Professor

David Lillethun
Assistant Teaching Professor

Daniel Votipka
Assistant Professor (January 2021)

Online Space for 2020-2021: Virtual Halligan

Program offerings

- Ph.D., M.S., Online M.S., B.S., B.A., Minor, Post-Baccalaureate, and Certificate in Computer Science
- Ph.D., M.S., and Certificate in Human-Robot Interaction
- Ph.D. in Cognitive Science
- M.S., B.S., and Certificate in Data Science
- M.S. and Certificate in Computer Engineering

- M.S. in Cybersecurity and Public Policy
- M.S. in Bioengineering
- M.S. in Software Systems Development
- MSIM dual degree program with the Tufts Gordon Institute
- Certificate in Human-Computer Interaction
- Launching in Fall 2021
  - Online MSDS, Online Post-Bac in CS

Recent Faculty Highlights

- The National Science Board issued its "VISION 2030" report under the leadership of Professor Diane Souvaine in May 2020.
- Professor Souvaine has been named to the Board of Trustees of the Computer History Museum.
- Bridge Professor Susan Landau is part of a multi-institution NSF-funded Frontiers award to make smart homes more secure.
- Professor Matthias Scheutz received a four-year $6.7M grant from DARPA to develop AI techniques for open worlds.
- Professor Matthias Scheutz and PhD student Vasanth Sarathy were one of four grand prize winners for their project "From Thinking to Inventing" in the NSF 2026 Idea Machine Competition.
- Professor Lenore Cowen was co-awarded the CRA-E Faculty Undergraduate Research Mentoring Award, and the NCWIT Undergraduate Research Mentoring Award in 2020.

Students by the numbers:

- CS + DS majors as of May 1, 2020: 596. CS + DS majors who graduated in May 2020: 177
- Fraction of CS majors that are women: 1/3
- Attendees at Tufts' Fall 2020 student-run Women in Tech virtual conference: more than 375.
- Number of undergraduates partnering with faculty to help teach our courses: more than 175.
- Number of non-profits receiving custom software developed by JumboCode in the past two years: 8.
- One of nine schools that nominated a student for CRA's undergraduate research competition for the past five years.

New Space!

The CS Department will move into two floors of the newly constructed Joyce Cummings Center in 2021, which will be adjacent to a new Green Line T Stop that will provide direct access to downtown Boston. Construction is continuing despite delays caused by COVID-19.

DEPARTMENT HIGHLIGHTS

GROUNDBREAKING RESEARCH

- Three CSE faculty are part of two teams selected for the highly competitive DARPA SemaFor grants. SemaFor is a four-year DARPA funded effort to develop semantic technologies for analyzing media. This includes semantic detection algorithms to determine if multi-modal media assets have been generated or manipulated, attribution to infer origination, and characterization to reason about intent. **David Doermann** (Sub-award PI) and **Junsong Yuan** (Sub-award Co-PI) are part of a team focused on media analysis, reasoning and fusion. **Siwei Lyu** (Sub-award PI) is part of a team focused on synthetic media detection and attribution. These awards total more than $1.6M over four years.

- **Wenyao Xu** (Co-PI) is part of the team who received a **$2.5M award** from the independent and non-profit Patient-Centered Outcomes Research Institute (PCORI). This project will study the use of new technologies to help adults living in low-income, racial- and ethnic-minority neighborhoods reduce stress due to the COVID-19 pandemic.

- Department Chair and SUNY Distinguished Professor **Chunming Qiao** spearheaded the development of **PocketCare S**, a COVID-19 contact tracing app to assist the University at Buffalo in its response to the pandemic.

- The CSE department was awarded nine NSF grants in 2020 totaling $2.9M.

STUDENT AND FACULTY AWARDS

- **Steve Ko**, Associate Professor (co-author) – Best Paper Award, ACM MOBICOM 2019: **"FLUID: Flexible User Interface Distribution for Ubiquitous Multi-device Interaction."**

- **Wenyao Xu**, Associate Professor (and students) – Best Paper Award, ACM SenSys 2019: **"FerroTag: A Paper-based mmWave-Scannable Tagging Infrastructure."**

- Aditya Singh Rathore, PhD student – Best Paper Award, ACM MobiSys 2020: **"SonicPrint: A Generally Adoptable and Secure Fingerprint Biometrics in Smart Devices."**

- Grant Iraci, PhD student – **NSF Student Fellowship**, 2020

EXPANDING OUR EXPERTISE

Siwei Lyu, PhD
Empire Innovation Professor

Research Interests: Digital media forensics, computer vision, machine learning

Nalini Ratha, PhD
Empire Innovation Professor

Research Interests: Computer vision, artificial intelligence, biometrics and fairness, trust in AI

Nasrin Akhter, PhD
Assistant Professor of Teaching

Research Interests: Machine learning, computational biology

Ziming Zhao, PhD
Assistant Professor

Research Interests: Hardware-assisted security, system security, usable security, cybercrime analysis

BY THE NUMBERS

#1 Mobile Computing
CSRankings.org 2018–2020

$10.7M new research awards 2019–2020

56 faculty

2,100+ graduate/undergraduate students 2020–2021

iSchool

University of Arizona
Tucson, AZ
ischool.arizona.edu

The iSchool strives to advance the involvement of women and other under-represented groups in STEM fields.

ToMCAT: AI that understands social cues.
iSchool Post-Doc Adarsh Pyarelal is the Principal investigator for the "Theory of Mind-Based Cognitive Architecture for Teams (ToMCAT)", the largest AI project by the University of Arizona. This ambitious project was awarded a 4-year, $7.5M grant from the Defense Advanced Research Project Agency (DARPA), under its Artificial Social Intelligence for Successful Teams program that seeks to build AI systems equipped with social skills and the ability to participate in an effective team.

1,093 Students | **8% Foreign students** | **16 Countries**

Graduates Academic Year 2019
117 Undergrad | **80** Graduate

18 Core Faculty
40 Affiliated or Adjunct Faculty
10 Administrative and Advising Staff

$22mm in externally funded research projects

8 PROGRAMS

5 UNDERGRAD
B.S. Information Science
(258 majors)
B.A. Information Science & Arts
(53 majors)
B.A. Information Science & eSociety
(362 majors)
B.S. Game Design & Development
NEW! Fall 2020
B.A. Games & Behavior
NEW! Fall 2020

The University of Arizona has joined the Public Interest Technology University Network (PIT-UN) and **Catherine Brooks, director of the UArizona iSchool**, will serve as the university's PIT-UN designee. In joining PIT-UN, the university will expand its research and teaching capacities to leverage advances in artificial intelligence, machine learning and other technology in ways that serve the public interest.

2 MASTERS
M.S. Information Science
(22 majors)
M.A. Information & Library Science
(213 majors)

2020 Accreditation status for our Master of Arts in Library & Information Science Degree

1 PHD
Ph.D. Information
(16 majors)

Arizona's first and only iSchool

2019 Best Online in Master's in Library Science Programs
TOP 10 Library & Information Science Academic Subjects according to Shanghai's Global Ranking of 2019
TOP 25 Library & InfoScience Programs - U.S. World & News Report

8 Certificates -
2 Undergraduate
6 Graduate

+200 Courses

THE UNIVERSITY OF ARIZONA
COLLEGE OF SOCIAL & BEHAVIORAL SCIENCES
School of Information

iSchools

Follow us on
@UAZiSchool

MAJOR CONFERENCES CHAIRED

Cristina Conati
Program Chair
ACM IUI 2020

Ron Garcia
Program Chair
ICFP 2021

Kevin Leyton-Brown
Program Chair
AAAI 2021

Karon MacLean
General Chair
UIST 2020

Joanna McGrenere
Technical Program Chair
ACM CHI 2020

Rachel Pottinger
General Chair
SIGMOD 2020

Margo Seltzer
Program Chair
EuroSys 2020

PEOPLE POWER: RECENT ACCOLADES

Uri Ascher: Fellow of the Royal Society of Canada

Kevin Leyton-Brown: AAAI Fellow; INFORMS Franz Edelman Achievement Award

Tamara Munzner: IEEE VIS Academy

Gail Murphy: ACM Fellow; IEEE CS Harlan D. Mills Award

Mark Schmidt: SIAM Lagrange Prize in Continuous Optimization

Margo Seltzer: USENIX Lifetime Achievement Award; US National Academy of Engineering

Alla Sheffer: Fellow of the Royal Society of Canada; SIGGRAPH Academy

Recent best paper and honorable mention awards from: CHI, DSAA, GECCO, ICML, ICSE, IJCAI, MIG, and NeurIPS

Recent Test of Time awards from: IEEE VIS and ACM SIGMOD

FRESH TALENT

We're hiring the best and brightest. Our most recent faculty additions are:

MACHINE LEARNING & VISION

Jeff Clune, Associate Professor
Mijung Park, Assistant Professor
Dougal Sutherland, Assistant Professor
Kwang Moo Yi, Assistant Professor

SYSTEMS & SOFTWARE ENGINEERING

Mathias Lecuyer, Assistant Professor
Aastha Mehta, Assistant Professor
Thomas Pasquier, Assistant Professor
Alex Summers, Associate Professor

EDUCATIONAL LEADERSHIP

Varada Kolhatkar, Assistant Professor of Teaching
Karina Mochetti, Assistant Professor of Teaching

STRENGTH IN NUMBERS

Consistently ranked **TOP 50** in the world

Over **2,300** undergraduate students

Over **200** graduate students

63 faculty, including **10** new hires

Over **$7M** received in research grants in 2019

32% of undergraduate students identify as female

DEPARTMENT OF COMPUTER SCIENCE

Home to world-leading experts in cybersecurity, software development, game design, human-computer interaction, and more.

FACULTY RESEARCH AREAS

- Data Science & Visual Computing
- Information Security and Systems
- Mathematical Foundations of Computing
- People Centric Computing
- SoTL in Computing

1226 | Undergraduate students

124 | Graduate students

45 | Faculty members

RESEARCH HIGHLIGHTS

Our department is home to:

- The federally-recognized Institute of Information Security and Privacy Assurance (ISPIA)
- The LINDSAY Virtual Human
- Members of the Institute for Quantum Science and Technology (IQST)

INNOVATIVE PROGRAMS for CANADA'S DIGITAL ECONOMY

We're looking to the future of work in Canada. Our professional programs provide students with the skills they need to succeed and help evolve our tech economy.

- Undergraduate Minor in Data Science
- Graduate Certificate in Data Science and Analytics
- Graduate Diploma in Data Science and Analytics
- NEW Master of Data Science and Analytics (professional degree and internship)
- Graduate Certificates in Information Security
- NEW Master of Information Security and Privacy (professional degree and internship)

science.ucalgary.ca

UCI Department of Computer Science
Donald Bren School of Information & Computer Sciences

BY THE NUMBERS

Faculty
58 tenured/tenure-track
24 additional affiliated faculty

Students
- 200+ Ph.D. students
- 230+ students in two Master's programs (professional MCS, research-oriented MS)
- 2,300+ Computer Science majors
- With 1,200+ students graduating each year, the Donald Bren School of Information and Computer Sciences contributes about 2% of the roughly 50,000 new Ph.D., M.S. and B.S. degrees per year in the U.S. and Canada

Honors
10 ACM Fellows • 9 IEEE Fellows • 7 AAAS Fellows • 4 AAAI Fellows • 2 IFIP Fellows • Multiple NSF Career Awards • 2 Endowed Professors and 13 Distinguished/Chancellor's Professors • 1 National Academy of Engineering Member • 2 Academia Europea Member • 1 Royal Danish Academy of Sciences & Letters Member

Major Faculty Awards
Fulbright scholars, Hellman Fellowship, Helmholtz Prize, Humboldt Research Award, numerous IEEE and ACM best papers and Test of Time awards

Rankings
- Top 15 Graduate and Undergraduate Computer Science Programs among public universities *(U.S. News & World Report)*
- Top 20 Best Colleges for Computer Science Majors *(Money)*
- Computer Science is UCI's 2nd largest undergraduate major
- Overall rankings by CSRankings.org: Top 25 in the U.S. and Top 35 in the World

NEW FACULTY 2020-21

Sangeetha Abdu Jyothi
Assistant Professor
Computer networking and systems
Ph.D., University of Illinois, Urbana-Champaign

Mohsen Imani
Assistant Professor
Computer architecture and embedded systems
Ph.D., UC San Diego

Faisal Nawab
Assistant Professor
Distributed cloud computing and big data management
Ph.D., UC Santa Barbara

Ioannis Panageas
Assistant Professor
Theory of computation and machine learning
Ph.D., Georgia Tech

Jing Zhang
Assistant Professor
Bioinformatics and computational biology
Ph.D., University of Southern California

RESEARCH HIGHLIGHTS

The Hasso Plattner Institute (HPI), dedicated to pioneering research in information technology, announced the opening of its newest research school, the **HPI Research Center in Machine Learning and Data Science at UCI**, in February. Led by CS Professor **Erik Sudderth**, the goal of the partnership is to promote research and educational activities in these two fields between two leading institutions. HPI at UCI will fund three-year fellowships for 15 Ph.D. students whose research will focus on ways of making AI more adaptive, safe and human-centered.

The **Allen Institute for Artificial Intelligence (AI2)** has partnered with ICS to provide funding for graduate student support while working with Assistant Professor of CS **Sameer Singh** and his group to build AI algorithms that can read and understand paragraph-size text.

CS Professors **Stephan Mandt** and **Padhraic Smyth** are part of a research team headed by SRI International that received a $1.6 million **DARPA** grant for 3.5 years to fund one postdoctoral fellow and three Ph.D. students who will be conducting fundamental research on open-world novelty detection for AI and machine learning systems.

A team of researchers led by CS Professors **Sharad Mehrotra** and **Nalini Venkatasubramanian** received a rapid funding **NSF** award to explore the deployment of UCI's wireless network as part of a coronavirus contact tracing application. The proposed app stems from a 4-year-old **DARPA** initiative that studies privacy in smart buildings equipped with technologies to control access, energy usage and other services.

CS Professor **Chen Li** led a six-person development team that launched a real-time **coronavirus Twitter map**, which serves as an interactive resource that visualizes the spatial and temporal distribution of tweets related to the pandemic, allowing users to view the growth and transformation of social media activity as the contagion spreads.

cs.uci.edu

UCI Department of Informatics
Donald Bren School of Information & Computer Sciences

The Department of Informatics at UC Irvine seeks to make a positive difference in how people live, work, and build in a digital world. Wherever technology touches people, it must be designed with ultimate care. This requires mastery of technological knowhow and a deep appreciation of the social, cultural, and organizational forces at work. To that end, we study interactions among information technologies and people, create innovative information technologies that serve the diverse needs of society, and educate our students to be leaders in these endeavors. With technology impacting and enabling so much of our lives, we asked our faculty what drives their research. Here is what they said:

where our technologies strengthen (rather than undermine) democracy, equality, and mutual respect

LIVE

where having a community-driven infrastructure supports researchers in integrating and evaluating their techniques with real-world software-development practice and helps developers to ensure the quality of software

where an effective (high-quality) education is available, accessible, and affordable for anyone who can benefit from it

where software failure is a thing of the past

where people have self-control over their technology use, so that they can achieve goals with it, e.g., of social connectedness, work-life balance, and life-long learning

where barriers are lower when working remotely

where there is an online world full of kid-powered communities

where software nurtures the world rather than eats it

where technology helps kids thrive

where software that conducts the public's business is open to public scrutiny

what would you like the world to be?

where we can anticipate all major problems accurately enough to mitigate and/or prevent them

where individuals can better manage their health and wellness without much burden

where people use the discipline of science to reason and act beyond immediate horizons, for the good of the many, and for future generations.

WORK

where technology helps create futures that benefit all species, including humans

where computing contributes to the good life more than the hectic life

where the data you collect is useful for you, not just for others

where everyone can feel safe and secure in their digital experiences

where women, LGBTQ+ people, and people of color are free from online harassment

where computers serve humans and enrich our lives in a way that preserves our safety, security, privacy, community, and values, while minimizing the inherent risks for the opposite — whether intentional or unintentional

where information and communication technologies help people live more sustainable and fulfilling lives rather than undermine our expectations of ourselves and each other

where technology integrates, instead of isolates, people with disabilities

where the outside community drives the problems researchers undertake

where technology does not get in the way of clinical work

where all children see themselves represented in robust and humanizing ways on digital platforms

where technology supports robust civic institutions and their missions

BUILD

Highlights
- 2 new tenure-track faculty hired 2020-21
- Software engineering ranked 6th overall by U.S. News & World Report
- Nearly $6M in new grants and gifts, including from the NSF, CDC, Gordon and Betty Moore Foundation, Bill & Melinda Gates Foundation, and MacArthur Foundation
- 5th best game design program among U.S. public schools and colleges (Career Animation Review)
- 4th best affordable online master's in HCI (Master's Programs Guide)
- Software Engineering research ranked #2 and HCI research ranked #9 (CSRankings.org)
- UCI is #1 in Sierra magazine's 2020 "Cool Schools" ranking of sustainability leaders (4th time in 7 years)

Academic Programs
- Ph.D.: Informatics, Software Engineering
- Research M.S.: Informatics, Software Engineering
- Professional Master: Human-Computer Interaction and Design, Software Engineering
- Undergraduate: Informatics, Game Design and Interactive Media, Business Information Management, Software Engineering

JOIN US:
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NEW HIRES

HYERAN JEON
> Smart Edge-base Systems Design
> Emerging Workloads Acceleration
> Energy-efficient Data Center Design
> Computer Architecture & Systems Design

SANTOSH CHANDRASEKHAR
> Security education program
> Effective teaching strategies for undergraduate computer science courses

HUA HUANG
> Sensor Systems
> Smart Healthcare
> Wireless Networks
> Ubiquitous Computing

2019-2020 HIGHLIGHTS

> UC Merced is one of four universities to receive a $26 million, five-year National Science Foundation Engineering Research Centers grant to form the Internet of Things for Precision Agriculture

> **Ahmed Sabbir Arif**, Hellman Fellowship

> **Shijia Pan**, Best Paper at Cyber-Physical Systems and Internet-of-Things Week's Conference

> **Ming-Hsuan Yang,** one of the world's most influential researchers by the Web of Science Group

> **Sifei Liu**, Ph.D. alumna, Rising Stars in Electrical Engineering and Computer Sciences

> **Xueting Li**, Ph.D. student, NVIDIA Graduate Fellowship

CAREER AWARDS

IEEE FELLOWS

Ming-Hsuan Yang - 2018 has been elevated to the status of Fellow in the Institute of Electrical and Electronics Engineers in recognition of his contributions to object tracking and face recognition research.

Mukesh Singhal - since 2001, for pioneering contributions to distributed computing systems

PECASE

Shawn Newsam - 2007 for his interdisciplinary research in knowledge discovery in complex data.

Presidential Early Career Award for Scientists and Engineers (PECASE) is bestowed by the president's Office of Science and Technology Policy on young researchers who have accomplished innovative research and community service.

NSF CAREER AWARDEES

SUNGJIN IM

DONG LI

MING-HSUAN YANG

MIGUEL CARREIRA-PERPINAN

SHAWN NEWSAM

ALBERTO CERPA

TOP 100
NO. 40 AMONG PUBLIC UNIVERSITIES
U.S. News and World Report Best Colleges Rankings

#3
AMONG NEW U.S. UNIVERSITIES
Times Higher Education Young University Rankings

#63
IN COMPUTER SCIENCE
CSRankings.org

WE ARE GROWING

38 · 183 · 192 · 1,177

Faculty · **Ph.D. students** · **M.S. students** · **B.S. students**

New Faculty

Elaheh Sadredini
Assistant Professor

Allan Knight
Assistant Teaching Professor

RANKINGS

1st **SOCIAL MOBILITY**
[US NEWS & WORLD REPORT for UCR]

52nd **UNDERGRADUATE CS PROGRAM**
[US NEWS]

csrankings.org rankings

36th OVERALL

3rd ARCH, DA, EMB SYS, HPC

12th BIOINFORMATICS

15th SYSTEMS

16th SECURITY

FEATURED NEWS

• Profs. V. Papalexakis and A. Eldawy are Co-PIs on a $10 million grant to develop artificial intelligence that will increase the environmental and economic stability of agriculture in the Western U.S. 🔗

• Fatemah Alharbi (Ph.D. student) received global attention after discovering a security flaw in the most powerful security systems of Apple, Microsoft, and Linux. Apple publicly thanked Fatemah in a recent security update. 🔗

• FarmSense, a company spun out of UCR by Prof. E. Keogh and Dr. Singh (a former Ph.D. Student of Prof. S. Krishnamurthy) won second place at the USA Cup Championship of Entrepreneurship. 🔗

• Prof. V. Hristidis leads a team that includes Prof. V. Tsotras and V. Papalexakis that are working on building a tool that searches real-time text, photo and video form many sources to help responders allocate resources funded by a new 1.2 million NSF grant. 🔗

• Prof. S. Lonardi and his team have decoded the genome of black-eyed peas, offering hope for feeding the Earth's expanding population, especially as the climate changes. 🔗

Shaping the Digital World of the Future

NEW FACULTY

Tzu-Mao Li, Rose Yu, Kristen Vaccaro, Carlos Jensen

CONTINUING CSE'S IMPACT
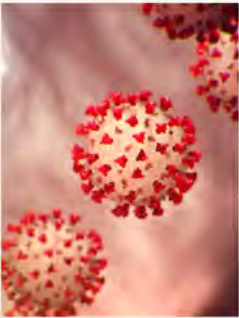
COVID-19: CSE Responds
Providing personal protective equipment to hospitals in Baja, California, helping connect clinicians with resources and answers and tracking the genetic evolution of COVID-19 are among the ways CSE faculty and students are helping find solutions to this global pandemic.

Innovation and Community on Display
At the 2020 CSE Winter Research Open House, a broad range of CSE research was on full display, including robots such as these from the labs of Healthcare Robotics and Cognitive Robotics.

CSE RESEARCH INNOVATION & IMPACT

Advancements in AI: Spotting Spoiler Alerts and Customized Recipes
CSE researchers developed an AI-based system called SpoilerNet that can flag spoilers in online reviews of books and TV shows. They have also broken new ground with AI techniques for generating recipes customized to your personal taste.

CSE BY THE NUMBERS

- 🎓 1,933 Undergraduates
- 🎓 521 MS & MAS Students
- 🎓 239 Ph.D. Students
- 👤 87 Faculty
- 👤 21 Affiliated Faculty
- 👤 10,386 Alumni

#6 Ranked No. 6 among top computer science departments (according to csrankings.org)

35M $35.8 Million in Research Expenditures (Fiscal Year 2018-2019)

FACULTY AWARDS & HONORS

Our faculty members in the 2019-2020 academic year once again received national recognition for contributions to their fields and society. Highlights include:

Rob Knight
NIH Pioneer
Director's Award

Arun Kumar
Nadia Polikarpova
NSF CAREER
Award Winners

Nadia Polikarpova
Sloan Research
Fellowship

Dean Tullsen
Stefan Savage
Test-of-Time Awards

For a complete list of CSE faculty awards, visit cse.ucsd.edu/faculty-research/facult-awards

CONNECT & LEARN MORE
c s e . u c s d . e d u

Improving Firefox Security
CSE's RLBox framework for secure sandboxing of libraries has been adopted by the Firefox browser, thus improving browser security for millions of users.

40 years · *1979 - 2019* · UC Santa Barbara Computer Science

NEW FACULTY MEMBERS

Shumo Cho
Databases & Applied Cryptography

Jonathan Balkind
Computer Architecture

Zoë Wood
Computer Graphics

BY THE NUMBERS

- **41** faculty members
- **10** staff members
- **833** undergraduate students
- **157** graduate students
- **11.5** $11.5m in research awards
- **#6** public university (USNWR)
- **#25** CS department (CSRankings)
- **#12** CoE Grad programs (USNWR)
- **TOP 10** PhD CS programs (NRC)

RESEARCH HIGHLIGHTS

Leading the Quantum Computing Revolution
UCSB and Google built Sycamore, the first quantum processor to demonstrate "quantum supremacy".

VLab discovers new type of security vulnerability
Two recent papers at IEEE S&P and ICSE detail a new type of side-channel that leaks information in modern software systems.

AWARDS & HONORS

FACULTY

William Y. Wang
ACM Future of Computing Google/IBM/Facebook Faculty

Diba Mirza
UCSB Distinguished Teaching Award, CoE Outstanding Faculty Award

+ 4 Best Paper Awards, IEEE Top Pick, Test of Time Award, AAAS Fellow ACM Fellow, ACM SIGGRAPH Outstanding Dissertation Award

STAFF
Samantha Oglesby   Staff Citation of Excellence Award

STUDENTS
Sujaya Maiyya
Google, IBM Fellowship

Xin Wang
CVPR Best Student Paper

Future positions of recent graduates: Purdue University, Stevens Institute

CONTINUING IMPACT

Data Science Initiative
NSF grant awarded to UCSB, Cal Poly, SBCC, and CSUSB for developing an undergrad curriculum in data science.

Scalable Cyberinfrastructure Institute for Multi-Messenger Astrophysics (SCIMMA)
UCSB is building distributed cyberinfrastructure for capturing and managing astrophysics data for the new SCIMMA.

Responsible Machine Learning
UCSB opens the Center for Responsible Machine Learning (CRML) to establish an ethical foundation for AI research.

Baskin Engineering — UC SANTA CRUZ

Department of Computer Science & Engineering

New Faculty 2020-2021

Ioannis Demertzis Applied cryptography, cloud & database security, query processing over encrypted data, searchable encryption, oblivious RAMs, oblivious relational/graph databases, large-scale data management, scalable indexing techniques.

Sagnik Nath Physical design flow, design verification, CMOS VLSI Design, familiarity with signal processing, DSP, semiconductor device modeling, silicon validation, RTL design, computer architecture, front end – back end design, algorithms knowledge.

Xin Wang Computer vision, natural language processing, and machine learning. More specifically, language and vision, embodied AI, and deep reinforcement learning.

Cihang Xie Robust and explainable artificial intelligence; machine learning; deep learning and its applications; human-level computer vision systems.

Technology for a Changing World

New Program

The MSc in Natural Language Processing (NLP) NLP focuses on the development of computer programs that can understand, generate and learn from human language, and provides algorithms, methods and tools for analyzing both text and speech.

Awards

- Lise Getoor named ACM Fellow
- Distinguished Professor Phokion Kolaitis and former Professor Wang-Chiew Tan win SIGLOG 2020 Alonzo Church Prize
- Peter Alvaro wins campus-wide Excellence in Teaching Award
- Luca de Alfaro LICS 2020 Test-of-Time Award
- Heiner Litz receives NSF CAREER award
- Three Google FRAs : Matthew Guthaus, Lindsay Kuper, Lise Getoor
- Daniel Fremont receives 2020 SIGBED Paul Caspi Memorial Dissertation Award
- Muratcan Cicek, receives the 2020 Google Fellowship in Human Computer Interaction and secondary area(s) in Assistive Technologies
- Jose Renau elected as chair of IEEE TCMMZ

Institutes / Collaborations

- NSF TRIPODS Institute for Foundations of Data Science enters Phase II
- UCSC joins NSF training in AI program

Eighth largest number of CS graduates in the USA (2018)

#2
in Social Mobility

Engaged

16th

U.S. News & World Report
Most Innovative Schools

47th

CSRankings.org
Top U.S. CS Institutions

11th
Computer Vision

13th
Visualization

24th
Human-Computer Interaction

26th
Computational Biology

28th
Computer Architecture

Notable

Recent faculty honors include:

Mubarak Shah (NAI)

Carolina Cruz-Neira (NAE)

Paul Gazzillo (NSF CAREER)

Pamela Wisniewski (NSF CAREER)

Abhijit Mahalanobis (DARPA YFA)

CS@UCF has numerous faculty with national awards & honors: cs.ucf.edu/about/faculty-awards-honors/.

Innovative

UCF now offers a **Mixed Reality Engineering** graduate certificate: cs.ucf.edu/mrengineering.

New MR faculty include:

Carolina Cruz-Neira

Dirk Reiners

Ryan P. McMahan

UCF

Competitive

1st

3-Time National Collegiate Cyber Defense Champions
In 2014, 2015, and 2016.
2nd in 2018, 2019, and 2020.

10th

2018 International Collegiate Programming Contest (ICPC)
1st in North America

1st

2018 DoE CyberForce Competition

37

Consecutive Top 3s Southeast Regional ICPC

Department of Computer Science
UNIVERSITY OF CENTRAL FLORIDA

Department of Computer Science
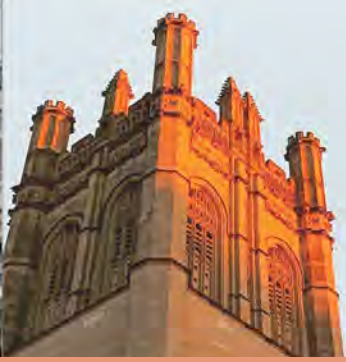
At the University of Chicago, we're building a top-tier computer science program, adding world-leading faculty and students in cutting-edge areas that are critical for the science and technology of tomorrow and building intellectual bridges across the campus, city, and beyond. This expansion establishes a vital culture of computational scholarship and discovery at UChicago, where we are uniquely poised to define the future of computer and data science.

—Michael J. Franklin,
Liew Family Chair of Computer Science

Who We Are

20-21 New Faculty: Computer Science and Data Science

Chenhao Tan
Area: Natural Language Processing, Machine Learning, Data Science
Title: Assistant Professor
PhD: Cornell University, '16
Previously: Univ. of Colorado, Boulder

Robert Rand
Area: Quantum Computing, Programming
Title: Assistant Professor
PhD: University of Pennsylvania '18
Previously: University of Maryland

David Uminsky
Area: Data Science
Title: Executive Director
PhD: Boston University, '09
Previously: University of San Francisco

Sarah Sebo
Area: Human-Computer Interaction, Robotics
Title: Assistant Professor
PhD: Yale University, '20
Previously: Yale University

Hannah Morgan
Area: Scientific Computing
Title: Assistant Instructional Professor
PhD: University of Chicago, '18
Previously: Argonne National Laboratory

Victor Veitch
Area: Data Science
Title: Assistant Professor of Statistics
PhD: University of Toronto, '17
Previously: Google Cambridge

Research Areas

- Theory
- Databases & Data Science
- Human-Computer Interaction
- Systems & Networking
- Quantum Computing
- Artificial Intelligence/ Machine Learning
- Programming
- Visual Computing
- High Performance Computing
- Security & Privacy

affiliated programs

MS in Computational Analysis and Public Policy (MS-CAPP): A joint program with the Harris School of Public Policy that builds foundational knowledge of computer science, statistics, and public policy analysis.

Masters Program in Computer Science (MPCS): A comprehensive and professionally-oriented education that combines the foundations of computer science with the applied and in-demand skills necessary for careers in technology.

Center for Data and Computing (CDAC): The intellectual hub and incubator for data science and artificial intelligence research at the University of Chicago, CDAC granted $1.7 million to 25 interdisciplinary projects and workshops since 2018.

2019-2020 News Highlights

UChicago CS Innovation and Impact

- **UChicago CS joins c3.ai Digital Transformation Institute**, a new research consortium that will accelerate artificial intelligence innovation and advance its benefits for business, government, and society.

- Research from the EPiQC collaboration led by **Prof. Fred Chong** received 2 of 12 **IEEE Micro Top Picks** for 2019.

- **Associate Prof. Diana Franklin** part of $4 million collaboration to develop curriculum for combining English and computer literacy; named co-leader of **NSF quantum education program**.

- Projects from the research groups of **Professors Ben Zhao, Heather Zheng, and Pedro Lopes** on **wearable jammers** and **facial recognition cloaking** receive attention from New York Times and global media.

Awards & Honors

- Best papers at SOSP, CHI, and PLDI conferences, as well as student awards from IBM Q and the Sloan Sports Analytics Conference.

- UChicago CS graduate students received prestigious honors including Siebel scholarships, a Facebook Fellowship, and a CRA Computing Innovation Fellowship.

faculty awards

ACM Distinguished Members: Professors Shan Lu and Heather Zheng

American Academy of Arts and Sciences Electee: Prof. Alexander Razborov

NSF CAREER Award: Asst. Professor Lorenzo Orecchia

Department of Energy Office of Science Distinguished Scientist Fellow: Prof. Ian Foster

Quantum Initiative Advisory Committee Member: Prof. Fred Chong

For more information about our open faculty positions and graduate programs, visit *cs.uchicago.edu*.

UNIVERSITY OF CINCINNATI
SCHOOL OF INFORMATION TECHNOLOGY

1,153 Students Enrolled

899 BSIT Students

246 MSIT Students

8 PhD Students

14% Growth from 2019

$5.7 Million External Funding

40 Full-time Faculty & Staff

↑ **53%** From 2019
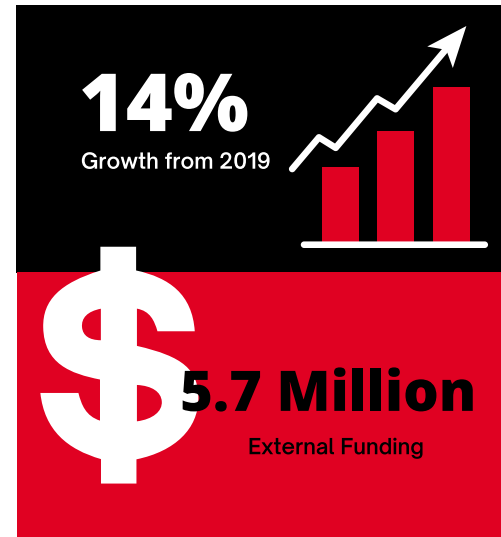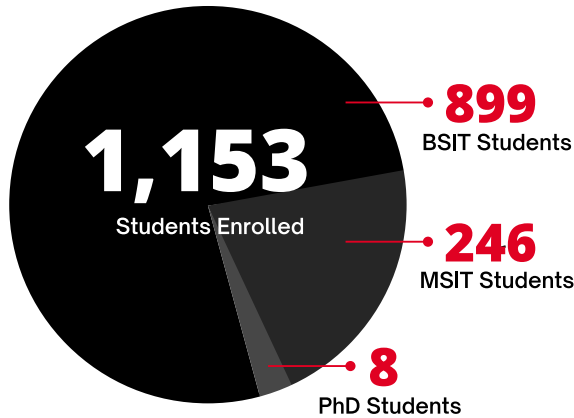
2020 HIGHLIGHTS

Early IT Program Removes Barriers for K12 Students and Facilitates College Access

34 Early IT Students Enrolled at UC this Fall

35 High School Teachers Trained

6 School Districts Added since 2019

2,434 Student Enrollment in Partner Schools
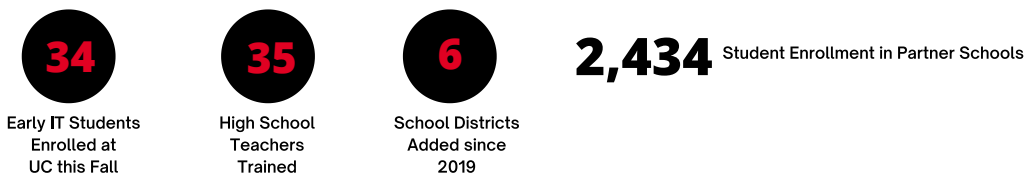
Official Opening of the Ohio Cyber Range Institute
The Ohio Cyber Range Institute (OCRI) is an innovative and collaborative initiative that advances Ohio's cybersecurity infrastructure while bolstering the state's information technology talent pipeline. Sponsored by the Ohio Department of Higher Education, the Ohio Adjutant General's Department office of the Ohio National Guard and headquartered at the University of Cincinnati, the Ohio Cyber Range Institute will support collaborative cybersecurity programs across Ohio.

Applied Machine Learning Lab
In its first phase, the partnership with Proctor and Gamble (P&G) includes a one-year project to support SoIT Professor, Dr. Nelly ElSayed's Applied Machine Learning Lab. The project will support students at the doctoral level to work with Dr. ElSayed on innovative applications of machine learning.

Civic Technology Lab
SoIT Assistant Professors Dr. Jess Kropczynski and Dr. Shane Halse are leading a team of undergraduate and graduate students to design and evaluate technology used in the civic sector and improve communication, information flow, and transparency among citizens and decision-makers.

Center of Excellence in Cyber Defense
UC is one of 18 institutions in the country to be home to two of the National Security Agency centers for academic excellence: Cyber Operation and Cyber Defense led by SoIT Associate Professor, Chengcheng Li.

Online MSIT Program Ranked #10 (US News and World Report- 2020)

BSIT Program Launches Data Technologies Specialization Track

Accelerated Program Launches New Master of Criminal Justice

See our Annual Report

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UC School of Information Technology

University of **CINCINNATI**

COMPUTER SCIENCE AT CU BOULDER

OUR FACULTY CONTINUES TO GROW

Danny Dig

Research in software engineering, with a focus on interactive program transformations that improve programmer productivity and software quality.

Gowtham Kaki

Research in programming languages and formal methods, with a focus on automated verification techniques for concurrent and distributed programs.

13
among public undergrad programs*

14
NSF CAREER Award winners on faculty

70+
tenure-track and instructional faculty

LEADING IN INNOVATIVE RESEARCH

Our faculty members are playing key roles in several multi-million, multi-institutional research centers on the Internet of Things, roadway electrification and the role of artificial intelligence in education. Learn more at **colorado.edu/cs/research.**

NSF IUCRC in Pervasive Personalized Intelligence

ASPIRE NSF Engineering Research Center

NSF AI Institute for Student-AI Teaming
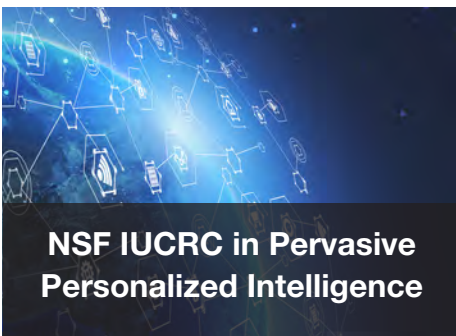
U.S. News and World Report, 2021

colorado.edu/cs

University of Colorado **Boulder**

Information Science

UNIVERSITY OF COLORADO **BOULDER**

The Human Side of Data

We blend computing with social science and the humanities for a hands-on, interdisciplinary research that investigates all aspects of human-data interaction. We use computing and data to address large societal issues.

Analyze. Design. Inform.

CU Boulder recruited top information scientists to identify the challenges of the future and train students who are motivated to succeed in the new data-driven economy. The result is one of the few programs in the country that offers a four-year undergraduate information science degree.

Students in our programs build knowledge through courses and hands-on projects that introduce cutting-edge data science tools and techniques. Students research how people and organizations interact with technology and information. They learn to collect, analyze and interpret data qualitatively and quantitatively, and design apps, algorithms, and interfaces.

5 YEARS OLD

After launching undergraduate and doctoral programs in 2016, this year we graduated our first PhD students and first class of undergraduates.

45% ANNUAL GROWTH

Our undergraduate programs are growing at an exciting rate.

32 PHD STUDENTS

Our educational and research mission continue to expand with students pushing the boundaries of human-centered approaches to data.

3 NEW POST-DOCTORAL SCHOLARS

This year we welcome new scholars focusing on data science, online communities, and COVID-19 support.

Our Faculty

Lecia Barker
Associate Professor
information technology education, women in computing

Jed R. Brubaker
Founding Assistant Professor
identity & data, social media, post-mortem data, marginalized users

Robin Burke
Professor
rec sys, personalization, social computing, digital humanities

Laura Devendorf
Assistant Professor, ATLAS Institute
design, human-machine interaction, computation and craft

Casey Fiesler
Founding Assistant Professor
social computing, data & research ethics, internet law, fan communities

Abe Handler
Instructor
natural language processing, search user interfaces, data science

Brian Keegan
Assistant Professor
computational social science, data science, large-scale collaboration

Leysia Palen
Professor, Founding Chairperson
crisis informatics, cooperative work, social computing

Ricarose Roque
Assistant Professor
learning, design, online communities, youth, creative computing

Amy Voida
Founding Assistant Professor
philanthropic informatics, supporting technology use for non-profits

Steve Voida
Founding Assistant Professor
information overload, information sharing, ubiquitous computing

Jason Zietz
Instructor
computing for well-being, motivation, mindfulness

Connect with us:

colorado.edu/infoscience
@cuinfoscience

Be Boulder.

University of Colorado **Boulder**

UNIVERSITY OF DELAWARE
ENGINEERING

Computer and Information Sciences

2020 CRA Year in Review

New Hires	Current Faculty
Xing Gao	Tenured Faculty - 14
Mahdi Khalili	Tenure Track Faculty - 8
	Continuing Track Faculty - 6
	Research Faculty - 5
	Temporary CT Faculty - 1

Academics

Undergraduate Program: 3 degree options plus Honors degree, 4 minor options

Graduate Program: 2 M.S. degree options, 2 PhD options, 2 certificate options

9 Research Areas

Artificial intelligence; Bioinformatics; Computer Graphics; Computer Networks; Computer Vision; High Performance Computing; Natural Language Processing & Information Retrieval; Software Engineering; Theory of Computation

COMPUTER & INFORMATION SCIENCE & ENGINEERING

UF | UNIVERSITY of FLORIDA

14%

OF THE 75 BLACK WOMEN ENROLLED IN COMPUTER SCIENCE PH.D. PROGRAMS NATIONWIDE ARE AT UF CISE.
2019 CRA DATA

55%

DOMESTIC STUDENTS COMPRISE 55 PERCENT OF UF CISE'S PH.D. ENROLLMENT.
2020 DEPARTMENTAL ENROLLMENT DATA

55%

OUT OF 38 PH.D. STUDENTS ENROLLED IN THE HUMAN-CENTERED COMPUTING PROGRAM, 58% ARE WOMEN.
2020 DEPARTMENTAL ENROLLMENT DATA

Research Highlights

UF CISE Chair Creates inLine Ticketing System to Lower Health Risk When Voting: Juan E. Gilbert, Ph.D., The Banks Family Preeminence Endowed Professor and department chair, has created a ticketing system to help voters maintain social distancing while exercising their right to vote.

Gardner-McCune Working on National Effort to Define K-12 AI Curriculum: Christina Gardner-McCune, Ph.D., associate professor, is working on a project to develop an artificial intelligence (AI) curriculum for grades K-12.

Chu Receives NSF Career Award: Sharon Lynn Chu, Ph.D., assistant professor, received an NSF CAREER award for a project that will investigate the design of wearable technologies to connect learning across formal and informal contexts.

Awards & Recognition

AAAS Fellow: Abdelsalam (Sumi) Helal, Ph.D.; **ASEMFL Member:** Juan E. Gilbert, Ph.D.; **University of Florida Term Professorship:** Faculty members Lisa Anthony, Ph.D.; Prabhat Mishra, Ph.D.; and Jorg Peters, Ph.D.; **Herbert Wertheim College of Engineering Doctoral Dissertation Advisor/Mentoring Awardee:** Kevin R. B. Butler, Ph.D.; **UF Research Foundation Professor**: Prabhat Mishra, Ph.D.; Christina Gardner-McCune, Ph.D., was appointed to the **ACM Education Advisory Committee**.

Notable News

UF Announces $70M Artificial Intelligence Partnership With NVIDIA: The University of Florida announced a public-private partnership anchored by a $50 million gift — $25 million from alumnus Chris Malachowsky and $25 million in hardware, software, training and services from NVIDIA. Along with an additional $20 million investment from UF, the initiative will create an AI-centric data center that houses the world's fastest AI supercomputer in higher education.

Women Making History: Stephanie Carnell, Ph.D., and Brianna Posadas, Ph.D., made history this summer when they graduated as the first Native American woman and the first Latina to earn Ph.D. degrees from CISE.

Student Group Excels in Competitions: The UF Student Infosec Team (UF-SIT) took first place at New York University's CSAW Competition and first place regionally in the CyberForce Competition (third nationally).

17

NSF CAREER AWARD WINNERS

#6

UF RANKS NUMBER 6 AMONG PUBLIC UNIVERSITIES NATIONWIDE,
U.S. NEWS & WORLD REPORT, 2020

2,641
UNDERGRADUATE ENROLLMENT

32
GRANTS RECEIVED SINCE JULY 2020

426
MASTER'S ENROLLMENT

11
ACTIVE GRANTS OVER $1 MILLION

147
PH.D. ENROLLMENT

24
PATENTS GRANTED SINCE 2012

Department of Computer Science

Franklin College of Arts and Sciences

UNIVERSITY OF GEORGIA

cs.uga.edu

DEPARTMENT OVERVIEW

This is an exciting year for the Department of Computer Science at UGA. The department offers the B.S., M.S. with thesis and non-thesis options, M.S. in Cyber Security and Privacy, and Ph.D. degrees in Computer Science. The department also offers two Double Dawgs programs: B.S. in CS / M.S. in CS and B.S. in CS / M.S. in AI. The two programs currently have 44 students. Our undergraduate enrollment increased from 588 in Fall 2014 to 1,155 in Fall 2020. In addition, the department has more than 200 undergraduate minors. At the graduate level, our Fall 2019 enrollment exceeded 195 students. In Fall 2019, the Departments of Computer Science and Statistics began jointly offering a B.S. in Data Science. The program currently has 54 students. Last year, the department hired two new tenure-track faculty members in the areas of AI Security and System Security.

NEW HIRES
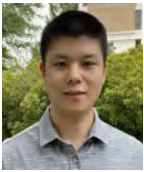
Chenglin Miao, Assistant Professor, received his Ph.D. from the Department of Computer Science and Engineering at the State University of New York at Buffalo in 2020. His research interests lie in the areas of Internet of Things (IoT) and Cyber Security, with a current focus on the security and privacy aspects of wireless, mobile, and crowd sensing systems. His research work has been published in various top venues such as MobiCom, SenSys, MobiHoc, INFOCOM, ICDCS, WWW, KDD, IJCAI, TPDS, and TOSN.

Mustakimur Rahman Khandaker, Assistant Professor, received his Ph.D. from the Department of Computer Science at Florida State University (FSU) in 2020. His research interests span the fields of cybersecurity, software engineering, compiler, operating system, architecture, and machine learning. His security researches have appeared in USENIX security, EuroS&P, ASPLOS (to appear), ASIA CCS, and RAID. He is also a shadow PC member of IEEE Security & Privacy 2020 and a journal peer-reviewer.

RESEARCH

During 2019, the department had a very successful year in terms of external funding. Drs. Prashant Doshi, Krzysztof Kochut, Jaewoo Lee, Kyu Hyung Lee, Sheng Li, Tianming Liu, and Shannon Quinn were each awarded significant grants from sources such as NSF, NIH, and Adobe.

ACHIEVEMENTS

Dr. Jaewoo Lee received a 5-year Career Award from NSF for the proposal titled: "**CAREER: Robust Adaptive Optimization Algorithms for Differentially Private Learning.**"

Dr. Roberto Perdisci was appointed to the Patty and D.R. Grimes Distinguished Professorship in Computer Science in August 2020.

Dr. Roberto Perdisci was appointed as the director of the Institute for Cybersecurity and Privacy (ICSP) in September 2020.

Dr. Sheng Li received the **2020 Aharon Katzir Young Investigator Award** for his work in the field of neural networks.

Undergraduate student, Angela Tsao, has been named a 2020 Udall Scholar. She is working to advance research at the intersection of computer science and sustainability.

I ILLINOIS

Electrical & Computer Engineering

GRAINGER COLLEGE OF ENGINEERING

Electrical and Computer Engineering Building
306 N. Wright St. MC 702
Urbana, IL 61801
217-333-2300
ece.illinois.edu

Faculty Statistics

45 IEEE Fellows, 12 AAAS Fellows,
5 ACM Fellows, 5 APS Fellows
NAE Members: 7 active, 15 emeritus
124 Faculty members

Departmental News

- Grainger Engineering's Illinois Quantum Information Science and Technology Center (IQUIST) will launch a NSF Quantum Leap Challenge Institute for Hybrid Quantum Architectures and Networks (HQAN).

- Illinois ECE Building Awarded LEED Platinum Certification

- The C3.ai Digital Transformation Institute commits $375M to accelerate the benefits of artificial intelligence. Led by Illinois ECE Prof. R. Srikant, the institute is jointly managed by UC Berkely and Illinois.

- COVID-19: Contributing to Fighting the Pandemic
  - Scientists design rapid, portable COVID-19 test that can provide results on a smartphone.
  - The Illinois RapidVent emergency ventilator developed in less than a week.
  - Illinois ECE's Hearing aid algorithm is the key behind the Illinois RapidAlarm, and emergency ventilator and alarm
  - Additional COVID-19 Projects and Contributions

The solar panel installation on the top of the Illinois ECE building generates renewable electricity for the state-of-the-art building and contributes to the campus-wide power grid.

Student Statistics

1,953 Undergraduate Students

629 Graduate Students

Illinois ECE Sends Lab Kits Worldwide
More than 1800 electrical and computer engineering lab kits were sent around d the world to Support Remote Learning

Top Honors

2020 OSA Fellows Lynford Goddard, Xiuling Li, and Jian-Ming Jin | Google Faculty Research Award, Yun-Sheng Chen, Yang Zhao | IEE EDS Board of Governors, John Dallesasse | Sloan Research Fellow, Zhizhen Zhao | Facebook Research Award, Radhika Mittal | NSF CAREER award Arijit Banerjee, Kejie Fang| 2020 Everitt Teaching Award for Teaching Excellence, Arijit Banerjee | 2021 Siebel Scholar, Phuc Thanh Huynh | NAI Senior Members, Pengfei Song, Arijit Banerjee | 2020 Google Phd Fellowship, Xiaofan Zhang | Lemelson-MTD graduate finalist, Richard Liu | ISCA Influential Paper Award, Rakesh Kumar

The iSchool at Illinois leads the way in shaping the future of information. This success is the result of a commitment to research, education, and engagement and a long history of innovation.

RESEARCH AREAS

- Data science and data analytics
- AI and machine learning
- Natural language processing and computational linguistics
- Human-computer interaction and user experience
- Privacy, security, trust, and transparency
- Computer-supported cooperative work
- Health, medical, and bio-informatics
- Data curation and information modeling
- Digital libraries and digital humanities
- Computing for the social good

50 PROJECTS **$87 MILLION**

Our faculty and staff serve as principal investigators and co-investigators on more than 50 projects totaling more than $87 million.

NEW BACHELOR'S DEGREE

In fall 2020, the iSchool welcomed 119 students into our new **BS in Information Sciences**. The program includes pathways in Information & Culture, Data & Society, Data Analytics/Data Science and Human Computer Interaction (HCI)/User Experience (UX).

NEW FACULTY

Since 2019, the iSchool has welcomed **10 new faculty, an increase of 27 percent**. Our School continues to grow and expects to hire additional faculty in the upcoming year.

Eunice E. Santos
Professor and Dean

Nigel Bosch
Assistant Professor

Anita Say Chan
Associate Professor

Jessie Chin
Assistant Professor

Jingrui He
Associate Professor

Yun Huang
Assistant Professor

Halil Kilicoglu
Associate Professor

Madelyn Sanfilippo
Assistant Professor

Sara L. Schwebel
Professor

Yang Wang
Associate Professor

RECENT PHD STUDENT HIGHLIGHTS

- With advisor Yang Wang, Natã Barbosa received a Facebook grant to design a privacy control framework for transparency in profiling and ad-targeting.
- Li Dinh was selected as one of the competitive Grace Hopper Conference (GHC) Student Scholarships, which are awarded by AnitaB.org.
- Shadi Rezapour received a 2020 Bloomberg/National Center for Women & Information Technology Conference Grant for GHC.
- Courtney Richardson was selected as a Publicly Active Graduate Education Fellow by Imagining America.

SELECT CURRENT GRANTS

- Illinois Cyber Security Scholars Program (Masooda Bashir)—NSF, $4,000,000
- Midwest Big Data Hub (Catherine Blake)—NSF, $2,883,274
- Collaborative Research: Do We Know Who We're Failing? Algorithmic Bias in K-12 STEM Adaptive Learning (Nigel Bosch)—NSF, $987,015
- Identifying False HPV-Vaccine Information and Modeling Its Impact on Risk Perceptions (Jessie Chin)—NIH, $389,810
- Modeling the Heterogeneity of Heterogeneity: Algorithms, Theories and Applications (Jingrui He)—NSF, $415,836
- Inclusive Privacy: Effective Privacy Management for People with Visual Impairments (Yang Wang)—NSF, $255,203

World-class research. World-changing dedication to equity.

The computer science department at the University of Illinois Chicago makes two defining contributions to the CS landscape: generating new research knowledge that will advance the field—especially in our focus areas of AI and machine learning, security, data visualization, and theory—and developing the next generation of professionals and scholars who increase diversity in CS and provide representation for all.

FACULTY GROWTH

2012

2020
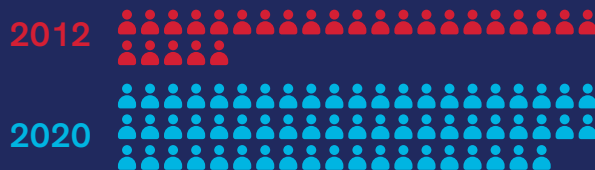
Break Through Tech Chicago

UIC was the first expansion site for **Break Through Tech**, a national program that seeks to increase the proportion of women in tech careers by preparing more women with a CS education today. We emphasize outreach to Chicago-area women in high school, community college, and college who may never before have considered a tech-oriented major or career. The work is funded by Melinda Gates' Pivotal Ventures and the Cognizant Foundation. Visit us at chicago.breakthroughtech.org. UIC CS is also a member of **BRAID**, a network of 15 U.S. universities that are dedicated to bringing more women and members of underrepresented groups into CS.

Building for 2023

CS is a primary driver of the prodigious growth that the UIC College of Engineering has experienced in the last 15 years. By 2023, that role will be recognized with the opening of a **new building created explicitly for CS research and education.** The 125,000 square feet of space—including faculty and graduate student labs, spaces for undergraduate collaboration, and classrooms that hold 24 to 180 students—were designed by the Seattle-based architectural firm LMN, which is also responsible for the Bill and Melinda Gates Center for Computer Science and Engineering at the University of Washington.

RESEARCH STRENGTHS

► **AI and Machine Learning**

► **Data Visualization**

► **Security**

► **Theory**

FEATURED FACULTY

ARTIFICIAL INTELLIGENCE / MACHINE LEARNING

Cornelia Caragea

Ian Kash

Bing Liu

Sathya Ravi

Philip Yu

DATA VISUALIZATION

Liz Marai

SECURITY

Chris Kanich

Jason Polakis

Peihan Miao

Venkat Venkatakrishnan

THEORY

Anastasios Sidiropoulos

Xiaorui Sun

UIC

Contact: Robert H. Sloan, PhD, Professor and Department Head | sloan@uic.edu | (312) 996-2369

Be the Future.

The Brendan Iribe Center for Computer Science and Engineering

16TH IN THE NATION
BEST GRADUATE & UNDERGRADUATE PROGRAMS
U.S. News & World Report, 2020

#10 ON CSRANKINGS.ORG

RECENT HIRES

Jonathan Katz - UMD Distinguished Scholar-Teacher
Cybersecurity and Cryptography

Daniel Gottesman - Ph.D. from Caltech
Quantum Computing

Leo Lampropoulos - Ph.D. from University of Pennsylvania
Programming Languages

Leo Liu - Ph.D. from Georgia Tech
Human Computer Interaction

Christopher Metzler - Ph.D. from Rice University
Computational Imaging

Erin Molloy - Ph.D. from Universirty of Illinois
Computational Biology

GRAD STUDENT ENROLLMENT AND GROWTH

Spring 2017	Spring 2018	Spring 2019	Spring 2020
234	263	299	385
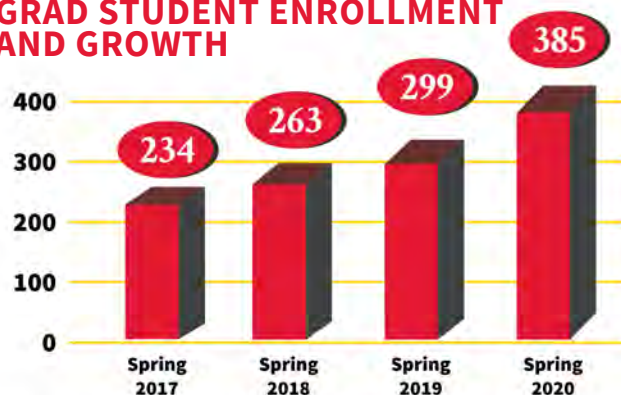
25% INCREASE IN Ph.D. GRADUATION RATE

RECENT FACULTY AWARDS

FIVE faculty, **Soheil Feizi**, **Pratap Tokekar**, **Michelle Mazurek**, **Dave Levin**, and **Xiaodi Wu** - **NSF Career Awards**

Assistant Professor **Leilani Battle** - **MIT Technology Review Innovators Under 35**

Professor Emeritus **Ben Shneiderman** & Professor **Amitabh Varshney** - **IEEE Visualization Academy**

Professors **Dinesh Manocha** & **Aravaind Srinivasan** - **2020 UMD Distinguished University Professors**

Professor **Ming Lin** - **2020 SIGGRAPH Academy Fellow**

Professor **Mihai Pop** - **ACM Fellow**

Professor **Aravind Srinivasan** - **SIAM Fellow**

Professor **Mohammad Hajiaghayi** - **EATCS Fellow**

Professor Dinesh Manocha - **2020 Pierre Bézier Award**

Professor Daniel Abadi - **VLDB Test of Time award**

Associate Professor Leila De Floriani - **Eurographics Fellow**

Professor Ming Lin & Professor Hanan Samet - **Distinguished Career in Computer Science Award, Washington Academy of Sciences**

Assistant Professor David Levin - **NCWIT 2020 Undergraduate Research Mentoring Award**

Assistant Professor Soheil Feizi - **AWS Machine Learning Research Award**

Professor Emeritus Samir Khuller - **2020 CRA-E Undergraduate Research Faculty Mentoring Award**

STUDENT ACCOMPLISHMENTS

3 Undergrads - **Honorable Mention, 2020 CRA Outstanding Undergraduate Researcher Award**

4 Grads - **2020 NSF Graduate Research Fellowships**

Grad **Alireza Farhadi** - **2020 Facebook Fellowship**

Undergrad **Pavan Ravindra** - **2020 Goldwater Scholarship**

Grad **Eddie Schoute** - **IBM Ph.D. Fellowship Award**

Undergad **Krithika Ramanathan** - **Fulbright Scholar**

Grad **Kianté Brantley** - **Microsoft Research Dissertation Grant**

Grad **Daniel Votipka** - **John Karat Award**

6 NEW FACULTY IN 2020. 25 New Faculty since 2016.

Sanorita Dey, Ph.D.	**Ramana Vinjamuri, Ph.D.**	**Don Engel, Ph.D.**	**Maya Larson Ph.D.**	**Murat Guner Ph.D.**	**Gerald Tompkins, M.S.**
Assistant Professor	Assistant Professor	Assistant Professor	Professor of the Practice	Lecturer, Asst. GPD	Lecturer
Socio-Technical Systems	*Brain-Computer Interfaces*	*Scientific Computing*	*Security and Privacy*	*Machine Learning*	*Systems, Robust Program-*

CSEE Highlights

❖ Prof. Tülay Adali received the prestigious Humboldt Research Award.

❖ Prof. Nilanjan Banerjee received a large DoD award to develop a curriculum and online platform with MxD corporation.

❖ Profs. Cynthia Matuszek and Frank Ferraro received a three-year NSF award to help robots learn tasks by interacting naturally with people.

❖ Prof. Tim Oates, working with ARM Research, received IARPA funding to protect AI models by detecting trojans hiding in deep neural networks.

❖ Prof. Naghmeh Karimi received an NSF CAREER award to develop long-lasting security for cryptographic chips.

❖ Prof. Yelena Yesha received an NSF award for building a reliable, scalable, and secure Internet of Things infrastructure.

CSEE RESEARCH IS GROWING

Year	Award
2016	$5.99M
2017	$4.88M
2018	$7.72M
2019	$8.08M
2020	$10.67M

CSEE Student Body Growth Since 2014

Percent Growth: Women 185%, Men 77%, Black/AA 190%, Latinx 189%, Asian 136%, White 64%
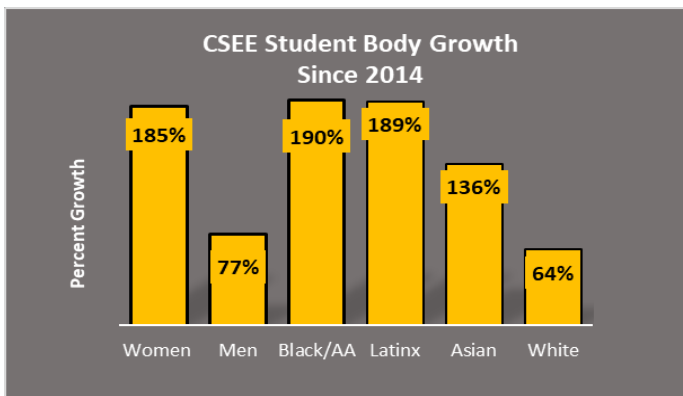
Our student body is growing, and growing more diverse, reflecting our commitment to inclusion.

28 Fold! That's how much growth CSEE's Data Science M.P.S. program has seen since its launch in 2017.

Data Science M.P.S. Program

28 fold Growth in 4 Years

ENROLLED: 2017: 7, 2018: 80, 2019: 143, 2020: 196
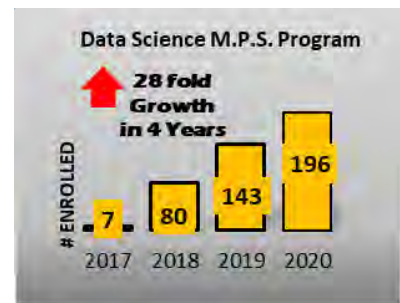
CSEE Numbers at a Glance, 2020

∗ **Enrollment- 2,116 Undergraduates, 620 Graduates**

∗ **Degrees Granted- 315 Bachelors, 229 Masters, 12 Ph.D. Graduates**

∗ **Faculty   -37 Tenured and Tenure Track, 18 Teaching, 7 Research**
   -8 Fellows of professional societies
   -13 (current or past faculty) CAREER awardees

CSEE Student Accomplishments

∗ **UMBC's CyberDawgs continue to win numerous cyber defense competitions at the regional and national levels.**

∗ **Ph.D. student Tiantian Xie, with Prof. Marc Olano, worked with Epic Games to develop techniques to create realistic depictions of human skin that load quickly within a gaming interface.**

∗ **Danilo Symonette, who received a B.S. in Computer Science in 2020, will begin a Ph.D. program at Stanford in 2021.**

∗ **As a part of the continuing collaboration between UMBC and the U.S. Naval Academy, James Shey and Prof. Brien Croteau completed their Ph.D. programs at CSEE and are now faculty members at the USNA.**

DEPARTMENT OF INFORMATION SYSTEMS

2019-2020

RESEARCH AREAS

AI & MACHINE LEARNING

HEALTH INFORMATICS

DATA SCIENCE

HUMAN-COMPUTER INTERACTION

SOFTWARE ENGINEERING

BY NUMBERS

33 FACULTY MEMBERS

1500+ STUDENTS

8 PROGRAMS OFFERED

$3.2 MILLION IN NEW AWARD FUNDING FOR FY20

NEW FACULTY

Ahmed AlEroud, Ph.D.
Lecturer

C. Augusto Casas
Lecturer

Karen Chen
Assistant Professor

Md Osman Gani
Assistant Professor

William Ryan
Lecturer

Erin Van Dyke
Professor of Practice

DEPARTMENT NEWS

- Vandana Janeja, Ph.D. selected for the ELATES at Drexel Leadership Program.

- Andrea Kleinsmith, Ph.D. and her team won Best Oral Presentation at EMS World Expo.

- Jordan Troutman '21 working alongside James Foulds, Ph.D. earned the prestigious Goldwater Scholarship.

- William Easley, Ph.D. student in HCC, is joining Apple's Human Factors Engineering Team.

GRANT NEWS

- Amazon Web Services: Combining Model-Based and Data Driven Approaches to Study Climate Change via Amazon SageMaker
PI: Maryam Rahnemoonfar

- NSF: Creating and Integrating Data Science Corps to Improve the Quality of Life in Urban Areas
PI: Aryya Gangopadhyay   Co-PI: Sanjay Purushotham

- NSF: Fairness for the Allocation of Healthcare Resources
PI: James Foulds   Co-PIs: Shimei Pan, Ian Stockwell

- NSF: Making Opportunities for Baltimore Inner City Youth in a 3D Print Shop
PI: Foad Hamidi

- NSF: Enabling Regulatory Compliance for Software Engineering
PI: Aaron Massey
Co-PIs: Carolyn Seaman, Sreedevi Sampath

is.umbc.edu

UMassAmherst | College of Information & Computer Sciences

New Faculty Hires

COMPUTING FOR THE COMMON GOOD™

Bruno Castro da Silva
Assistant Professor
Machine Learning
(Spring 2021)

Hui Guan
Assistant Professor
Machine Learning & Systems
(Fall 2020)

Ravi Karkar
Assistant Professor
Health Informatics
(Fall 2022)

Donghyun Kim
Assistant Professor
Robotics
(Spring 2021)

Peter Klemperer
Senior Teaching Faculty
(Fall 2020)

Hung Le
Assistant Professor
Theory
(Fall 2020)
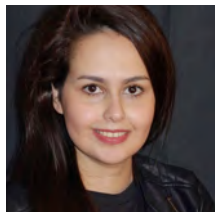
Ghazaleh Parvini
Teaching Faculty
(Fall 2020)

Laure Thompson
Assistant Professor
Machine Learning & NLP
(Fall 2020)

Gayane Vardoyan
Assistant Professor
Quantum Communications
(Fall 2022)

Cindy Xiong
Assistant Professor
Psychology & Data Viz
(Fall 2021)
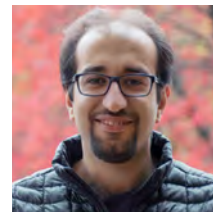
Hamed Zamani
Assistant Professor
Information Retrieval
(Fall 2020)

Ethan Zuckerman
Associate Professor
Digital Civics
(Spring 2021)
*Joint with the UMass Amherst
College of Social and
Behavioral Sciences*

By the Numbers

#11
in Artificial Intelligence

#20
in Computer Science

U.S. News & World Report Graduate Rankings, 2018

1538
Undergraduate
Enrollment

340
Master's
Enrollment

231
Doctoral
Enrollment

74
Tenure-Stream,
Research &
Teaching
Faculty

$19.9M
Research
Expenditures
in FY 20

Faculty Honors

National Academy of Engineering
James Kurose

ACM Fellows
Emery Berger, Prashant Shenoy, Ramesh Sitaraman

ACM Distinguished Members
Yuriy Brun, Charles Weems

Distinguished University Professor
Prashant Shenoy

DARPA Meritorious Public Service Award
Hava Siegelmann

IEEE ICCV Mark Everingham Award
Erik Learned-Miller

SEAMS 2020 Most Influential Paper
Yuriy Brun

ACM PODS Alberto Z. Mendelzon Test-of-Time
Gerome Miklau, Andrew McGregor

ACM SIGPLAN Distinguished Paper
Yuriy Brun, Arjun Guha

ACM OOPSLA Most Influential Paper
Arjun Guha

www.cics.umass.edu

University *of* Massachusetts
LOWELL

Department of Computer Science

2nd Conversational Intelligence Summer School, June 2019

NASA Valkyrie Humanoid Robot Team Members

Research Areas

Artificial Intelligence

Biomedical Informatics

Computational Social Science

Computer Science Education

Databases and Data Mining

Digital Forensics

Graphics and Visualization

Human-Computer Interaction

Human-Robot Interaction

Machine Learning

Natural Language Processing

Networking

Operating Systems

Programming Languages

Robotics

Security and Privacy

Theory and Algorithms

UMass Lowell CS by the Numbers

CSrankings.org, 2015 - 2020	**#77**
Research faculty members	**23**
Teaching faculty members	**8**
NSF CAREER awards	**6**
Last 5 years in research expenditures	**$18.8M**
New research awards in FY2020	**$4.8M**
Undergraduate majors, Fall 2020	**916**
Graduate students, Fall 2020	**286**
Degrees awarded in 2019 - 2020	**157 BS**
	77 MS
	6 PhD

Facilities
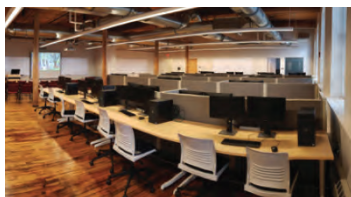
Cyber Security Range: 40 seat lecture theater, 20 workstations, real world security problems simulated in a controlled environment
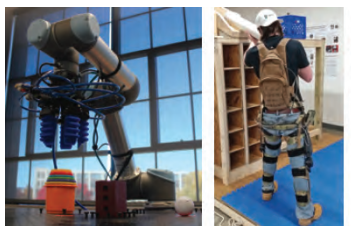
New England Robotics Validation and Experimentation (NERVE) Center: Industrial manipulators, exoskeletons, mobile robots, unmanned aerial vehicles

Highlights

First Place, Panasonic 3D LIDAR Challenge, May 2020, *Team RoboHawks*, Z. Han, J. Allspaw, B. Flynn, and H. Yanco

Best Paper Award, International Conference on Data Engineering (ICDE) 2019: *A Stochastic Approach to Finding Densest Temporal Subgraphs in Dynamic Graphs*, X. Liu, T. Ge, and Y. Wu

Best Student Paper Finalist, International Joint Conference on Neural Networks (IJCNN) 2020: *Human Pose Estimation Based In-Home Lower Body Rehabilitation System*, Y. Li, C. Wang, Y. Cao, B. Liu, J. Tan and Y. Luo

Program Chair, Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL) 2021, A. Rumshisky

HIGHLIGHTS 2019-20

MEMPHIS.EDU/CS

The University of Memphis Department of Computer Science offers bachelor's, master's and doctoral degrees, as well as an accelerated bachelor's/master's program and two graduate certificates (cybersecurity and data science). Our 21 faculty members are highly productive researchers. With over $23 million in active research grants, the department has been ranked 55th nationally among CS departments in federally funded research expenditures. Our faculty includes two IEEE Fellows, an ACM Distinguished Speaker and two Chairs of Excellence in Computer Science.

FALL 2020 NEW TENURE-TRACK FACULTY HIRES

WEIZI LI, ASSISTANT PROFESSOR
PhD, UNC at Chapel Hill, 2019
Michael Hammer Postdoctoral
Fellow, MIT, 2019-20
Research Areas | Intelligent transportation systems, multi-agent simulation, virtual environments, machine learning, robotics

CHRISTOS PAPADOPOULOS, PROFESSOR AND SPARKS FAMILY CHAIR OF EXCELLENCE IN GLOBAL RESEARCH LEADERSHIP
DSc, Washington University in St. Louis, 1999
Previously a professor of Computer Science at Colorado State University
Research Areas | Computer networks, network security, multimedia communication, distributed systems

RESEARCH HIGHLIGHTS

- **DR. THOMAS WATSON** received an NSF CAREER award for his project entitled "Structural Communication Complexity."

- **NIH** awarded a $5.9 million grant for establishing the mHealth Center for Discovery, Optimization and Translation of Temporally-Precise Interventions (mDOT). mDOT will be headquartered at the MD2K Center of Excellence at the UofM, under the direction of Dr. Santosh Kumar.

- **DR. VASILE RUS AND DR. SCOTT FLEMING** are co-PIs (with Dr. Andrew Olney from the UofM's Institute for Intelligent Systems) on a new $3.4 million grant from the NSF's Improving Undergraduate STEM Education program.

- **DR. VASILE RUS AND DR. DEEPAK VENUGOPAL** received $2.58 million in NSF funding to begin a Learner Data Institute to investigate how people learn and improve instructional systems accordingly.

- **A JOINT EFFORT OF THE DEPARTMENTS OF ENGINEERING TECHNOLOGY (DR. JAMES MCGINNIS) AND COMPUTER SCIENCE (DR. DIPANKAR DASGUPTA)** was awarded a $318,000 grant from the Department of Defense to incorporate cybersecurity into the ROTC program.

- **THE UNIVERSITY OF MEMPHIS RESEARCH FOUNDATION** signed an agreement with cybersecurity startup i2Chain to license a U.S. patent for an Adaptive Multi-Factor Authentication System invented and developed by a team led by Dr. Dipankar Dasgupta.

- **PI DR. LAN WANG** is leading the new mGuard project with co-PIs Dr. Santosh Kumar and Dr. Lixia Zhang from UCLA. Supported by an $826,000 NSF grant, mGuard aims to address data access challenges encountered by the MD2K Center of Excellence.

- **DR. DEEPAK VENUGOPAL (PI) AND DR. VASILE RUS (CO-PI)** were awarded a $413,000 NSF grant entitled "Investigating Techniques that Couple Markov Logic and Deep Learning with Applications to Discovering Strategies to Improve STEM Learning."

OTHER HIGHLIGHTS

- **RESEARCHERS AT THE MD2K CENTER OF EXCELLENCE,** headquartered at the UofM under the direction of Dr. Santosh Kumar, launched a free mobile app called mContain to help track social distancing during the COVID-19 outbreak.

- **ALUM MAHBUB RAHMAN (PHD '16)** received the Industry Track Best Paper Award at IEEE PerCom 2020. The paper was based on his work at Samsung Research America's Digital Health Lab on lung health.

- **ALUM SARAH LEE (PHD '11)** was named director of the School of Computing Sciences and Computer Engineering at the University of Southern Mississippi.

THE UNIVERSITY OF MEMPHIS | College of Arts & Sciences

RESEARCH IMPACTS

$1.8M DARPA project aims to protect cars, spacecraft from hack. A project called Ironpatch aims to develop a self-contained automatic patching system to solve the growing problem of security vulnerabilities in cars and large vehicles like trucks and spacecraft.

Internet monitor identifies US website geoblocking in Hong Kong. A new report shows that US government and military websites have implemented new technical measures to drop traffic from Chinese IP-prefixes, blocking access to more than 50 websites.

"Hiding" network latency for fast memory in data centers. Researchers have developed a new system called Leap that uses memory disaggregation to produce remote memory access speed on par with local machines over data center networks, boosting speed and performance in the cloud.

Teaching robots to think like humans when searching for objects. Researchers show that robots can find things faster by learning how objects in an area are related. A new model provides robots a visual search strategy that teaches them to look for a coffee pot nearby if they're in sight of a refrigerator, in one of the paper's examples.
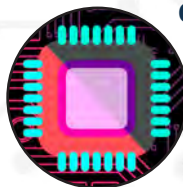
Coding around Moore's Law with automatic code translation. Most programs in use today have to be completely rewritten at a very low level to reap the benefits of hardware accelerators like FPGAs. A system called AutomataSynth demonstrates how to make that translation automatic without the need for specialized programming knowledge.

Computer model that predicts COVID's next move. In collaboration with the medical school, a CSE team led the development of a computational model to provide a hospital and its care providers a leg up on COVID-19 by predicting which patients are likely to quickly deteriorate upon admission.

382	2832	90
Graduate Students	Undergraduate Students	Faculty

11 NEW FACULTY

GREG BODWIN
Asst. Professor
Theory of Computation

ANHONG GUO
Asst. Professor
Human-AI Interation

LAURA BURDICK
Lecturer

XIN HE
Asst. Research Scientist
Energy Efficient Computing

THATCHAPOL SARANURAK
Asst. Professor
Theory of Computation

MITHUN CHAKRABORTY
Asst. Research Scientist
Computational Economics

YATIN MANERKAR
Asst. Professor
Architecture and Formal Methods

LU WANG
Asst. Professor
Natural Language Processing

PAUL GRUBBS
Asst. Professor
Theory of Computation

MAX NEW
Asst. Professor
Programming Languages

XU WANG
Asst. Professor
Human-AI Interaction

ACADEMIC PROGRAMS

PhD, Computer Science and Engineering

MS/MSE, Computer Science and Engineering

MS, Data Science (LSA*)

BSE, Computer Engineering (Eng**)

BSE, Computer Science (Eng)

BS, Computer Science (LSA)

BSE, Data Science (Eng)

BS, Data Science (LSA)

Minor, Computer Science

*Degree offered by the College of Literature, Science, and the Arts
**Degree offered by the College of Engineering

AREAS OF FACULTY RESEARCH

- Accessibility and Computing
- Archives and Digital Curation
- Collective Intelligence and Organizational Technology
- Critical Studies of Design and Computing
- Data Science, Analytics, and Visualization
- Educational Technology and Learning Analytics
- Health Informatics
- Human Computer Interaction (HCI)
- ICTs and Social Change
- Information Economics
- Library and Information Science
- Privacy
- Science, Technology, and Society
- Social Media and Social Computing
- Ubiquitous Computing

MASTER OF APPLIED DATA SCIENCE DEGREE ENROLLMENT DOUBLES

In fall 2019, the School of Information introduced its first all-online graduate degree, a Master of Applied Data Science. The first cohort numbered 150 students. In fall 2020, the second cohort numbered 300 students and the school opened applications for winter 2021—its first winter cohort in over two decades.

26	**#1**	**98–100%**
tenure-track faculty positions added since 2015	in Information Systems— *U.S. News & World Report*, 2018	employment rate for recent grads in all programs
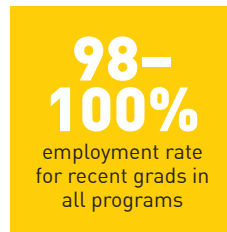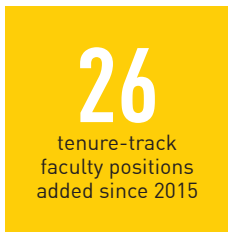
NEW FACULTY IN 2020

Ricardo Punzalan
Associate Professor
PhD, University of Michigan

Julie Hui
Assistant Professor
PhD, Northwestern University

Irene Pasquetto
Assistant Professor
PhD, University of California Los Angeles

DEGREES OFFERED AND STUDENT ENROLLMENTS (FALL 2020)

- Bachelor of Science in Information — **320**
- Master of Science in Information — **460**
- Master of Health Informatics — **90**
- Master of Applied Data Science (online) — **480**
- PhD in Information — **117**

Enrollment est. as of 9/30/20

Associate professor Lionel Robert's research includes issues of trust-building on the part of pedestrians and drivers to inform a safe future for autonomous vehicles.

2019-20 HONORS & ACCOMPLISHMENTS

- **American Association for the Advancement of Science Fellow**
  Daniel Atkins
- **Society of American Archivists Exemplary Service Award**
  Elizabeth Yakel
- **NSF CAREER Grants**
  Sun Young Park
  Oliver Haimson
- **ACM CHI Conference**
  Five Best Papers, Six Honorable Mentions
- **Inaugural Skip Ellis Early Career Award**
  Tawanna Dillahunt
- **Diligentia Prize for science publication**
  Alain Cohn: "Civic Honesty Around the Globe"

CURRENT NSF GRANT HIGHLIGHTS

- Collaborative Research: Regional Experiments for the Future of Work in America—**$610,000**
- Toward Equitable Social Media Content Moderation for Marginalized Individuals and Communities—**$549,257**
- The Ties that Relate Us: Modeling the impact of Relationships on Social Contagion and Network Dynamics—**$449,925**
- Improving Web Accessibility Through Multi-Resolution Mixed-Initiative Interaction Tools—**$499,209**

COVID-19 RESEARCH HIGHLIGHTS

- Faculty and students collaborated on a dashboard for the State of Michigan to track the spread of the epidemic, MiStartMap.info.
- Grant from Google.org supports using AI to evaluate health equity.
- Study showed the impact of uncoordinated state responses to COVID-19.
- Student projects included facilitating stimulus check banking and absentee voting.
- U-M grant funds the study of student mobility to inform campus best practices.

OVERVIEW

- 21 tenured/tenure-track faculty members, including 2 NSF CAREER award recipients
- 8 full-time/part-time lecturers
- Over 890 students: 630+ undergraduates and 240+ graduates
- 4 B.S. programs, 4 M.S. programs, and 1 Ph.D. program

OTHER HIGHLIGHTS

- Anys Bacha received the Best Paper Award for HPCA'20
- Marouane Kessentini was invited to serve as PC chair for SANER'21
- Qiang Zhu was invited to serve as PC co-chair for SSDBM'21 and AE for IEEE T-ITS
- Anys Bacha received 2020 CECS Faculty Excellence Award in Teaching
- Bruce Maxim received 2020 UMD Distinguished Digital Education Award
- Birhanu Eshete was selected as a featured speaker at USENIX ENIGMA'20
- Mohamed Abouelenien's recent research work was featured in IEEE Spectrum
- Marouane Kessentini, Jin Lu, and Shengquan Wang were selected to take part in 2020 Ford Summer Sabbatical Program
- Marouane Kessentini was appointed as the founding Director of the Dearborn Artificial Intelligent Research Center (DAIR)
- CIS students won Outstanding Chapter Award from the UPE International Honor Society.

RESEARCH HIGHLIGHTS

Research sponsors
NSF, ETS, MTRAC, NHTSA, IBM, ETS, eBay, Toyota, Ford, etc.

Selected recent grants
- Probir Roy, "Collaborative Research:CNS Core:Small: Towards Efficient Cloud Services", NSF, $249,885
- Mohamed Abouelenien, "Developing Machine Vision Techniques for Automated Scoring of Visual Models", ETS, $45,000
- Marouane Kessentini, "Support for Intelligent Software Engineering Lab to Build the Next Generation of Software Maintenance Bots", eBay Faculty Research, $100,000
- Marouane Kessentini, "Software Refactoring Technology for Continuous Quality and Security Checking", MTRAC, $74,866
- Anys Bacha, "CRII:SaTC: An Integrated Treatment of Ransomware Through Microarchitecture and Software Solutions", NSF, 175,000.

Selected recent publication venues
TSC, T-RL, TKDE, TOIT, S&P, ASE, TSE, PACT, ITSC, ICDCS, ICWS, EDGE, COLUD, CCS, USENIX SEC, TDSC, TEAC, TACO, TON, TMC, AAAI, etc.

NEW FACULTY HIRES

Zheng Song
Assistant Professor, mobile and edge computing
PhD'20 VirginaTech

Foyzul Hassan
Assistant Professor, software engineering
PhD'20 UT San Antonio

Learn more: https://umdearborn.edu/cecs/departments/computer-and-information-science

Stevie Chancellor
Ph.D., Georgia Tech
Quantitative social computing;
human-computer interaction

Mattia Fazzini
Ph.D., Georgia Tech
Software engineering, testing,
and maintenance research
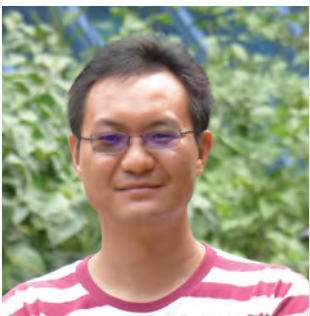
Ju Sun
Ph.D., Columbia University
Machine learning, data science,
numerical optimization

HIGHLIGHTS

- In 2020, the department celebrated fifty years of educational excellence, groundbreaking research, and continuous innovation in the computer science field.

- The new Minnesota Robotics Institute (MnRI) brings together interdisciplinary researchers to solve grand challenges and will continue to establish the University of Minnesota as a worldwide leader in robotics research and education.

- A three-year collaboration with Target helps fund programs that will educate the next generation of cyber security experts.

- The department received funding from Northeastern University's Center for Inclusive Computing to help recruit and retain more women in computer science.

- In collaboration with the College of Science and Engineering, two new degree programs were added—a B.S. in Data Science and an M.S. in Robotics.

- Professor Victoria Interrante was awarded the 2020 IEEE VGTC Virtual Reality Career Award in recognition of her lifetime contributions to visualization and visual perception for augmented and virtual reality.

- Professor Maria Gini won the A. Nico Haberman Award for championing underrepresented members in computer science.

- The pioneering recommender systems work by Grouplens has received more recognition: a 2002 paper on learning new user preferences earned the lasting impact award from the 2020 ACM Intelligent User Interfaces conference.

- Professor Volkan Isler co-founded Farm Vision Technologies, which uses computer vision technology and artificial intelligence to offer farmers improved data accuracy.

AT A **GLANCE**

ENROLLMENT	DEGREES GRANTED	FACULTY	RESEARCH IMPACT	FACULTY AWARDS
1,782 Undergraduates	**454** Bachelors	**45** Tenure and tenure track	**49** Papers with 1000+ Google Scholar citations	**22** NSF CAREER Awardees
478 Graduates	**95** Masters	**14** Teaching faculty	**$12.65M** In research expenditures	**13** IEEE Fellows
2.8% increase from 2019	**24** Ph.D. degrees	**9** Research associates		**4** ACM Fellows

More information about CS&E:
cs.umn.edu | (612) 625-4002 | cscicomm@umn.edu

UNIVERSITY OF MINNESOTA
Driven to Discover℠

Computer Science

- Through the School of Engineering, we offer an ABET/CAC- accredited Bachelor of Science in Computer Science
- Through the College of Liberal Arts, we offer a Bachelor of Arts in Computer Science
- C-Rex (CS research experience) is our undergraduate research program
- We have a million dollar John G. Adler endowment to maintain state-of-the-art labs and allow students to attend conferences, hackathons, and programming contests
- We offer free tutoring in Computer Science for all CS majors
- Some clubs to join include: ACM (Association for Computing Machinery), Women in Computing, Esports, SWE (Society of Women Engineers), NSBE (National Society of Black Engineers)
- Most Computer Science students do at least one internship or co-op before graduating
- Computer Science faculty have an open door policy and get to know their students well

Career Opportunities

- Web Developers design and create websites. They are also responsible for the site's technical aspects, such as its performance and capacity and may create content for the site.
- Computer Network Architects design and build data communication networks, including local area networks (LANs), wide area networks (WANs), and Intranets.
- Computer Programmers write and test code that allows computer applications and software programs to function properly, by turning the program designs into instructions that a computer can follow.
- Computer Systems Analysts study an organization's current computer systems and procedures, and design solutions to help the organization operate more efficiently and effectively.
- Database Administrators use specialized software to store and organize data. They make sure that data are available to users and secure from unauthorized access.
- Information Security Analysts plan and carry out security measures to protect an organization's computer networks and systems.
- Network and Computer Systems Administrators are responsible for the day-to-day operation of the computer networks that are critical parts of almost every organization.
- Software Developers are the creative minds behind computer programs. Some develop the applications while others develop the underlying systems.

Career Descriptions: https://bls.gov/ooh/computer-and-information-technology/home.htm

Contact Us

DEPARTMENT OF
Computer and Information Science
201 Weir Hall
University, Mississippi 38677
Phone: (662) 915-7396
Email: dept@cs.olemiss.edu
Web: https://cs.olemiss.edu

Outstanding Students

In fall 2018, only 16% of the computer science student population was made up of females. While the percentage is small, female students have proven to be extremely capable. The 2019 outstanding students are all women.

Ole Miss Computer Science

@OleMissCompSci

www.linkedin.com/groups/177024

Department ofComputer and Information Science
THE UNIVERSITY OF MISSISSIPPI

DEPARTMENT HIGHLIGHTS

It's an exciting time at UMKC as the School of Computing and Engineering (SCE) announces the fall opening of the Robert W. Plaster Free Enterprise and Research Center. The 57,800 square-foot building will provide high-tech research and development capabilities for students and faculty in the CSEE Department, SCE, and UMKC. The new facility houses more than one dozen multidisciplinary labs with industry-grade equipment and software to conduct cutting-edge and world-class research in nanotechnology, bio-/health-technology, national security, UAV, structural engineering, renewable energy, augmented and virtual reality, big data, and cybersecurity. The state-of-the-art maker space, machine shop, 3D printing lab, and other laboratories will also be open to the local communities.

RESEARCH HIGHLIGHTS

- Dr. Faisal Khan and his team secured a 3-year long grant from NSF.
- Dr. Yugi Lee received grants from UMKC Inclusive Excellence, NSF CUE Ethics & NSF IUCRC Center for Big Learning (CBL).
- Dr. Zhu Li – NSF Center for Big Learning Project (Deep Learning in Compression).

OTHER HIGHLIGHTS

- Dr. Yugi Lee and her students published eight journal articles. She was also awarded the STEMMY Award (WiSTEMM Educator) of Central Exchange.
- Dr. Zhu Li is appointed the Associate Editor-in-Chief for the IEEE Trans on Circuits & System for Video Tech (TCSVT) - the highest impact factor journal from IEEE CASS.
- Dr. Masud Chowdhury published a new book ("Memristor Emulator Circuits" by Springer Nature) and ~10 papers.
- Dr. Dianxiang Xu - UMKC's Technical Lead for the UM System NextGen Data Science and Analytics Innovation Center.
- Dr. Wajeb Gharibi has published four papers in various journals and conferences.
- The CSEE Department added four new full-time faculty members, Dr. Farid Nait-Abdesselam (Cybersecurity), Dr. Yusuf Sarwar Uddin (Data Science), Dr. Dianxiang Xu (Software Engineering), and Dr. Wajeb Gharibi (Teaching Faculty).

STUDENT HIGHLIGHTS

- Students in the CSEE Department (BS-ECE undergrads) received the most IEEE PES Scholarships among all US engineering programs for Spring 2020. *(Pictured are 5 of the 8 recipients with SCE Dean Kevin Truman).*
- Several PhD students took home prizes at the Regnier Venture Creation Challenge. The DeepLens Team took home one of the two $20,000 prizes and an additional $500 expo prize chosen by attendees. The Air Traffic Awareness Team took home the other $20,000 prize and UMKC, as a whole, took home $75,000 in total prize money.
- Three PhD students were awarded close to $5,000 in scholarships from the Graduate Assistant Fund (GAF) in conjunction with the UMKC Women's Council for their current research projects.
- Five UMKC students were awarded $3,500-worth of prizes from the Donald W. Reynolds Journalism Institute (RJI) at the University of Missouri-Columbia.
- More than 10 graduate students received summer internships from Silicon Valley and other high-tech companies.

DEGREES AWARDED (Spring 2020)

Computer Science BA & BS – 54	Electrical Engineering MS – 24
Electrical & Computer Engineering – 59	Computer Networking & Communication Systems iPhD – 2
Information Technology BIT – 14	Computer Science iPhD – 1
Computer Science MS – 99	Electrical & Computer Engineering iPhD – 2

UNIVERSITY OF NEBRASKA–LINCOLN
COMPUTER SCIENCE AND ENGINEERING

RESEARCH   2020-21

CORE AREAS

Informatics, Analytics, Foundations

Software Engineering

Systems
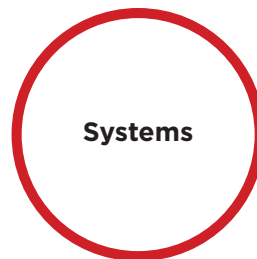
· $5 million in expenditures

· Average of 8 publications per year per faculty

STUDENTS

POPULATIONS

901 undergraduates
49 master's students
74 doctoral students

DEGREES AWARDED

143 bachelor's degrees
14 master's degrees
5 doctoral degrees

5-YEAR GROWTH TRENDS

86% in enrollment
177% in female students
108% in underrepresented students

FACULTY

STATISTICS

28 tenure track (4 new hires)
14 instructional (2 new hires)
8 NSF Career Awardees

3 Endowed Chairs
2 IEEE Fellows
1 ACM Fellow

Department Chair:
Marilyn C. Wolf

OUTREACH

· BRAID Inititative Founding Member
· Nebraska College Preparatory Academy
· Intercollegitate Programming Contest

· NCWIT Aspirations in Computing
· STEM CONNECT with community colleges

COMPUTER SCIENCE & ENGINEERING | UNR.EDU/CSE

University of Nevada, Reno

WILLIAM N. PENNINGTON ENGINEERING BUILDING

In August of 2020, the CSE department moved into the new engineering building where it occupies 23,000 square feet of the state-of-the-art research space, including 30 faculty offices and eight shared research labs, each more than 1,000 square feet.

BY THE NUMBERS: Undergraduate students: 773 | MS students: 49 | PhD students: 65 | Female: 16 % | Hispanic: 15% | Faculty: 21 | Lecturers: 2

RESEARCH: $4.5M 2020 expenditures | 7 NSF Awards.

CURRICULA: New online MS degree in cybersecurity.

RANKING: U.S. News & World Report: #106 | CS Rankings: #21 Robotics | #48 HCI | Overall #105.

RESEARCH HIGHLIGHTS IN THE NEWS: Cybersecurity Center partners with Nevada National Security Site | Team CERBERUS finishes second round of urban robotics competition | University earns designation as a Center of Academic Excellence in Cyber Defense (CAE-CD) | Nevada Cyber Club captures national championship | Second annual Cybersecurity Conference brings together multiple sectors | more at unr.edu/cse/news

UNIVERSITY OF NEW HAMPSHIRE
DEPARTMENT OF COMPUTER SCIENCE

5 FACULTY MEMBERS HIRED IN THE LAST 5 YEARS

MOMOTAZ BEGUM	ALEKSEY CHARAPKO	LAURA DIETZ	MAREK PETRIK	DONGPENG XU
Robotics	Cloud Computing	Information Retrieval	Machine Learning	Cybersecurity

RESEARCH HIGHLIGHTS

- Dr. Aleksey Charapko is working on scalable distributed systems. His research focuses on planetary-scale storage and high-throughput, low-latency replication approaches for the cloud and edge.

- The Cognitive Assistive Robotics Lab (CARL) of Dr. Begum is working on developing robot perception and learning algorithms for seamless human- robot interaction in various assistive scenarios. The research at CARL is sponsored by NSF and includes collaboration with Brown University and UMass Lowell.

- Dr. Xu has been awarded an NSF CRII grant: Simplification of Mixed Boolean-Arithmetic Obfuscated Expression. UNH SoftSec group led by Dr. Xu focuses on software security topics such as software analysis, protection, and reverse engineering. The research at SoftSec includes collaboration with the University of Texas at Arlington.

- The Text Retrieval, Extraction, Machine Learning and Analytics (TREMA) lab of Dr. Dietz is developing algorithms for helping people find information about unfamiliar topics. Their methods use knowledge graphs and text retrieval with information extraction methods to create new Wikipedia-like articles. Laura Dietz has been awarded an NSF CAREER grant and serves on the steering committee of the Northeast Big Data Innovation Hub.

- Dr. Petrik's research group develops safe and robust reinforcement learning algorithms in order to solve important environmental and sustainability challenges. Members of the group publish in top machine learning conferences and collaborate widely across the country and the world.

- The UNH AI Group, led by Dr. Wheeler Ruml, focuses on planning, with emphasis on heuristic graph search and applications to robotics. The group collaborates with the marine robotics group at UNH CCOM, and has recently started an NSF-BSF project on on-line planning with deadlines in collaboration with researchers in Israel and the UK.

STUDENT HIGHLIGHTS

- Enrollments: 370 undergraduates, 35 MS students, and 32 PhD students
- New BA program in Computer Science with tracks in Algorithms, Systems, and Cybersecurity as well as new undergraduate interdisciplinary programs in Analytics and Data Science
- Several current and former students work at the UNH InterOperability Laboratory as members of the executive and project management teams
- Wildcat Women in Computer Science is a student-led organization focusing on increasing participation of women in computing

UNM COMPUTER SCIENCE

Computer Science at UNM is a diverse and growing department. We currently have 19 faculty, including 8 women. The department currently has enrollments of 139 undergraduates, 55 masters, and 75 PhD students. We also have a large influx number of entering pre-majors (317). UNM is a designated Minority-serving institution, and one of only four Carnegie Research/Doctoral-Extensive Hispanic-serving Universities.

FACULTY NEWS

- UNM professor of Computer Science and Center for Advanced Research Computing director Patrick Bridges directs research at the Center for Understandable, Performant Exascale Communication Systems (CUP-ECS). CUP-ECS researches new, efficient mechanisms for high-speed communication in high-performance computing systems. By researching and developing more effective communication methods in supercomputers and supercomputing applications, the center seeks to improve the simulation capabilities of Department of Energy and other simulation applications that are improving scientific understanding in a wide range of areas, including material design, weather and climate, genomics and disease. The Center is funded by a new 5-year, $4 million award from the U.S. Department of Energy.

- Associate Professor Trilce Estrada received a new NSF award on defining a roadmap to Robust Science in high-throughput applications. The funded research seeks to enable scientists to do robust computation using heterogeneous and unreliable architectures in extreme conditions.

- Professor Catalin Roman recently received an NSF award to research making devices more context aware in the Internet of Things.

- Lecturer Brooke Chenoweth Creel has received the CS Founders' Fund award honoring outstanding teaching in the department.

- Prof. Melanie Moses has begun serving as a council member of the CRA Computing Community Consortium. This group seeks to catalyze and strengthen the computing research community. Her term began this July.

NEW HIRES

- Amanda Bienz, Assistant Professor, HPC and Scientific Computing. Ph.D. Computer Science, University of Illinois, 2018.
- Joseph Haugh, Lecturer
- Bruna Jacobson, Assistant Professor, Computational Biophysics. Ph.D. Physics, University of Southern California.

STUDENT SPOTLIGHT

- The Computer Science quad has been humming with activity. It has become a prime location for students training their robots for competitions such as NASA's Swarmathon.
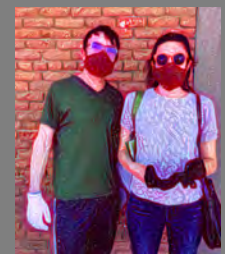
- UNM students taking the Spring 2020 Machine Learning course (CS 429/529) applied techniques such as style transfer to create innovative and haunting works of art. Left: Isolation, by Mohammed Yousefi. Right: Covid-colored glasses, by Carolyn Atterbury.

- The inaugural VanDyke Software Inc Scholarships were awarded to CS undergraduates Alan Shen, Preston Hamilton and Brandon Stringham. The award will be given annually to students who excel in first-year computer science courses.

UNC-CHAPEL HILL
COMPUTER SCIENCE

Founded in 1964 by Turing Award winner **Fred Brooks**, the **UNC-Chapel Hill Department of Computer Science** harnesses the collaboration opportunities of a national top-5 public university to apply computer science in ways that solve problems across many disciplines. Our faculty are pioneering advancements in telepresence, security, robotics, bioinformatics, computer vision, networking, machine learning, and numerous other areas.

People

Professor **Ron Alterovitz** earned the Presidential Early Career Award for Scientists and Engineers for his research in medical robotics.

Professor **Mohit Bansal** received the DARPA Director's Fellowship and Microsoft Investigator Fellowship for AI and NLP projects.
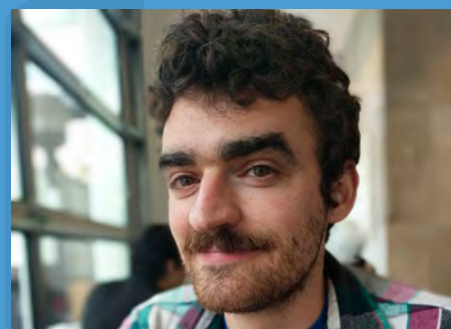
Professor **Colin Raffel** joined the faculty from Google Brain, bringing expertise in machine learning on limited labeled data.

Collaboration

The **Medical Image Display & Analysis and 3D Reconstruction Groups** have partnered with faculty in the UNC School of Medicine to create 3D reconstructions of a colon from colonoscopy video in real time. The project enables endoscopists to be alerted to missed regions before removing the endoscope and earned Best Presentation at MICCAI 2019.

Professor **Cynthia Sturton's Hardware Security Group** collaborates with Intel to develop tools to find security flaws in processors and SoCs early in the design stage.

Graphene, a LINUX-compatible library OS built by Professor **Donald Porter**, is nearing production, thanks to open source support from a widespread user base that includes researchers from Intel, Microsoft, Golem and Invisible Things Lab.

Innovation

The **Cyber-Physical Systems Group**, which recently added Professors **Samarjit Chakraborty** and **Sridhar Duggirala**, has earned Best Paper awards at RTCSA, RTNS, and DCOSS. The group just published a paper on optimizing neighbor discovery in wireless communication protocols, which can enable reliable COVID-19 contract tracing via smartphones.

In 2020 alone, the **UNC Natural Language Processing Group** has had more than 30 papers accepted at conferences related to natural language processing, machine learning and computational linguistics, including 11 at AAAI, nine at ACL, four at ICML, three at CVPR and two each at ECCV, ICLR and IJCAI.

cs.unc.edu

UNC | COLLEGE OF ARTS AND SCIENCES
Computer Science

#1 in Digital Librarianship & Health Librarianship
#3 Best Program in the Nation
U.S. News & World Report Rankings

NEW RESEARCH GRANTS

Equity in the Making: Investigating Spatial Arrangements of Makerspaces and Their Impact on Diverse User Populations

National Science Foundation (NSF) CAREER Award

Marijel (Maggie) Melo

Developing Youth Data Literacies through a Visual Programming Environment

NSF CISE Research Initiation Initiative (CRII) Award

Sayamindu Dasgupta

Understanding Workers' Transition to Digital Labor Jobs

North Carolina Policy Collaboratory COVID-19 Research Award

Mohammad Jarrahi

Visual Data Exploration for Integrated Structured/Unstructured Analysis

U.S. Department of Defense / NC State Lab for Analytic Sciences

David Gotz and Yue (Ray) Wang

The Future of Youth Public Librarian Education

Institute of Museum and Library Services National Leadership Grant

Sandra Hughes-Hassell and Brian Sturm

NEW FACULTY

Tressie McMillan Cottom

joined the UNC School of Information and Library Science as an associate professor. She is an award-winning author and sociologist whose work has earned international recognition for the urgency and depth of its incisive critical analysis of technology, higher education, class, race, and gender. Her most recent book, *THICK: And Other Essays* (The New Press), won the Brooklyn Public Library's 2019 Literary Prize and was shortlisted for the 2019 National Book Award in nonfiction.
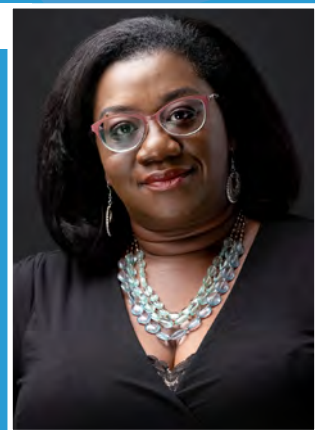
Francesca Tripodi

joined the UNC School of Information and Library Science as an assistant professor. Her research examines the relationship between social media, political partisanship, and democratic participation. In 2019, she testified before the U.S. Senate Judiciary Committee, explaining how search processes are gamed to drive ideologically based queries. This research is the basis of her book, which is under contract with Yale University Press.
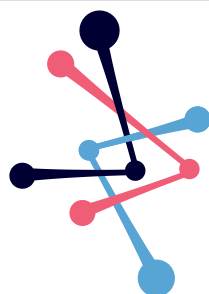
CITAP
Center for Information, Technology, and Public Life

Dr. Cottom and Dr. Tripodi are senior faculty researchers with the Center for Information, Technology, and Public Life (CITAP). Housed within the UNC School of Information and Library Science, CITAP is dedicated to researching, understanding, and responding to the growing impact of the internet and social media.

citap.unc.edu

COLLEGE OF COMPUTING AND INFORMATICS

UNC CHARLOTTE

UNC Charlotte's College of Computing and Informatics (CCI) is the **FASTEST-GROWING** College in the UNC System

3,175 STUDENTS
153 PHD
MASTERS **702**
2,320 UNDERGRADS

#1 PRODUCER IN N.C.

- CS Graduates
- African-American CS Graduates
- Female CS Graduates
- Hispanic CS Graduates

NEWS

- CCI Wastewater Project Featured in the *New York Times*
- CCI Lauded for Commitment to Diversity in *ACM Communications*

20 YEARS CELEBRATING COMPUTING INNOVATION

CCI.UNCC.EDU

RESEARCH

Research initiatives are at the heart of CCI's mission. Recently, CCI's Research was ranked 35th in Funding and 13th in Citations, nationally by *Academic Analytics*. Research opportunities are varied and currently include projects in the Top- 5 Computer Science concentrations, according to *ITWorld.com*:

- **Artificial Intelligence and Robotics**
- **Big Data Analysis**
- **Computing Education**
- **Bioinformatics**
- **Cybersecurity**

Research opportunities are open to Master's and Doctoral candidates as well as undergraduates.

Fiscal Year 2019-20:

Funding: **$10.4M**

60 Awards

$$ Per Award: **$173K**

DEPARTMENTS

- Computer Science
- Software and Information Systems
- Bioinformatics and Genomics
- School of Data Science

DEGREES

- B.S. in Computer Science and Data Science
- B.A. in Computer Science
- M.S. in Computer Science, Cybersecurity, Bioinformatics and IT
- P.S.M. in Data Science and Business Analysis, Health Informatics
- Ph.D. in Bioinformatics, Computational Biology, Computing and Information Systems.and Data Science

RESEARCH THEMES

- » AI and Machine Learning
- » Algorithms and Theory
- » Assistive Technologies
- » Computer Architecture and Nanotechnology
- » Computer Vision, Medical Imaging, and Biometrics
- » Digital Humanities
- » Human Computer Interaction
- » Natural Language Processing
- » Network and Data Science
- » Scientific and High-performance Computing
- » Security, Privacy, and Cryptography
- » Software Engineering
- » Visualization and Visual Analytics
- » Wireless, Mobile, and Embedded Systems

At a Glance …
COMPUTER SCIENCE *and* ENGINEERING
at Notre Dame

RESEARCH AND GRADUATE STUDY HIGHLIGHTS

- » **139 graduate students enrolled**
  - *Ph.D. program:* 49 domestic, 80 international
  - *M.S. program:* 6 domestic, 4 international
- » **16 Ph.D. graduates in 2020**
- » **67 new research awards** (*$14.9 million*), **$12.5 million expended**

UNDERGRADUATE STUDY HIGHLIGHTS

- » **143 B.S. graduates in 2020**
- » **471 majors** (*sophomore through senior year*)
- » **Silicon Valley Semester program: 25 CSE students participating in courses and internships at Bay Area firms during the spring semester**

RESEARCH EXPENDITURES PER FACULTY MEMBER

Bar chart showing research expenditures per faculty member from 2012 to 2019, with values ranging on the y-axis from 0 to 700,000. Years: 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019.

NEW FACULTY 2020

Xiangliang Zhang
Machine Learning and Data Mining

RECENT NEWS

- » Associate Professor Walter J. Scheirer received a 2020 National Science Foundation Early Career Development Award.
- » Notre Dame has launched a bachelor of arts in computer science. Housed in the College of Arts and Letters, the new program includes 35 hours of coursework in the Department of Computer Science and Engineering.
- » Associate Professor Yiyu Shi is working to develop a novel technique using AI to improve CT screening and more quickly identify patients with the coronavirus.
- » A team led by Nitesh Chawla, the Frank M. Freimann Professor of Computer Science and Engineering and Director of the Center for Network and Data Science, has found a correlation between bedtime regularity and resting heart rate.

UNIVERSITY OF NOTRE DAME | COMPUTER SCIENCE AND ENGINEERING

Leadership. Action. Success.

Amy McGovern

Presidential Professor, School of Computer Science and School of Meteorology

Director, NSF AI Institute for Research on Trustworthy AI in Weather, Climate, & Coastal Oceanography

Amy McGovern's research focuses on machine learning methods and applications with a focus on severe weather. She also works with K-12 outreach to interest more students in computer science.

McGovern is the director of the newly funded NSF AI Institute for Research on Trustworthy AI in Weather, Climate, and Coastal Oceanography. This $20M national center for AI will develop trustworthy AI to revolutionize our understanding and prediction of high-impact atmospheric and ocean science phenomena.

David Ebert

Professor, School of Computer Science and School of Electrical and Computer Engineering

Associate VP of Research and Partnerships

Director, Data Institute for Societal Challenges

David Ebert performs research in visual analytics, novel visualization techniques, interactive machine learning and explainable AI, human-computer teaming, advanced predictive analytics, and procedural abstraction of complex, massive data.

Ebert has been very active in the visualization, visual analytics, and computer science communities, through teaching courses, co-chairing conference program committees, and successfully managing a large program of external funding to develop more effective methods for creating efficient visual decision-making and information communication environments.
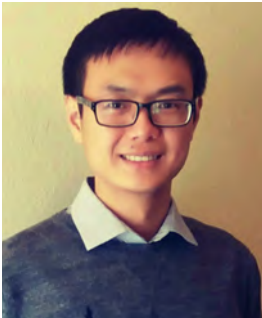
Chao Lan

Assistant Professor, School of Computer Science

Chao Lan's research interests lie in machine learning and its interactions with algorithmic fairness, data privacy and AI security.

Lan's recent works focus on learning fair models from private data with provable guarantees and efficient trade-offs. He also investigates inductive multi-view anomaly detection techniques. He is a recipient of the NSF CRII award.

Anindya Maiti

Assistant Professor, School of Computer Science

Anindya Maiti's research interests lie in privacy and security in cyber-physical systems, information assurance and network security, and applied machine learning and AI.

Maiti also works on interdisciplinary topics such as micromobility technology, and game-theoretic analysis of blockchains and mobile sensors security.

Computer Science is a rapidly evolving profession.

Our goal is to prepare you to grow with it during your education and beyond.

20
Full-Time Faculty

OFFERING

Bachelor's

Master's

Doctoral

DEGREES

More than
600
Undergraduate Students

With a **balanced curriculum** and **variety of minors**, the Computer Science undergraduate program is

broad AND flexible.

About Norman

Reasonable cost of living. Part of this is the very reasonable housing expenses. Rents for a one bedroom apartment begin around $500, and a variety of units are within walking distance to campus.

Championship sports teams. OU football, seven national championships and seven Heisman Trophy winners, and the Oklahoma City Thunder major league basketball team.

UNIVERSITY OF OREGON
Computer and Information Science

New Faculty
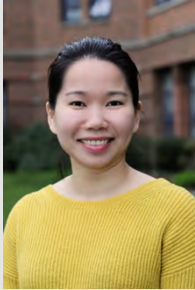
Thanh Nguyen
Assistant Professor
AI, Multi-agent
Systems
(joined 2018)

Brittany Erickson
Assistant Professor
Computational
Science
(joined 2018)

Jee Choi
Assistant Professor
High Performance
Computing
(joined 2019)

Yingjiu Li
Professor
Security and Privacy,
Data Applications
(joined 2019)
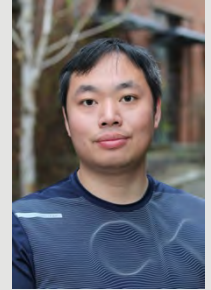
Humphrey Shi
Assistant Professor
Computer Vision,
Machine Learning, AI
(joined 2019)

Student Statistics:
- UG enrolment: 600
- Female students grown from 15% to 20% in 3 years
- MS enrolment: 50
- PhD enrollment: 59

Student Honors:
- Mitchell Scholarship (Joseph Yaconelli, MACS)
- Goldwater Scholarship (Chase Craig, CIS)

Faculty Statistics:
- Tenured/Tenure-Track: 21
- Instructors: 5
- Research/Industry: 3

Summer Schools & Events:
- Prof. Ariola has organized the programming language summer school at UO for the past 17 years. This increasingly-popular event has created a community for PL researchers and serves as the main forum for educating PhD students.
- First virtual networking systems summer school (Durairajan)
- Ninth annual security day (Li)

Department Highlights:
- New Department Head: Reza Rejaie
- New Associate Department Head: Zena Ariola

WWW.CS.UOREGON.EDU

Research Highlights:
- NSF IUCRC Center for Big Learning 2018-2023
- Annual Research Expenditure: $3.1M
- Funding sources: NSF, NIH, DARPA, IARPA, DOE, National Labs, Industry

Faculty Highlights:
- SIGPLAN Distinguished Service Award (Ariola)
- Fulbright for the Future Prize (Malony)
- General Chair PAM'20 (Durairajan & Rejaie), ICPP'18 (Malony)
- TPC Chair FSCD'20 (Ariola), ICMLA'20 (Dou)
- Journal Editorship: IEEE TVCG (Childs), IEEE JSAC, IEEE Access (Jiao), TDSC (Li), JMLR, DMKD, TPAMI (Lowd), Networks (Proskurowski)
- ACM Lifetime Member (David Wilkins)
- IEEE CNS'19 Best Paper Award (Jiao/Li)

Partner for Ripple's Research Initiative:
- UO and CIS were selected as one of the first partners for Ripple's University Blockchain Research Initiative (UBRI). Ripple's philanthropic gift (2018-2023) provides scholarships, faculty fellowships, research support, industry engagement, and supports the Oregon Blockchain Student Club.

The University of Pennsylvania

Penn is the birthplace of the modern computer, the ENIAC. Our Computer and Information Science Department, located in the center of a vibrant Ivy League campus, has strong collaborations with Penn's nearby Wharton School of Business, Perelman School of Medicine, Annenberg School of Communication, Carey School of Law, Graduate School of Education, School of Social Policy and Practice, and School of Arts and Sciences.

Faculty:
- 39 tenured and tenure-track
- 9 full-time teaching-track
- 6 research-track

Students:
- 180 PhD
- 650 Master's (5 degree programs)
- 1098 undergraduates (6 degree programs)

Continued Growth

As part of Penn Engineering's ambitious growth plans, our department is aggressively hiring, with multiple open positions. Areas of existing strength include programming languages and formal methods, databases, networks and distributed systems, machine learning and data science, natural language processing, robotics and vision, and computational social science.

New Faculty Members, 2020-21

Jacob Gardner, Assistant Professor. *PhD 2018, Cornell University.* Machine learning, scientific computing.

Sharath Chandra Guntuku, Research Assistant Professor. *PhD 2017, Nanyang Technological U.* Machine learning and natural language processing for health.

Benjamin Lee, Professor. *PhD 2008, Harvard University.* Computer architecture and systems, statistical machine learning.

Kristian Lum, Research Assistant Professor. *PhD 2010, Duke University.* Fairness in machine learning, statistics.

Tal Rabin, Professor. *PhD, 1994, Hebrew University.* Cryptography, secure multiparty communication, threshold cryptography, proactive security.

Mark Yatskar, Assistant Professor. *PhD, 2017, U Washington.* Natural language processing, computer vision, fairness.

Online Education Initiatives

The Penn Computer and Information Department's online Master of Computer and Information Technology degree, targeted at individuals in the workforce who have quantitative skills but do not have formal training in computer science, has grown to over 950 students.

Faculty Highlights

- Sebastian Angel won the SIGOPS Dennis Richie Dissertation Award.
- Sampath Kannan was named a member of the AAAS.
- Aaron Roth and Mayur Naik were promoted to Professor.
- Chenfanfu Jiang received an NSF CAREER Award.
- Linh Phan won the university's Lindback Award for Teaching Excellence.

University of PITTSBURGH | School of Computing and Information

Department of Computer Science

New Faculty in 2020

Malihe Alikhani
Assistant Professor

Ph.D. in Computer Science, Rutgers University, 2020

Primary research interests in the fields of Natural Language Processing and Cognitive Science.

Xiaowei Jia
Assistant Professor

Ph.D. in Computer Science, University of Minnesota, 2020

Primary research interest is to advance machine learning and data science to solve real-world problems of great societal and scientific impacts.

Wonsun Ahn
Teaching Assistant Professor

Ph.D. in Computer Science, University of Illinois at Urbana Champaign, 2012

Arjun Chandrasekhar
Teaching Assistant Professor

Ph.D. in Bioinformatics & Systems Biology, University of California San Diego, 2019

Luis Oliveira
Teaching Assistant Professor

Ph.D. in Electrical & Computer Engineering, University of Porto, Portugal, 2016

Selected New Research Awards

- Architectural Support for Securing Deep Neural Networks **[Zhang]**
- Center for Integrative Research in Computing and Learning Sciences (CIRCLS) **[Walker]**
- Designing Effective Dialogue, Gaze, and Gesture Behaviors in a Social Robot that Supports Collaborative Learning in Middle School Mathematics **[Walker, Litman, Kovashka]**
- Discussion Tracker: Development of Human Language Technologies to Improve the Teaching of Collaborative Argumentation in High School **[Litman]**
- Domain-robust object detection through shape and context **[Kovashka]**

- FoMR: A Software and Hardware Co-Design for Addressing the Performance Bottlenecks in Secure Non-Volatile Memory **[Zhang, Tang]**
- From Data Literacy to Collective Data Stewardship: Technology-Supported Community-Driven Solutions for Urban Youth **[Walker]**
- REPAIR: Regenerative Electronic Platform through Advanced Intelligent Regulation **[Cohen, Hauskrecht]**
- Tracking Horizontal Inequalities Across Dimensions to Forecast and Understand Instability (TrIAD) **[Chrysanthis]**

Other News

- Unprecedented growth: **CS majors doubled** in last 10 years
- New Department Chair: **Alexandros Labrinidis** (Jan 1, 2020)
- New Student Club: *Underrepresented Minorities in Computing*

We will recruit tenure-track faculty for Fall 2021

New faculty for 2020

Morgan Frank
Assistant Professor

Morgan Frank is interested in the complexity of AI, the future of work, and the socio-economic consequences of technological change. Frank has a Ph.D. from MIT's Media Lab. His recent paper in *PNAS - Proceedings of the National Academy of Sciences*, explores the impact of AI on labor.

Ahmed Ibrahim
Teaching Assistant Professor

Ahmed Ibrahim currently teaches several courses on security/privacy and computer forensics. He is interested in the area of communication and network security. He received his Ph.D. in Computer Science from the University of Kentucky.

Research Highlights

DINS Faculty win timely NSF awards
The National Science Foundation's Rapid Response Research (RAPID) funding mechanism will support work by several DINS faculty. Rosta Farzan, Yu-ru Lin and Konstantinos Pelechrinis are PIs of three NSF RAPID grants related to understanding the impact of the COVID-19 pandemic - in hyperlocal communities, toward countering COVID-19 misinformation, and understanding and enhancing Internet connectivity of underserved communities.

Yu-ru Lin

DINS Research spans NSF Funding Streams
DINS faculty were PI or co-PI on a number of newly-awarded grants in a variety of programs illustrating the broad spectrum of research in the department. These include NSF's Information and Intelligent Systems (IIS), Computer and Network Systems (CNS), Secure and Trustworthy Cyberspace (SaTC), Cyberlearning for Work at the Human-Technology Frontier (CLFT), Spectrum Innovation Initiative (SII), and Security & Preparedness (SAP). The PIs/Co-PIs are Rosta Farzan, Yu-ru Lin, Balaji Palanisamy, Konstantinos Pelechrinis, Martin Weiss, Lingfei Wu, and Vladimir Zadorozhny.

Rosta Farzan

RK Mellon Foundation Grant to Support Labor Match Study
Lingfei Wu, Assistant Professor, has been awarded a research grant by the Richard King Mellon Foundation to support creating information systems to match the supply and demand for middle-skilled healthcare labor in Western Pennsylvania.

Kostas Pelechrinis

Departmental Vision
The vision of DINS is to empower humans and society through modeling and designing systems that are accountable, resilient, trustworthy, sustainable, and ethical and through synthesizing and advancing fundamental science in **information**, **networks**, and **human behavior**.

We will be recruiting tenure-track faculty for Fall 2021

Department of Informatics and Networked Systems
University of Pittsburgh
Pittsburgh, PA 15260

www.dins.pitt.edu
@PittDINS

University of Rochester
Department of
Computer Science

cs.rochester.edu

Wegmans Hall
Home of Computer Science

Recent Hires

Fatemeh Nargesian
Data Management

PhD, University of Toronto

Adam Purtee
Artificial Intellegence

PhD, University of Rochester

Faculty Highlights

2020
- James Allen receives Herbert Simon Award for Advances in Cognitive Systems.
- Jiebo Luo appointed Editor-in-Chief of IEEE Transactions on Multimedia.
- Ehsan Hoque named an "emerging leader" by the National Academy of Medicine.
- David Narváez selected for Computing Innovation Fellow postdoc with Lane A. Hemaspaandra.
- Michael Scott receives William H. Riker University Award for Excellence in Graduate Teaching.
- Chen Ding receives College Award for Undergraduate Teaching and Research Mentorship.
- Sandhya Dwarkadas awarded the 2020 Edmund Hajim Outstanding Faculty Award.

2019
- Jiebo Luo named an AAAI Fellow.
- Ehsan Hoque named to EU-US Frontiers of Engineering by the National Academy of Engineering
- Henry Kautz awarded the AAAI Robert S. Engelmore Memorial Lecture Award.
- Zhen Bai and Ted Pawlicki receive Sykes awards to develop courses in AR/VR Design and Quantum Computing.
- George Ferguson named Engineering Professor of the Year by the UR Students' Association.
- Sreepathi Pai wins Best Paper Award at 2019 IEEE International Symposium on Workload Characterization.

Undergraduate and Graduate Highlights

2020
- Zhengyuan Yang wins the inaugural Twitch Research Fellowship.
- Laasya Bangalore wins the 2020 Edward Peck Curtis Award for Excellence in Teaching by a Graduate Student.
- URWiC (UR Women in Computing) wins UR Meliora Values Award.
- Melissa Wen receives Honorable Mention in NSF Graduate Research Fellowship Competition.
- Lele Chen wins Best Paper Award at the ACM SIGGRAPH VRCAI Conference.
- Wasifur Rahman wins Best Paper Award at ACM UbiComp 2020.
- Yiming Gan wins Best Paper Award at PACT 2020.
- Paper by Yue Leng, Chi-Chun Chen, and others chosen for IEEE Micro "Top Picks in Computer Architecture" issue.

2019
- Louis Jenkins awarded Department of Energy Computational Science Graduate Fellowship.
- Sam Lerman receives Honorable Mention in NSF Graduate Research Fellowship Competition.
- Samuel Triest '20 wins Gold Medal in ACM Student Research Competition.
- Jackson Abascal '19 named a finalist in CRA Outstanding Undergraduate Researcher Competition.
- Taylan Sen and Kurtis Haut win first prize in IARPA Credibility Assessment Standardized Evaluation (CASE).
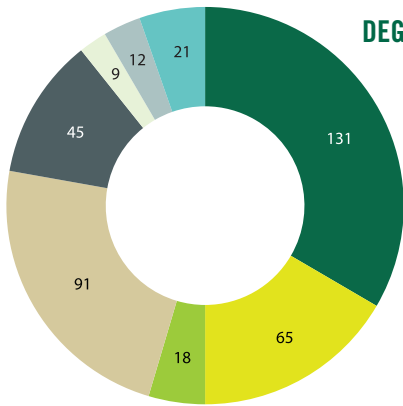
DEGREES AWARDED AY 2019-2020

- BS in Computer Science (131)
- BS in Computer Engineering (65)
- BS in Cybersecurity (18)
- BS in Information Technology (91)
- MS in Computer Science (45)
- MS in Computer Engineering (9)
- MS in Information Technology (12)
- PhD in Computer Science and Engineering (21)

RESEARCH BENCHMARKS

Academic Analytics 2018
Comparison Group: US Public Institutions
Overall Rank: 34

Federal Grants	Journals	Awards	Citations	Conference
66%	72%	89%	67%	65%
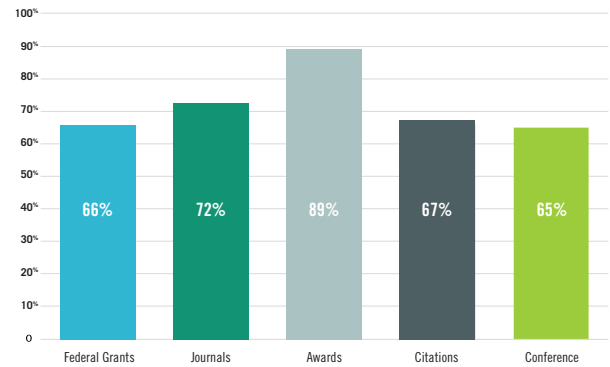
KEY FACTS AND RANKINGS

- The 2021 US News & World Report ranked our Computer Engineering program in the 52nd place among public universities and 86 out of 134 among all universities, public and private.

- The 2021 US News & World Report ranked the graduate Masters of Science in Information Technology program #10 for online IT programs.

- USF Institute for Artificial Intelligence (AI+X) was approved by the Florida Board of Governors in 2019.

- Faculty members are currently executing $9.3 million in active external research grants from NSF, DoD, NIH, NIST, industry, and state sources. Twelve Department faculty members are NSF CAREER awardees.

- USF CSE is in the top 20% (rank 34) of Computer Science departments at U.S. public universities, according to Academic Analytics (2018) data based on Scholarly Research Index of default weights for grants, articles, conferences, awards, and citations.

- USF CSE has a major initiative to broaden participation in computing through a three-year grant from NU Center for Inclusive Computing. In 2019, CSE engaged with NCWIT Learning Circle to develop a BPC plan. CSE is a 2020 BRAID Affiliate.

FACULTY RESEARCH AREAS

- Computer Vision and Pattern Recognition, Artificial Intelligence and Machine Learning, Robotics, Brain-Computer Interfaces, Computational Neuroscience, Affective Computing

- Cryptography, Trustworthy Computing, Network Security, Smart Bio-Devices, Hardware Security, Biometrics

- Computer Architecture, VLSI, Ubiquitous Sensing Networks, Distributed Computing, Parallel Processing, and Biomedical Devices

- Biomedical Imaging, Machine Learning, Databases, Visualization, Social Networks, and Efficient Computing Platforms

USC Viterbi School of Engineering — Department of Computer Science

Snapshot, 2019-2020

`<hello-world/>`

Faculty

84	Faculty Members
17	Teaching Faculty
29	Research Faculty
38	Tenure-Track

Students

4246	Students
315	PhD
2563	Master's
1368	Undergrad

Academy Members/ Society Fellows

1	Turing
5	NAE
2	NAS
8	ACM
15	IEEE
39	Additional including AAAI, AAAS

New Faculty Recruited 2020

Jesse Thomason
Asst. Prof.
PhD University of Texas at Austin
Language grounding and natural language processing for robotics

Jiapeng Zhang
Asst. Prof.
PhD UC San Diego
Boolean function analysis, computational complexity and cryptography

Robin Jia
Asst. Prof.
PhD Stanford University
Natural language processing, robustness and machine learning

Vatsal Sharan
Asst. Prof.
PhD Stanford University
Machine learning, statistics and theoretical computer science

Iacopo Masi
Research Asst. Prof.
PhD University of Florence
Computer vision, machine learning, deep learning and biometrics

David Pynadath
Research Asst. Prof.
PhD University of Michigan
Decision-making in multi-agent systems

Grant Highlights

Cyrus Shahabi
DETECT: An All-Scale Trajectory Clustering Approach for Moving Behavior Detection with Spatiotemporal Deep Embedded Neural Networks, National Geospatial Intelligence Agency: $344,485

Joseph Lim
NRI: INT: Collaborative Research: Buoyancy-assisted Collaborative Robots That are Cheap, Safe, and Never Fall Down, US-National Science Foundation: $450,000

Maja Mataric
NRI: FND: Communicate, Share, Adapt: A Mixed Reality Framework for Facilitating Robot Integration and Customization, US-National Science Foundation: $750,000

Aleksandra Korolova
SaTC: CORE: Medium: Collaborative Research: Understanding and Mitigating the Privacy and Societal Risks of Advanced Advertising Targeting and Tracking, US-National Science Foundation: $399,954

Total Grant Funding FY19-20: $7,888,575

Student Distinctions

Leena Mathur
BS in Computer Science, BA in Cognitive Science, BA in Linguistics
Goldwater Scholarship

Zane Durante
BS in Computer Science, BA in Applied and Computational Mathematics
Astronaut Scholarship Foundation, 2020 Astronaut Scholarship

Alexander Spangher
PhD in Computer Science
Bloomberg Data Science PhD Fellowship

Faculty Distinctions

Nenad Medvidovic
ACM Sigsoft Distinguished Service Award

Aleksandra Korolova and Haipeng Luo
National Science Foundation Career Award

Yan Liu
New Voices of National Academies of Science, Engineering and Medicine

Shanghua Teng
OCEC Outstanding Engineering Merit Award

Ewa Deelman
AAAS Fellow

Additional Highlights

#1 Best online computer science graduate program for the eighth consecutive year by U.S. News & World Report

98K Square footage of a new, state-of-the-art computer science building slated to open in fall 2023

#1 Top game design program for undergraduates awarded to USC Games by Princeton Review

UNIVERSITY OF TEXAS ARLINGTON
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

36 tenure-track, 20 teaching faculty

Since 2006, current and former faculty members received:
8 NSF CAREER,
1 AFOSR YIP, and
4 NSF CRII awards.
4 faculty members are IEEE fellows.

New Faculty Members

ALEX DILHOFF
SENIOR LECTURER

NADRA GUIZANI
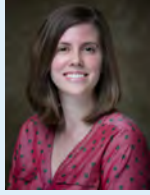ASSISTANT PROFESSOR OF INSTRUCTION

VP NGUYEN
ASSISTANT PROFESSOR

HABEEB OLUFOWOBI
ASSISTANT PROFESSOR

SALIK PARWEZ
SENIOR LECTURER

ALLISON SULLIVAN
ASSISTANT PROFESSOR

YINGYING ZHU
ASSISTANT PROFESSOR

R-1 University
Carnegie Classification of Institutions of Higher Education

Hispanic Serving Institution

#1 African-American Master's and Bachelor's Degrees
Diverse Issues in Higher Education

#21 Minority Students Master's Degrees
Diverse Issues in Higher Education

#12 Hispanic Students Master's and Bachelors Degrees
Diverse Issues in Higher Education

#1 "Best For Vets: Colleges" 2020 List
Diverse Issues in Higher Education

5th Fastest-Growing Doctoral Public
Chronicle of Higher Education Almanac

CSRankings.org
(2016-2020, all venues)

#58 Overall

#50 AI

#31 Databases

#18 High-Performance Computing

#64 Machine Learning & Data Mining

#49 Software Engineering

#43 Computer Security

#21 Operating Systems

Achievements & Research Highlights

Over $3M research expenditure in 2020

IEEE Fellow, Dr. Gautam Das
CSRankings.org Papers 2020: 5 AAAI, 2 ECCV, 3 CCS, 2 WWW, 3 VLDB, 2 SIGMOD, 1 ICML, 1 KDD, 1 FAST, 1 ATC, 1 ICSE, 1 SIGMETRICS

$373K NSF, NetSplicer: Scalable Decoupling-Based Algorithms for Multilayer Network Analysis, Sharma Chakravarthy

$330K CPRIT, Digital pathology analysis for lung cancer patient care, Junzhou Huang

$175K NSF CRII Award, Learning novel multi-resolution representations of graphs: Applications to Brain Connectivity analysis for Alzheimer's Disease, Won Hwa Kim

$147K Department of Veterans Affairs, War Related Illness and Injury Study Center (WRIISC) Wearable Data Collection System, Fillia Makedon

$68K NSF, Alloy Analyzer Plus: An Integrated Development Environment for Alloy, Allison Sullivan

Selected grants since Sept. 1, 2019

$502K NSF CAREER Award, Leveraging Context-Aware Sensing to Enhance QoE for Mobile Users: A Practical Framework Design, Ming Li

$500K NSF, Request-SLO-Aware Orchestration for Large-scale Sensing Services over IoT-Edge-Cloud Hierarchy, Hong Jiang and Hao Che

$310K NSF, An Optimization Framework for Designing Derived Attributes with Humans-in-the-loop, Gautam Das and Won Hwa Kim

$250K NSF, Fuzzing Cyber-Physical System Development Tool Chains with Deep Learning (DeepFuzz-CPS), Christoph Csallner

$175K NSF CRII Award, Topological Methods for Robotic Perception, William J. Beksi

$80K BNSF Railway Company, Ramez Elmasri

$70K Build and Broaden: Conference on Social Connections to Promote Individual and Community Resilience in Post-COVID-19 Society, Gautam Das

Students, Enrollment, and Community

Fall 2020   2557 STUDENTS   1741 Bachelor's   665 Master's   151 Ph.D.

Ph.D. graduates who received academic positions, 2019-2020
Kun Suo (tenure-track) Kennesaw State University
Maher Abujelala (Postdoc) Yale University and TAMU
Michalis Papakostas(Postdoc) University of Michigan
Michail Theofanides (Postdoc) Boston University
Konstantinos Tsiakas (Postdoc) Yale University and Eindhoven

Senior Design industry sponsorship program
40+ sponsored projects and over $187,000 in pledged funding since Spring 2016. An additional $31,000 pledged for Fall 2020.

Grants for underrepresented students in computing
CSE Professors Chengkai Li, Sharma Chakravarthy, Ron Cross, Shirin Nilizadeh, and Carter Tiernan will be collaborating with UNT to host the 2nd OurCS@DFW (an annual regional research-focused workshop for underrepresented undergraduate students in computing) in early 2021.

Interdisciplinary conference for PErvasive Technologies Related to Assistive Environments (PETRA)
Professor Fillia Makedon and her colleagues have been organizing the conference since its inception in 2008. The latest conference was held online June 30 – July 3, 2020.

CSE faculty leading new Springer journal Discover Internet of Things
Professor Ishfaq Ahmad is named Editor-in-Chief of Discover Internet of Things, an open access, community-focused journal publishing research from across all fields relevant to the Internet of Things (IOT). Professor Manfred Huber is Section Editor. Professors Ming Li and Elizabeth Diaz are Editorial Board Members.

2020–2021
COMPUTER SCIENCE

Supplying the people and ideas that shape the digital frontier. UT Computer Science offers a unique opportunity for students to achieve excellence in the fundamentals of computer science and practical technical skills through rigorous classes, hands-on research and technology development. Its pioneering researchers create scientific knowledge and leading edge technologies that change the world.

SIX NEW FACULTY

James Bornholt
Assistant Professor

Anna Chaney
Assistant Professor of Instruction

Eunsol Choi
Assistant Professor

David Harwath
Assistant Professor

John Wright
Assistant Professor

Yuke Zhu
Assistant Professor

FACULTY

71	Faculty
2	Turing Awards
2	Simons Investigator Award
15	Sloan Fellows
23	National Science Foundation CAREER Awards
4	members of national academies
25	university teaching award recipients
25	Research Excellence Awards
4	American Association for Advancement of Science Fellows

15000+ ALUMNI

NEW ONLINE PROGRAMS

Master of Computer Science
Master of Data Science

STUDENTS

1887	Undergraduate
682	Graduate
10	percent Hispanic undergraduate enrollment
20	percent female undergraduate enrollment

UNDERGRADUATE PROGRAM RANKINGS

5	Artificial Intelligence
5	Software Engineering

GRADUATE PROGRAM RANKINGS

10	Nationally
7	Theory
8	Artificial Intelligence
8	Programming Language
8	Systems

RESEARCH

Artificial Intelligence | Bioinformatics & Computational Biology | Computer Architecture | Data Mining, Machine Learning, & Natural Computation | Formal Methods | Graphics & Visualization | Model Driven Engineering | Operating systems, Distributed systems, & Networking | Programming Languages and Implementation Scientific Computing | Security | Theoretical Computer Science

CENTERS, INSTITUTES, AND CONSORTIA

Texas Computing | Texas Robotics | Machine Learning Laboratory | Robotics Center of Excellence | Artificial Intelligence Laboratory | Data Mining Laboratory | Center for Information Assurance and Security | Center for Computational Biology and Bioinformatics | Center for Computational Geosciences and Optimization | Center for Numerical Analysis | Computer Engineering Research Center | Laboratory for Advanced Systems Research | Networking Research Laboratory | Personal Autonomous Robotics Lab | Virtual Reality Lab | Oden Institute for Computational Engineering and SciencesComputer Graphics Laboratory | Texas Advanced Computing Center

The Computer Science Department at UT Dallas is one of the largest in the US with approximately 4,600 students and a distinguished faculty that has won numerous awards.

Research Highlights

- Broad areas of research: Software Engineering, AI/ML, NLP, Cyber Security, Networks, Systems, and Theory.
- $45 Million total external funding over the last 5 years.
- A total of 51 Tenure/Tenure-track faculty members.
- Faculty includes 15 NSF CAREER Award Winners, 3 AFOSR, and 1 ARO Young Investigators.
- CS Faculty direct 4 research institutes, 6 research centers, and one education/outreach center.
- Prof. Andrian Marcus received the 2020 ACM SIGSOFT Distinguished Paper Award in Software Engineering.
- Prof. Eric Wong and his co-authors received the Most Influential Paper Award from the 13th IEEE International Conference on Software Testing, Verification, and Validation (ICST 2020) for their research paper published in 2010.
- Prof. Bhavani Thuraisingham named one of the Top 100 Women in Cyber Security as selected by the Cyber Defense Magazine (2020).
- Prof. Kyle Fox received a five-year, $586,654 NSF Faculty Early Career Development (CAREER) Award to explore how the mathematical field of topology can be used to design more efficient and faster algorithms to solve difficult problems.
- Prof. Gopal Gupta won the 10-year Test of Time Award for his work on coinduction in logic.
- Prof. Kangkook Jee received the prestigious IEEE BigDataSecurity Junior Research Award from the Technical Committee on Scalable Computing.
- Prof. Latifur Khan received the Best Paper Award at the IEEE BigDataSecurity Conference.
- CSrankings.org ranked the UT Dallas CS Dept. 8th in NLP, 5th in Software Engineering, and 7th in Embedded and Real-Time Systems ('10-'20 period).

Student Numbers/Growth/Education Highlights

- Approximately 3,600 Undergraduates, 800 Masters, 160 PhD students.
- Awarded approximately 600 Bachelors, 520 Masters, and 30 PhDs degrees in 2019-20.
- Ranked #4 nationally for the total number of students, #11 for the number of female students.
- Ranked #11 nationally for the no. of Hispanic students, #14 for African American students.
- Nearly 120 teams completed industry-sponsored senior-design projects in 2019-20.
- More than a dozen CS student organizations under the umbrella of the student chapter of the ACM.
- Student groups include: Women Who Compute, AI Society, VR Society, Graduates of CS, Cyber Security Group.
- Center for CS Outreach runs one of the largest university-based K-12 outreach programs.
- NSA Center of Excellence in Cyber Security Education, Research and Cyber Operations.

Organizational News

- Center for Research in Machine Learning recently founded by Drs. Gogate, Ruozzi, and Natarajan.
- Center for Applied Artificial Intelligence and Machine learning founded by Dr. Doug DeGroot and Dr. Gopal Gupta.
- Center for Women in Cyber Security recently founded by Dr. Bhavani Thuraisingham.

New Tenure-Track Faculty

Dr. Jessica Ouyang
Natural Language Processing, Automatic Summarization
PhD Columbia University

Dr. Kangook Jee
AI/Machine Learning, System & Network Security
PhD Columbia University

Dr. Feng Chen
AI/Machine Learning, Big Data Analytics
PhD VA Tech

Dr. Jin Ryong Kim
Human-Computer Interaction
PhD Purdue

Dr. Chung Hwan Kim
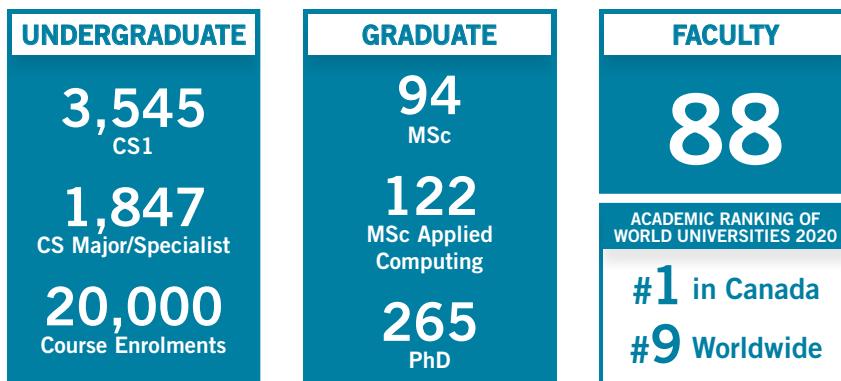Systems Security
PhD Purdue

DEPARTMENT HIGHLIGHTS

Professor **Marsha Chechik**, a world-renowned expert in the application of formal methods to improve the quality of software, has been appointed chair for a two-year term, and is the first female chair in the department's history.

Assistant Professor **Henry Yuen** co-authored a landmark computer science proof that established a new boundary on computationally verifiable knowledge. The proof also solved open problems in both quantum mechanics and pure mathematics.

University of Toronto Mississauga is home to a new robotics research and teaching cluster, part of the recently launched University of Toronto Robotics Institute.

BY THE NUMBERS

UNDERGRADUATE	GRADUATE	FACULTY
3,545 CS1	**94** MSc	**88**
1,847 CS Major/Specialist	**122** MSc Applied Computing	
20,000 Course Enrolments	**265** PhD	

ACADEMIC RANKING OF WORLD UNIVERSITIES 2020

#1 in Canada
#9 Worldwide

FACULTY AWARDS & HONOURS

- University Professor Emeritus **Geoffrey Hinton** — 2019 Honda Prize
- Professor Emeritus **Eugene Fiume** — ACM SIGGRAPH Academy (2020 class)
- Professor **Ravin Balakrishnan** — 2020 Achievement Award, Canadian Human-Computer Communications Society (CHCCS/SCDHM)
- Professor Emeritus **John Mylopoulos** — Fellow, International Federation for Information Processing (IFIP)
- Professor Emeritus **Ron Baecker** — 2020 SIGCHI Social Impact Award
- Professor **Sheila McIlraith** — Fellow, Association for Computing Machinery (ACM)
- Professor **Graeme Hirst** — 2020 Distinguished Service Award, Association for Computational Linguistics (ACL)
- Assistant Professor **Syed Ishtiaque Ahmed** — Fulbright Centennial Fellow
- Assistant Professor **Marzyeh Ghassemi** and Assistant Professor **Maryam Mehri Dehnavi** — Tier 2 Canada Research Chairs
- Assistant Professor **Alec Jacobson** — 2020 Significant New Researcher Award, ACM SIGGRAPH

NEW FACULTY

MARIO BADR
Assistant Professor, Teaching Stream
PhD: University of Toronto

JAKOB FOERSTER
Assistant Professor
PhD: University of Oxford
Machine Learning

CHRIS MADDISON
Assistant Professor
PhD: University of Oxford
Machine Learning

ALEX MARIAKAKIS
Assistant Professor
PhD: University of Washington
Ubiquitous Computing

ROBERT SODEN
Assistant Professor
PhD: University of Colorado Boulder
Climate Informatics

LISA STRUG
Professor
PhD: University of Toronto
Statistical Genetics

NANDITA VIJAYKUMAR
Assistant Professor
PhD: Carnegie Mellon University
Computer Architecture

BO WANG
Assistant Professor
PhD: Stanford University
Machine Learning & Health

NATHAN WIEBE
Assistant Professor
PhD: University of Calgary
Quantum Computing

SCHOOL OF COMPUTING
UNIVERSITY OF UTAH

2020

Mary Hall
named Director of the School of Computing

Bei Wang
received the 2020 U.S. Department of Energy Early Career Award

New Faculty

Eliane Wiese
*Assistant Professor
PhD, Carnegie Mellon University
Human-Computer Interaction, Computer Science Education*

Scott Brown
*Assistant Professor, Lecturer
PhD, University of South Alabama*

Utah Alum Ed Catmull receives Turing Award

Ed Catmull (BS'69;PhD'74), who co-founded Pixar and was President of Disney Animation, shared the most recent Turing Award with Stanford professor Pat Hanrahan for "fundamental contributions to computer graphics, and the revolutionary impact of these techniques on computer-generated imagery (CGI) in filmmaking and other applications". In the picture (top), Ed is in a SoC campus lab measuring grid points on a mold of his left hand to create "A Computer Animated Hand".

Broadening Participation

School of Computing (SoC) faculty are involved in bootstrapping the NSF CISE Broadening Participation in Computing pilot program, and in developing the **BPCnet. org** resource portal. SoC faculty are also working with the National Center for Women in Information Technology through its **NCWIT Learning Circles** to collect data, identify opportunities to improve recruiting and retention of women, and collaborate with other Learning Circle institutions.

New Utah Center for Data Science

The **Utah Center for Data Science** was launched in Fall 2019 drawing on emerging expertise in data science at the University of Utah, led by faculty at the School of Computing and Department of Mathematics. The mission of the center is to organize and further develop the expertise in data science at the university and local community, offering Data Science certificate and degree programs, and engaging the community with an annual Utah Data Science Day.

Alumni and Student Awards

Han-Wei Shen (PhD '98) has been inducted into the 2020 IEEE Visualization Academy, the highest honor in the field of visualization.

Sunipa Dev (PhD'20) was selected as a 2020 NSF Computing Innovation Fellow.

Yanqing Peng, a PhD student, has received a 2020 Google Fellowship for Structured Data and Database Management, joining 2019 Google Fellow recipients **Chinmay Kulkarni** (Systems and Networking) and **Zhuoyue Zhao** (Structured Data and Database Management).

Mark Van der Merwe, B.S. Computer Science; Honors, Spring 2020 has received the NSF Graduate Research Fellowship.

RANKINGS (from csrankings.com)
#1 in Visualization, #4 in High Performance Computing, #13 in Programming Languages

www.cs.utah.edu

COMPUTE

The University of Vermont
Department of Computer Science

UVM's Department of Computer Science has helmed groundbreaking and critical research in recent months, including building living robots and partnering with Google through the Vermont Complex Systems Center, and welcomed several new faculty members. Read on for more!
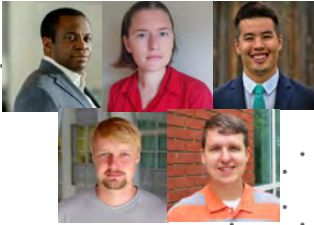
UVM Computer Science Welcomes Five New Faculty Members

In Academic Year 2020/21, the UVM CS Department is welcoming 5 new faculty members: Dr. Emma Tosch, Dr. Jeremiah Onaolapo, Dr. Nick Cheney, Dr. Jean-Gabriel Young, and Kevin Plis. They will contribute to our existing strengths in security and privacy, networks and complex systems, and reflect the overall growth in our Department in research and education.

UVM CS Team Pioneers Living Robotics

UVM CS Researchers Josh Bongard and Sam Kriegman developed novel algorithms that, combined with repurposed living cells scraped from frog embryos, has given rise to living robots. These millimeter-wide "xenobots" can move toward a target, perhaps pick up a payload (like a medicine that needs to be carried to a specific place inside a patient)—and heal themselves after being cut.

UVM CS Research Leadership on Climate Change and Disease Modeling

The National Science Foundation awarded $4 million over four years to the EPSCoR Research Infrastructure project to develop novel approaches and software for modeling, visualizing and forecasting spatial and temporal data related to impacts of climate change. UVM CS Faculty member Laurent Hebert-Dufresne will lead the disease modeling component of a multi-institutional project with researchers at UMaine, University of Vermont, University of Maine at Augusta, and Champlain College.
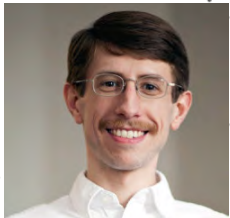
Dr. Joe Near Receives Amazon Research Award for Fairness in Deep Learning

Artificial intelligence is a powerful tool, but AI systems often reflect and magnify society's biases -- for example, by predicting above-average risk of recidivism for Black defendants. Dr. Joe Near's research, supported by Amazon, seeks to prove that a model's predictions are free of this kind of bias. Dr. Near's work combines techniques in program analysis and deep learning, and aims to improve fairness in machine learning and artificial intelligence, a growing social concern.

UVM Renewed as BRAID Institution

In 2020, UVM was renewed as a BRAID (Building, Recruiting, and Inclusion for Diversity) Institution. We remain committed to implementing efforts to increase the participation of women and other members of underrepresented groups in CS. Related activities include our virtual attendance of the Grace Hopper Celebration of Women in Computing, and the ACM Richard Tapia Conference.

Learn more about our work, and our Incredibly diverse and richly talented faculty, undergraduate, and graduate student cohorts at uvm.edu/cems/cs.

The University of Vermont

COLLEGE OF ENGINEERING & MATHEMATICAL SCIENCES (CEMS)

University of Victoria | Computer Science

7 NEW RESEARCH FACULTY

H. Jabbari
(2019)
Computational Biology

B. Haworth
(2020)
Graphics Simulations

S. Chester
(2019)
Parallelism Databases

I. Numanagić
(2019)
Computational Biology

M. Nacenta
(2020)
HCI Visualization

C. Perin
(2018)
HCI Visualization

S. Somanath
(2020)
HCI Design

FACULTY SPOTLIGHT

31 Faculty members (25 Research Stream, 6 Teaching Stream); **100%** of research faculty currently funded by the Natural Sciences & Engineering Research Council of Canada (NSERC); **Research strengths** in Computational Biology, Computer Music, Databases and Data Mining, HCI and Information Visualisation, Machine Learning, Networks and Distributed Applications, Software and Systems Engineering, Theoretical Computer Science and Visual Computing.

According to csrankings.org, **#8 in Canada** for high-quality research output (2015-2020)

DISTINCTIONS

ACM Fellow, V King (Randomised Algorithms); **CRC Tier 1,** M Storey (Human & Social Aspects of Software Engineering); **CRC Tier 2,** G Tzanetakis (Computer Analysis of Audio and Music); **CRC Tier 2,** I Numanagić (Computational Biology and Data Science)

CRC = Canada Research Chair

STUDENT SPOTLIGHT

Jingrong Wang: 2019 **Lieutenant Governor's Silver Medal** (best thesis university-wide); STEM **Outreach** Programs (HighTechU, WECS:Women in Computer Science); **Co-op** work programs; **Experiential** Learning Opportunities.

UNIVERSITY OF VIRGINIA **COMPUTER SCIENCE**
GROWTH AND **TRANSFORMATION**

UVA COMPUTER SCIENCE CONTINUES TO MAKE SIGNIFICANT INVESTMENTS IN RESEARCH AND EDUCATION. BUILDING ON OUR EXISTING STRENGTHS, WE ARE INTENSIFYING OUR RESEARCH IN CROSS-CUTTING TOPICS, SUCH AS SOFTWARE ENGINEERING AND TRUST, IN AREAS SUCH AS CYBER-PHYSICAL SYSTEMS AND INTELLIGENT SYSTEMS.

2019-2020 HIGHLIGHTS

- Cyber Defense Team wins third consecutive National Collegiate Cyber Defense Competition.
- The University of Virginia's Biocomplexity Institute, led by computer science faculty, awarded $10 million National Science Foundation "Expeditions in Computing" grant to revolutionize real-time epidemiology for controlling future disease outbreaks, like COVID-19.
- Virginia Assuring Controls Compliance of Research Data, or ACCORD, leads development of a secure, high-performance computing system that will support National Science Foundation funded research on protected COVID-19 data.
- Two faculty named NSF CAREER Award winners.
- Cavalier autonomous racing club launched to represent UVA in the first-ever Indy Autonomous Challenge.
- Cyber Innovation and Society Institute receives inaugural Public Interest Technology University Network grant to create a first-of-its kind course that will integrate education in technology, policy and law.

25
NEW TENURED OR TENURE-TRACK FACULTY SINCE 2012-2013
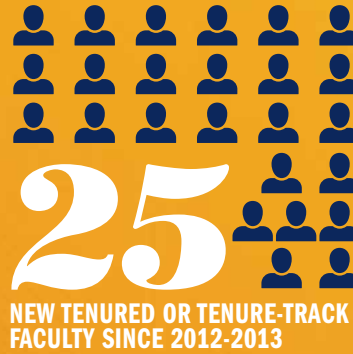
INCREASE IN UNDERGRADUATE DEGREES AWARDED, 2014-2019:

108%

GRADUATE PROGRAM GROWTH, 2014-2019:

261%

265%
GROWTH IN **RESEARCH EXPENDITURES**
FY2014-FY2020

$19.8 MILLION FY2020 EXPENDITURES

RESEARCH FOCUS AREAS:

- CYBER-PHYSICAL SYSTEMS
- ARTIFICIAL INTELLIGENCE
- CYBERSECURITY
- SOFTWARE ENGINEERING
- HUMAN-COMPUTER INTERACTION
- COMPUTER SYSTEMS
- THEORY

TENURED OR TENURE-TRACK FACULTY SINCE 2012-2013:

MADHUR BEHL
ASSISTANT PROFESSOR
Ph.D.: University of Pennsylvania
Cyber-Physical Systems

BRAD CAMPBELL
ASSISTANT PROFESSOR
Ph.D.: University of Michigan
Networked Embedded Systems

MATTHEW DWYER
PROFESSOR
Ph.D.: University of Massachusetts at Amherst
Verification and Validation of Autonomous Systems

SEBASTIAN ELBAUM
PROFESSOR
Ph.D.: University of Idaho
Software Engineering and Robotics

FARZAD FARNOUD
ASSISTANT PROFESSOR
Ph.D.: University of Illinois, Urbana-Champaign
Information and Coding Theory

LU FENG
ASSISTANT PROFESSOR
Ph.D.: University of Oxford
Cyber-Physical Systems

TOM FLETCHER
ASSOCIATE PROFESSOR
Ph.D.: University of North Carolina, Chapel Hill
Image Analysis and Machine Learning

SEONGKOOK HEO
ASSISTANT PROFESSOR
Ph.D.: Korea Advanced Institute of Science and Technology
Human-Computer Interaction and Novel Sensing Techniques

YANGFENG JI
ASSISTANT PROFESSOR
Ph.D.: Georgia Institute of Technology
Natural Language Processing, Machine Learning

SAMIRA KHAN
ASSISTANT PROFESSOR
Ph.D.: University of Texas, San Antonio
Computer Architecture

YONGHWI KWON
ASSISTANT PROFESSOR
Ph.D.: Purdue University
Systems Security

JUNDONG LI
ASSISTANT PROFESSOR
Ph.D.: Arizona State University
Machine Learning, Data Mining, and Social Computing

FELIX LIN
ASSOCIATE PROFESSOR
Ph.D.: Rice University
Systems Software and Big Data Analytics

MOHAMMAD MAHMOODY
ASSOCIATE PROFESSOR
Ph.D.: Princeton University
Cryptography and Computational Complexity

VICENTE ORDONEZ
ASSISTANT PROFESSOR
Ph.D.: University of North Carolina, Chapel Hill
Computer Vision

YANJUN QI
ASSOCIATE PROFESSOR
Ph.D.: Carnegie Mellon University
Machine Learning

HAIYING SHEN
ASSOCIATE PROFESSOR
Ph.D.: Wayne State University
Parallel and Distributed Computer Systems and Networks

YIXIN SUN
ASSISTANT PROFESSOR
Ph.D.: Princeton University
Network Security and Privacy

YUAN TIAN
ASSISTANT PROFESSOR
Ph.D.: Carnegie Mellon University
Security and Privacy for Cyber-Physical Systems

ASHISH VENKAT
ASSISTANT PROFESSOR
Ph.D.: University of California, San Diego
Computer Architecture and Compilers

HONGNING WANG
ASSOCIATE PROFESSOR
Ph.D.: University of Illinois, Urbana-Champaign
Machine Learning, Data Mining and Information Retrieval

DAVID WU
ASSISTANT PROFESSOR
Ph.D.: Stanford University
Cryptography and Computer Security

HAIFENG XU
ASSISTANT PROFESSOR
Ph.D.: University of Southern California
Computational Game Theory

MIAOMIAO ZHANG
ASSISTANT PROFESSOR
Ph.D.: University of Utah
Statistical Shape Analysis and Machine Learning

AIDONG ZHANG
PROFESSOR
Ph.D.: Purdue University
Data Mining, Bioinformatics, Health Informatics

ENGINEERING.VIRGINIA.EDU/CS

UNIVERSITY *of* **VIRGINIA**

SCHOOL *of* ENGINEERING & APPLIED SCIENCE
Department of Computer Science

ACCOLADES

Batya Friedman

Amy J. Ko

Chirag Shah

Professor **Batya Friedman,** a pioneer in Value-Sensitive Design, was awarded an honorary doctorate from Delft University of Technology in the Netherlands. The honor was one of two given to researchers who "symbolize new perceptions in design."

Associate Professor **Amy J. Ko** was accepted as a senior member of the Association for Computing Machinery. The recognition honors her technical leadership and contributions to the field.

Associate Professor **Chirag Shah** received the Karen Spärck Jones Award, in recognition of his achievements in natural language processing and information retrieval. He is the 11th recipient of the award, given to a thought leader in academia or industry.

Ten iSchool students were named among the 2020 Husky 100, which honors those who are making the most of their UW experience, making an impact inside and outside the classroom.

NEWS & IMPACT

The iSchool-based **Center for an Informed Public** (cip.uw.edu) and a coalition of leading researchers launched the Election Integrity Partnership. It mission is to rapidly respond to emerging election-related misinformation and disinformation campaigns.

Associate Professor **Jevin West** and UW colleague Carl Bergstrom released *Calling Bullshit: The Art of Skepticism in a Data-Driven World.* The mass-market book gives readers tools to identify misinformation in a world of manipulated media and bad data.

Jevin West

The **Technology & Social Change** research group (tascha.uw.edu) released a *Development and Access to Information* dashboard. It allows users to explore progress toward United Nations Sustainability Goals, using data from the group's reports to the U.N.

Associate Professor **Amy J. Ko** is the principal investigator on a $1 million National Science Foundation-funded project to create a justice-focused computer science endorsement for educators. The UW program will be the first of its kind in the U.S.

Assistant Professor **Jason Yip** won an NSF CAREER grant to study how young people from lower socioeconomic backgrounds gather health and financial information for their families. The grant is worth $549,046 over five years.

The iSchool welcomed Assistant Professor **Tanu Mitra** to the faculty. Mitra focuses on large-scale social computing systems and how they serve as vehicles for misinformation, disinformation and other problematic content.

Tanu Mitra

Professor **Wanda Pratt** was named the iSchool's acting Associate Dean for Diversity, Equity and Inclusion. Pratt is tasked with turning the school's passion for diversity into action and results.

BY THE NUMBERS

Ph.D.: 64
INFORMATICS MAJOR: 455
MSIM: 264
MLIS: 349

PROGRAM ENROLLMENT: 1,132
(2019–20 DATA)
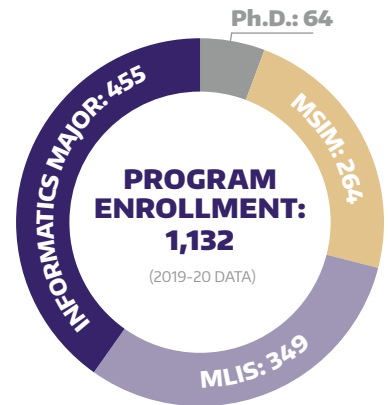
FACULTY COUNT

34 TENURE-TRACK FACULTY

26 TEACHING FACULTY

6 OPEN POSITIONS

5 RESEARCH SCIENTISTS

5 POST-DOCTORAL SCHOLARS

LEADING–EDGE RESEARCH

$12,457,772
in research funding for fiscal 2020.

FOSTERING ACCESSIBILITY

CREATE

New in 2020, the UW Center for Research and Education on Accessible Technology and Experiences (create.uw.edu) works to make the world accessible through techology. iSchool Professor **Jacob O. Wobbrock** is co-director.

DIVERSITY IN TECH

40%
of Informatics majors are women, helping to close the gender gap in STEM fields.

W PAUL G. ALLEN SCHOOL
OF COMPUTER SCIENCE & ENGINEERING

FACULTY ARRIVALS, '20–21

Simon Du
Machine Learning

David Kohlbrenner
Systems Security

Ryan Maas
Teaching Faculty

Sara Mostafavi
Computational Biology

Alex Ratner
Data Science

Chris Thachuk
Molecular Programming

Sheng Wang
Computational Biology

Robbie Weber
Teaching Faculty

Amy Zhang
Social Computing

ENDURING IMPACT

Members of the **Security and Privacy Research Lab**, led by **Tadayoshi Kohno** and **Franziska Roesner**, earned the Test of Time Award from the IEEE Symposium on Security and Privacy for their groundbreaking work with Allen School alumnus **Stefan Savage** (Ph.D., '02) and other University of California, San Diego researchers on **"Experimental Security Analysis of a Modern Automobile."**

STUDENT EXCELLENCE

NSF Graduate Research Fellowship honorees, clockwise from top left: **Caleb Ellington**, **Nathan Klein**, **Jialin Li**, **Ashlie Martinez**, **Josh Pollock**, **Kimberly Ruth**, **Matthew Schmittle**, and **Zöe Steine-Hanson**; center: **Nick Walker**

Kimberly Ruth
(Computer Engineering & Mathematics major)
CRA Outstanding Ugrad Researcher Award

Louis Maliyam
(Computer Science major/Dance minor)
UW President's Sophomore Medal

FACULTY EXCELLENCE

Magdalena Balazinska
Paul Beame
Fellows of the ACM

Byron Boots
Robotics: Science and Systems Early Career Award

Luis Ceze & Karin Strauss
ACM SIGARCH Maurice Wilkes Award

Michael Ernst
ACM SIGSOFT Outstanding Research Award

Dieter Fox
IEEE Robotics and Automation Society Pioneer Award

Hannaneh Hajishirzi
Yin Tat Lee
Sloan Research Fellows

Richard Ladner
National Science Board Public Service Award

Adriana Schulz
MIT Technology Review TR-35

Joshua Smith
Fellow of the IEEE

NEW INITIATIVES

Center for Digital Fabrication (DFab)

A network of researchers, educators, industry partners, and makers advancing the field of digital fabrication while supplying critical personal protective equipment (PPE) in response to COVID-19.

Center for Research & Education on Accessible Technology & Experiences (UW CREATE)

A consortium of researchers co-led by the Allen School and iSchool making the world more accessible through technology.

NSF AI Institute for Foundations of Machine Learning

A partnership addressing major research challenges in artificial intelligence while broadening participation in the field.

NSF TRIPODS Institute for Foundations of Data Science

A partnership tackling theoretical and technical questions in data science to accelerate scientific discovery.

High School CS Educator Training

An NSF-funded collaboration with the UW College of Education and iSchool creating an accredited teacher training program focused on computing's impact on social justice and equity.

THE ART OF INNOVATION

The **Molecular Information Systems Lab** worked with artist Kate Thompson to create a multimedia portrait honoring scientist Rosalind Franklin using paint infused with synthetic DNA encoded with digital images from the lab's **#MemoriesInDNA** project.

UNIVERSITY *of* WASHINGTON
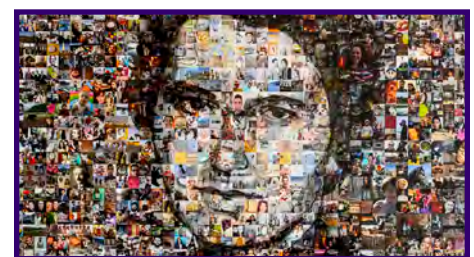
David R. Cheriton School of Computer Science

The University of Waterloo's David R. Cheriton School of Computer Science is the largest academic concentration of computer science researchers in Canada — we have more than 100 faculty members, 60 administrative, instructional and technical staff, 4,000 undergraduate students and 400 graduate students.

Research Areas

- Algorithms and complexity
- Artificial intelligence
- Bioinformatics
- Computer algebra and symbolic computation
- Computer graphics
- Cryptography, security, and privacy
- Data systems
- Formal methods
- Health informatics
- Human computer interaction
- Machine learning
- Programming languages
- Quantum computing
- Scientific computation
- Software engineering
- Systems and networking

New faculty members

Yousra Aafer
Systems Security and Software Engineering

Toshiya Hachisuka
Creative Informatics and Computer Graphics

Shane McIntosh
Empirical Software Engineering

Rafael Oliveira
Optimization and Computational Complexity

Chengnian Sun
Software Engineering and Programming Languages

Yizhou Zhang
Programming Languages and Software Engineering

Jian Zhao
Information Visualization, Human Computer Interaction and Data Science

Highlights

Raouf Boutaba, Srinivasan Keshav
Fellows of the Royal Society of Canada

Florian Kerschbaum
ACM Distinguished Member
CS-Can/Info-Can Outstanding Young Computer Science Researcher

Wes Graham
CS-Can/Info-Can Posthumous Lifetime Achievement Award

Shai Ben-David
University Research Chair

Shai Ben-David, Yaoliang Yu
Canada CIFAR AI Chairs

Jo Atlee
2020 IEEE Technical Council on Software Engineering Distinguished WISE Leadership Award

Nashid Shahriar, Sepehr Taeb, Shihabur Chowdhury, Mubeen Zulfiqar, Massimo Tornatore, Raouf Boutaba, Jeebak Mitra, Mahdi Hemmati
Best Paper Award, CNSM 2019

Johnny Wong
Most Influential Paper Award, CASCON 2019

Ming Li
2020 McGuffey Longevity Award from Textbook & Academic Authors Association

Jason Hu, Ondřej Lhoták
Distinguished Paper Award, POPL 2020

Brad Glasbergen, Michael Abebe, Khuzaima Daudjee, Daniel Vogel, Jian Zhao
Best Demo Award, 2020 ACM SIGMOD

Stavros Birmpilis
Distinguished Student Author Award, ISSAC 2020

Rahul Iyer, Alex Yun, Mei Nagappan, Jesse Hoey
ACM SIGSOFT Distinguished Artifact Award

Vikram Subramanian
ACM Student Research Competition, ICSE 2020

Hung Pham
ACM SIGSOFT Distinguished Paper Award

Amine Mhedhbi
Microsoft Research PhD Fellowship

Jameson Weng
Governor General's Silver Medal

Steven Feng, Shannon Veitch
Honorable mention, CRA 2020 Outstanding Undergraduate Researcher Awards

Waterloo undergraduate programmers
First place, East Central North America ICPC regional contest

Sergey Gorbunov, Gautam Kamath, Jian Zhao
Natural Sciences and Engineering Research Council of Canada Discovery Accelerator Supplements

Ihab Ilyas
Start-up Inductiv Inc. acquired by Apple

Bin Ma
Start-up Rapid Novor Inc. receives $5-million USD to decode antibodies for potential treatments for COVID-19 and other diseases

David R. Cheriton School of Computer Science • University of Waterloo
200 University Avenue West • Waterloo, ON, Canada N2L 3G1 • cs.uwaterloo.ca

UNIVERSITY OF WATERLOO | DAVID R. CHERITON SCHOOL OF COMPUTER SCIENCE

Department of Computer Sciences
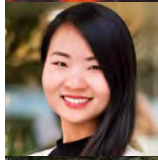### UNIVERSITY OF WISCONSIN–MADISON

Meet Our Newest Faculty

Yea-Seul Kim
HCI, Visualization, & Data Science

Sharon Li
Artificial Intelligence/ Deep Learning

Frederic Sala
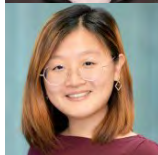*Machine Learning, Information Theory, & Data Science*

Swamit Tannu
Quantum Computer Architecture

Yuhang Zhao
HCI, Accessibility, AR/ VR, & Mobile Interaction

Web: cs.wisc.edu

Facebook & Twitter:
@WisconsinCS

The new School for Computer, Information & Data Sciences (CDIS) launched in 2019. Computer Sciences, Statistics, and the Information School came together to form CDIS with several goals in mind: to create more interdisciplinary research opportunities, to expand course offerings, and to lead the computing revolution across the state of Wisconsin and beyond. Learn more at https://cdis.wisc.edu/.

Leadership

◉ *Mark Hill* is the Computing Community Consortium (CCC) Chair Emeritus, serving from 2018-2020, and a member of the CCC Council. He is also a member of the CRA Board of Directors.

Highlights of Research Initiatives

◉ *Mohit Gupta* and his lab are working with researchers at EPFL, using single-photo avalanche diodes, or SPADS, for quant-burst photography, which is giving cameras greater sensitivity and speed— fast enough to record 100,000 single-photon framers per second.

◉ *Bart Miller*, with his colleagues at Virginia Tech, has been awarded four years of funding for "Deployment-quality and Accessible Solutions for Cryptography Code Development" to help developers more easily write secure code.

Faculty Award Highlights

◉ *Dieter van Melkebeek* received 2020 ACM-SIGACT Distinguished Service Award

◉ *Loris D'Antoni* awarded 2020 Microsoft Research Faculty Fellowship

◉ *Sharon Li* named one of Forbes 30 under 30-Science

◉ *Ilias Diakonikolas* and *Christos Tzamos* presented with NeurIPS Outstanding Paper Award

◉ *Aditya Akella* selected Blavatnik National Award for Young Scientists finalist

Education

The new *Data Science Major* is available to students as of the Fall 2020 Semester. The major is housed in the Department of Statistics and co-run by the Computer Sciences Department. Data Science is one of the fastest growing career sectors in Wisconsin and across the nation, and students who have completed this degree will be able to apply computational, mathematical, and statistical thinking to data-rich problems in a wide variety of fields in a responsible and ethical manner.

Rankings (from CSrankings.com)

#1 in Logic & Verification, **#2** in Databases, **#3** in Operating Systems, **#3** in Programming Languages, **#5** in Computer Architecture, **#8** in Measurement & Performance Analysis, **#9** in Mobile Computing, **#10** in Computer Networks, **#14** in Machine Learning & Data Mining, **#14** in Visualization, **#16** in Algorithms & Complexity

COMPUTER SCIENCE PROGRAM IS EXPANDING

NEW: ONLINE, PROFESSIONAL MASTER'S DEGREE IN COMPUTER SCIENCE

- Online option available, in addition to in-person or combination of online and in-person

NEW: BACHELOR OF ARTS DEGREE IN COMPUTER SCIENCE

- 34 CS credits
- CS + additional major or CS + 2 minors

CONTINUING PROGRAMS:

- Bachelor of Science in Applied Computing
- Bachelor of Science in Applied Mathematics & Computer Science
- Bachelor of Science in Computer Engineering
- Bachelor of Science in Computer Science
- Master of Science in Computer Science (thesis option)
- PhD in Biomedical and Health Informatics (the only program of its type in Wisconsin)
- PhD in Engineering (concentration in computer science)

AREAS OF IMPACT: UWM's location in the industrial and economic heart of the state provides industry-linked benefits.

- **Northwestern Mutual Data Science Institute: $40 Million National Hub for Technology**
  - o This groundbreaking partnership contributes to the formation of a technology ecosystem and advances southeastern Wisconsin as a national hub for technology, research, business and talent development, while creating an organic pipeline of tech talent in the area. UWM is a lead university partner.

- **Connected Systems Institute at UWM: Lead Support of $1.7 Million from Rockwell Automation + $1.5 Million from Microsoft**
  - o Researchers and industry partners conduct advanced research related to digital manufacturing and prepare a skilled workforce; CSI is a center of excellence, focused on advancing all aspects of manufacturing best practices, including technical topics surrounding IT/OT convergence, and the IIOT.

- **3D Imaging + Data Science**
  - o Zeyun Yu's data-driven blend of engineering and healthcare has applications in wound care, spinal modeling and various diagnostics including breast tumor classification, retinal imaging, and lung nodules. His work has been supported by the National Institutes of Health, the Clinical & Translational Science Institute of Southeast Wisconsin, GE Healthcare, the Marshfield Clinic Research Institute and several hospitals.

HIGHLIGHTS

- **UWM is an R1 Institution**, as designated by the Carnegie Classification of Institutions of Higher Education (one of only two in Wisconsin; the only one in Southeastern Wisconsin).

- **Biomedical and Health Informatics PhD at UWM is the Only Program of its Kind in Wisconsin.**
  - o Launched 15 years ago, in partnership with the Medical College of Wisconsin.
  - o Interdisciplinary program combines medical science with information technology to advance patient care, public health, life sciences research and health professional education.
  - o Since 2013, students have collectively published more than 200 peer-reviewed articles and given more than 40 presentations and have gone on to pursue careers in public policy, public health, cancer research and data analytics; one was recently selected for a postdoctoral fellowship with the Centers for Disease Control and Prevention.

- **ABET Accreditation:** UWM's Bachelor of Science Programs in Computer Science and Computer Engineering are accredited by ABET.

- **Student Connections:**
  - o **BRAID (Building, Recruiting, And Inclusion for Diversity):** UWM is one of 15 universities across the nation selected to join in 2014.
  - o **Girls Who Code:** Now in its fifth year at UWM, GWC inspires the next generation of women to pursue careers in technology. Offered in spring and fall, GWC averages 50 pre-college participants per session.

- **Distinguished Alumni:**
  - o **Microsoft CEO, Satya Nadella, chose UWM for his Master of Science in Computer Science.**
  - o **Katie Sycara, Research Professor, Carnegie Melon University.**

ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

VANDERBILT UNIVERSITY

7 NEW FACULTY MEMBERS

CATIE CHANG
Functional neuroimaging

IPEK OGUZ
Medical image analysis, machine learning

JACK NOBLE
Medical image processing

TYLER DERR
Machine learning, data mining, network analysis

SANDEEP NEEMA
Embedded systems, design-space exploration

YUANKAI HUO
Medical image processing, machine deep learning

MATTHEW BERGER
Data visualization, machine learning, computer vision

RESEARCH HIGHLIGHTS

$8.7 MILLION DARPA GRANT ADVANCES AI-ASSISTED CPS DESIGN WORK

Researchers in the Institute for Software Integrated Systems, are leading pathbreaking work to develop open-source AI-based co-designers that are integrable with CPS design flows and tool suites. Deep learning, reinforcement learning and increases in computing power offer the team the potential to deliver fundamentally new design capabilities.

VANDERBILT COMPUTER SCIENTISTS AWARDED NSF CONVERGENCE ACCELERATOR 2020 COHORT GRANT

A NSF Convergence Accelerator 2020 Cohort Phase 1 grant supports the creation of a standardized platform to streamline the development, testing and dissemination of technology that can improve human health. Partners are Vanderbilt University Medical Center, the Society for Imaging Informatics in Medicine & industry partners MD.ai and Kaggle.

VANDERBILT ENGINEERS LEAD ACADEMIC COMPONENT OF MASSIVE MICROSOFT PROJECT

Microsoft is expanding its PREMONITION project, which combines robotics, genomics, big data collection—and mosquitos—to monitor the environment and detect potential pandemics and other threats before they cause widespread outbreaks. The Vanderbilt Institute for Software Integrated Systems has been working with Microsoft since the program began five years ago and is the lead on a related National Science Foundation Convergence Accelerator grant.

FUNDING

- $25M
- $22M
- $20M

2018 2019 2020
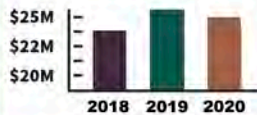
Five-year average T/TK faculty funding in the EECS department is above $800,000 per year. All junior faculty members hired during the past 15 years have received prestigious young investigator awards, such as NSF CAREER and DARPA CSSG.

FACULTY HIGHLIGHTS

$2.5 MILLION DoD PROJECT: RESEARCHER EXTENDS SOFTWARE-DEVELOPMENT EFFORTS FOR SUSTAINABLE MICROGRIDS

EECS Professor Gabor Karsai leads a $2.5M project to develop advanced software to manage microgrids, the relatively small energy systems that rely on local energy generation and storage. This latest effort marks the continuation of an earlier project with DoE's Advanced Research Projects Agency-Energy (ARPA-E).

ARTIFICIAL INTELLIGENCE: USING AI TO OPTIMIZE PUBLIC TRANSPORTATION FOR COVID-19 PROTOCOLS, PLANNING

EECS Professor Abhishek Dubey is applying AI to address how the essential public transit systems of Nashville & Chattanooga—WeGo Public Transit and CARTA, respectively—can maintain physical distancing protocols and plan bus routes and schedules in response to COVID-19. The project has a connection to the development of smart city technologies.

ORGANIZATIONAL NEWS

DATA SCIENCE: NEXT GENERATION COMMITTEE TO ADVANCE COMPUTING AT VANDERBILT

The committee is evaluating current computing expertise and resources at Vanderbilt. EECS faculty members Doug Schmidt and Xenofon Koutsoukos serve on the committee, which will assess future needs, establish cross-disciplinary connections and emphasize social and ethical aspects of computing.

ISDE & L3HARRIS TECHNOLOGIES INK 5-YEAR PARTNERSHIP: TRAINING MODULES KEEP PACE WITH SPACE ELECTRONICS RESEARCH

Online training modules will advance the verification and validation skills of L3Harris Technologies' radiation effects engineers. In a partnership with our Institute for Space and Defense Electronics, the advanced training program will leverage the expertise of ISDE engineers and faculty members within the School of Engineering to create a ready source of technological updates for all L3Harris radiation effects engineers.

STUDENT NUMBERS AND GROWTH

	2018	2019	2020
Ph.D.	153	161	157
Master's	57	61	71
Bachelor's	535	590	678
Total Students	745	812	906

AVERAGE ANNUAL ENROLLMENT GROWTH OVER 3 YEARS

PH.D. ↑ **6%**   MASTER'S ↑ **17%**   BACHELOR'S ↑ **13%**

VCU Computer Science
College of Engineering

NATIONAL SECURITY ADMINISTRATION DESIGNATIONS
- NSA Center of Academic Excellence in Cyber Research
- NSA Center of Academic Excellence in Cyber Defense

DEGREE PROGRAMS

Undergraduate
- B.S. in Computer Science (the first ABET-accredited CS program in Virginia)
  - Concentration in Cybersecurity
  - Concentration in Data Science
  - Concentration in Software Engineering
- Accelerated B.S./M.S. in Computer Science
- Post-Baccalaureate Certificate in Computer Science

Graduates of the B.S. and certificate programs received average starting salary offers of $77.5K per year in 2019

Graduate
- M.S. in Computer Science (with options to specialize in data science and/or cybersecurity)
- Ph.D. in Engineering with a Concentration in Computer Science
- Dual Ph.D. in Engineering with a Concentration in Computer Science with the University of Cordoba, Spain (graduates receive doctorates from both institutions)
- Post-Baccalaureate Certificate in Cybersecurity (based on four courses)
- Post-Baccalaureate Certificate in Data Science (based on four courses)

Computing for All
- Fundamentals of Computing certificate for students with no technical background (based on four online courses)
- Digital Generalist Credential (based on three Fundamentals courses; offered with the Capital CoLAB)

STATISTICS
- **587** undergraduate students and **70** graduate students (including **28** M.S. students and **40** Ph.D. students)
- **20** tenured and tenure-track faculty; **5** teaching faculty

EVENTS
Yearly events that attract hundreds of students, including:
- RamHacks
- Computer science day for high school students
- High school programming contest

RESEARCH HIGHLIGHTS
- R&D 100 Science and Technology Award for Autonomic Intelligent Cyber Sensor
- Nature Medicine publication on analyzing microbiomes of pregnant women
- Robotic cane for the visually impaired presented at two U.S. Congress sessions and to be presented at the 2020 U.S. Science and Engineering Festival
- Software engineering research featured in The New Yorker, Wall Street Journal, Design News and Smart Industry

STUDENT SUCCESS
- Cybersecurity Club @ VCU placed third in the 2019 North Eastern Regional Collegiate Penetration Testing Competition held at Pennsylvania State University

More information about **VCU Computer Science Department** can be found at
egr.vcu.edu/departments/computer

Department of Computer Science
Virginia Tech
www.cs.vt.edu

Growth on All Fronts
- Over the next 3-4 years the department will occupy **over 100K sf in new space**, as part of two new building on the main campus in Blacksburg and a new Innovation Campus building in Alexandria.
- Faculty size is projected to grow to over 80 in 6 years.
- New tenure-track faculty members joining in 2020-21:
    - Tijay Chung, Assistant Professor, Seoul National (2015), security
    - Muhammad Ali Gulzar, Assistant Professor, PhD UCLA (2020), software engineering
    - Thang Hoang, Assistant Professor, PhD USF (2020), security
    - Lifu Huang, Assistant Professor, PhD UIUC (2020), NLP
    - Bo Ji, Associate Professor, PhD OSU (2012), networking, systems
    - Ismini Lourentzou, Assistant Professor, PhD UIUC (2019), ML, NLP
    - Jamie Sikora, Assistant Professor, PhD Waterloo (2012), quantum theory, optimization
- Searching to fill **5-8 new faculty positions** this year

Faculty, Staff, and Students
- 57 faculty: 47 tenure-track, 3 professors of practice, 3 instructors, 4 collegiate faculty
- 6 research faculty, 11 affiliate faculty from other VT departments
- 17 administrative and support staff, 9 administrative & professional faculty
- Undergraduate program: 1229 majors (sophomore, junior, senior), 19% women, 320 BS degrees awarded in 19/20
- Graduate programs: 151 MS and 167 PhD students, 30% women, 56 MS and 31 PhD degrees awarded in 19/20

Research and Professional Service Highlights
- $12M in research expenditures in FY20
- Steve Jian: NSF CAREER award
- PhD graduate James Davis: 2nd place in the 2020 Finals of the ACM Student Research Competition
- Paper recognitions at ASE, CHI, DATE, HCOMP
- Major conference leadership roles at ICDCS, ACSAC, ICDCS, GIS, HCOMP

COLLEGE OF ENGINEERING
COMPUTER SCIENCE
VIRGINIA TECH

The WSU Connected and Autonomous Driving Laboratory — led by Professor Weisong Shi — proposed an open-source project called **HydraOne**, a small, low-cost but fully functional platform to support deployment of intelligent connected vehicle research.

WSU student and entrepreneur Mustafa Ahmed launched **Detroit Help Hub** in March as a platform for business owners to share how people can support them and for consumers to receive updates from local companies during the COVID-19 pandemic.

Professor Sorin Draghici, founder of **Advaita Bioinformatics**, and his company's research team identified the corticosteroid methylprednisolone as a drug that can improve outcomes for critically ill COVID-19 patients. An independent study at Henry Ford Health System showed that more than 200 patients given a short course of methylprednisolone responded well, with significantly reduced transfers to intensive care, requirements for ventilation and deaths.

Ph.D. candidate Tayebeh Bahreini was among 10 international finalists for the inaugural **Edge Woman of the Year** award, co-sponsored by State of the Edge and Edge Computing World.

Wayne State added four new academic programs, including a **B.S. in information technology** and an **M.S. in robotics**, the latter including a concentration in smart mobility that will be delivered by the Department of Computer Science.

NEWS

CNS Core: Small: Low-Power Wide-Area Networks for Industrial Automation

PI: Abusayeed Saifullah   NSF: $500,000

Energy-Aware Coordination and Management of Multi-Purpose Autonomous Robots for Maintained Continuity of Operations and Long Battery Lifetime

PI: Marco Brocanelli   NSF: $175,000

Learning to Integrate Heterogeneous Data from DisparateSources for Disease Subtyping

PI: Suzan Arslanturk   NSF: $174,987

An Edge Intelligence-Assisted Multi-Granularity COVID-19 Risk Predication and Update System

PI: Weisong Shi   NSF: $150,000

Early detection of aggressive prostate cancer through molecular biomarker identification using deep learning

PI: Suzan Arslanturk   KCI: $119,937

NEW FUNDED RESEARCH

RESEARCH AREA	U.S.	WORLDWIDE
Embedded & Real-Time Systems	#7	#11
Visualization	#24	#60
Web & Information Retrieval	#49	#107
Computer Graphics	#54	#135
Computer Vision	#81	

CSRANKINGS

- B.S./M.S./Ph.D. in Computer Science
- M.S. in Data Science and Business Analytics
- Graduate Certificate in Cyber-physical Systems
- B.S. in Information Technology *(NEW)*
- M.S. in Robotics *(NEW)*

DEGREE PROGRAMS

865
UNDERGRADUATE STUDENTS INCLUDING **258** NEW STUDENTS

7.7% UNDERGRADUATE COURSE ENROLLMENT FROM 2018 TO 2019

23% FEMALE

11% BLACK OR AFRICAN-AMERICAN

3.6% HISPANIC OR LATINO

155
103 B.S.
42 M.S.
10 PH.D.
DEGREES AWARDED IN 2019

28 FULL-TIME FACULTY

BETWEEN **$2-3M** IN ANNUAL R&D EXPENDITURES

19 INBOUND EXCHANGE STUDENTS FROM **6** INTERNATIONAL UNIVERSITIES SINCE 2016

FACTS AND FIGURES

Rhongho Jang earned a Ph.D. dual-degree from Inha University and the University of Central Florida in 2020. His research interests include network systems and security, network traffic measurement, and mobile security. Jang received the Outstanding Young Researcher award from the Korea Internet Security Agency in 2018.

NEW FACULTY

Williams

Williams College Department of Computer Science
http://csci.williams.edu

Recent Hires (Tenure-Track)

Daniel Barowy (Fall 2017)
Ph.D. UMass Amherst
End-user programming, crowdsourcing, program synthesis, debugging techniques

Iris Howley (Fall 2017)
Ph.D. Carnegie Mellon
Human-Computer Interaction, technology enhanced learning environments, computer-supported collaborative learning

William Jannen (Fall 2016)
Ph.D. Stony Brook University
Design and analysis of file systems, media-specific optimizations for storage, data structures, write optimization

Samuel McCauley (Fall 2019)
Ph.D. Stony Brook University
Algorithms and data structures, hashing and randomization, similarity search, I/O-efficient algorithms, scheduling

Kelly Shaw (Fall 2019)
Ph.D. Stamford University
Parallel architecture, Internet of Things, memory systems, workload characterization of emerging systems

Shikha Singh (Fall 2019)
Ph.D. Stony Brook University
Algorithmic game theory, algorithms and data structures, combinatorial optimization, complexity theory
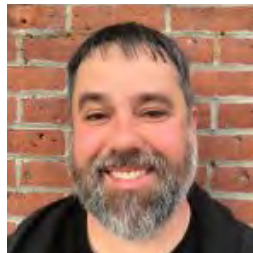
Aaron Williams (Fall 2019)
Ph.D. University of Victoria
Algorithms, combinatorics, computational complexity, puzzles and games, history of video games

Highlights

- Twelve undergraduate students and three faculty will attend the Grace Hopper Celebration of Women in Computing and the ACM Tapia Celebration of Diversity in Computing in 2019.
- Over the last four years the number of Williams students majoring in Computer Science has more than tripled. The department plans to hire again in 2020.
- The department sponsored a turbo hackathon in February, which was ambitiously organized and led by a group of majors.
- During the summer of 2019, 15 undergraduate research assistants were supervised by seven members of the CS faculty.

Computer Science Department
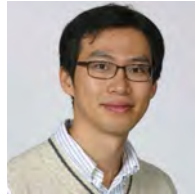# Worcester Polytechnic Institute

`http://www.cs.wpi.edu/`

Newly Tenured and Promoted Faculty

| **Xiangnan Kong** | **Dmitry Korkin** | **Kyumin Lee** | **Carolina Ruiz** | **Gillian Smith** |
| Assoc Prof | Full Prof | Assoc Prof | Full Prof | Assoc Prof |

Department Highlights

- New faculty funding awards were set a record high for the department with new awards nearly four times the level from just two years ago. 90% of department tenured/tenure-track faculty had, sought or obtained funding during the fiscal year.

- Department faculty contributed to the creation of a new Robotics Engineering Department. As a result, five Computer Science Department faculty will join the new department, but still retain a collaborative appointment in Computer Science.

- Department faculty contributed to the creation of new MFA and PhD degrees in Interactive Media & Game Development.

- Yanhua Li received an NSF CAREER award for his project entitled "Spatial-Temporal Imitation Learning."

- WPI was successfully re-designated as a DHS/NSA Center for Academic Excellence in Cybersecurity Research.

- WPI recently received a five-year renewal from the NSF for its CyberCorps: Scholarship for Service program to grow the nation's pool of qualified cybersecurity professionals.

- WPI was again ranked as the second-best Computer Science program by College Factual for 2020.

Department Facts and Figures

- As the Hub of WPI Interdisciplinary Programs, department faculty work with faculty in eight other departments to offer eight computing-related degree programs in Bioinformatics & Computational Biology (BCB), Cybersecurity, Data Science (DS), Interactive Media & Game Development (IMGD), Learning Sciences & Technologies, Neuroscience, Robotics Engineering (RBE) and Systems Engineering.

- The department has 26 tenured/tenure-track faculty with an additional 6 full-time teaching faculty.

- The department has over 860 undergraduate majors. Between Computer Science, IMGD, RBE, BCB and DS there are over 1250 (over 25% of WPI) undergraduates pursuing computing-related degrees. The department has roughly 130 Computer Science graduate students and there are over 550 graduate students pursuing computing-related degrees.

Institutional News

- Construction is underway on a new academic building, which will be the home of many interdisciplinary programs involving Computer Science. Occupancy in the new building is expected January 2022.

- WPI enrolled a record number of approximately 1300 first-year students in the Fall of 2020.

DEPARTMENT OF COMPUTER SCIENCE
YALE UNIVERSITY
http://www.cs.yale.edu
AY 2020-2021

YALE UNIVERSITY
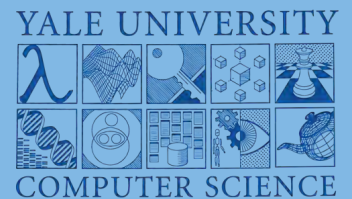
COMPUTER SCIENCE

New Faculty Hires:

Lin Zhong
Professor of
Computer Science

Research Area:
Mobile Computer
and Network
Systems

**Charalampos
Papamanthou**
Associate Professor of
Computer Science
(July 2021)

Research Area: Security
and Cryptography

Anurag Khandelwal
Assistant Professor of
Computer Science

Research Area:
Computer Systems and
Networking

Andre Wibisono
Assistant Professor
of Computer Science
(January 2021)

Research Area:
Machine Learning

Timothy Barron
Lecturer of Computer
Science

Research Area:
Web Security

David van Dijk
Assistant Professor of
Medicine & Computer
Science (Secondary)

Research Area:
Computational Biology
and Machine Learning

Research Highlights

- Professor Anurag Khandelwal's paper on *Pancake: Frequency Smoothing for Encrypted Data Stores* won the Distinguished Paper Award in the 29th USENIX Security Symposium.
- The July edition of *Science Robotics* features an article co-authored by Professors Brian Scassellati and Marynel Vazquez on the potential of socially assistive robots during infectious disease outbreaks.
- Professor Theodore Kim's paper from SIGGRAPH 2019, *Anisotropic Elasticity for Inversion-Safety and Element Rehabilitation,* was used this year to animate the character of Dad in the Pixar movie *Onward*, and is also being used in its upcoming movie *Soul*.
- The paper entitled *Vulnerable Robots Positively Shape Human Conversational Dynamics in a Human-Robot Team*, coauthored by Professor Brian Scassellati and his colleagues at Yale, was the cover story of March's issue of PNAS.
- Principal Investigator Andrew Sherman from the Yale Center for Research Computing (YCRC) is working with six other institutions to help prepare college students for careers as research computing facilitators (RCFs). The YCRC was recently awarded a National Science Foundation (NSF) grant for the multi-institution project.
- The 2020 Edsger W. Dijkstra Prize in Distributed Computing was awarded to Dana Angluin, James Aspnes, Zoe Diamadi, Michael J. Fischer, and Rene Peralta for their paper on *Computation in networks of passively mobile finite-state sensors* which was published in Distributed Computing 18(4): 235-253 (2006).
- The paper on *Decentralized Trust Management* by Matt Blaze, Joan Feigenbaum, and Jack Lacy (Oakland '96) won a "Test of Time" award for the 1995 – 2006 IEEE Symposiums on Security and Privacy.
- PhD student Alex Tong and Professor Smita Krishnaswamy won the best paper award for their paper on *Fixing bias in reconstruction-based anomaly detection with Lipschitz discriminators* at the IEEE MLSP (Machine Learning for Signal Processing) conference.

Other Highlights

- Professor Joan Feigenbaum, Grace Murray Hopper Professor of Computer Science at Yale and an Amazon Scholar, has been elected to a two-year term as ACM Vice President.
- Professor Nisheeth Vishnoi was elected as ACM Fellow. Professor Dragomir Radev was elected as AAAI Fellow. Professor Brian Scassellati was selected as AAAS Leshner Public Engagement Fellow.
- Professor Dana Angluin received the *Harwood F. Byrnes/Richard B. Sewall Teaching Prize*, given to a faculty member who over a long period of service has inspired a great number of students and consistently fostered learning both inside and outside the classroom. Prof. Brian Scassellati received the *Dylan Hixon '88 Prize for Teaching Excellence in the Natural Sciences*.
- Professor Marynel Vázquez received an Amazon Research Award. Professor Yang Cai received the NSF CAREER Award.
- Jose Faleiro (PhD 2018) has won the *2020 ACM SIGMOD Jim Gray Dissertation Award*. His dissertation is titled *High Performance Multi-core Transaction Processing via Deterministic Execution*.
- Beginning in the fall of 2019, Yale undergraduate students can pursue the *Computer Science and Economics (CSEC)* interdepartmental major and explore the practical and theoretical connections between the two disciplines.
- Since Fall 2020, Yale is also offering a *Certificate in Programming* for non-CS majors.
- Yale senior Jasmine Stone '20, a CS major, was among the 16 national recipients of the Churchill Scholarship and the Kanders Churchill Scholarship. Hannah Lawrence, B.S. 2019, was awarded a 2020 Hertz Fellowship.