Computing Research Association

Academic Member Highlight Book

Fall 2022

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

North Carolina State University
   Computer Science

Northeastern University
   Khoury College of Computer Sciences

Northern Kentucky University
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Ohio University
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  Computer Science and Engineering
University of Maryland
  Computer Science
  Information Studies
University of Maryland, Baltimore County
  Computer Science and Electrical Engineering
  Information Systems
University of Massachusetts, Amherst
  Information and Computer Sciences
University of Massachusetts, Lowell
  School of Computer & Information Sciences
University of Memphis
  Computer Science
University of Michigan  
    Computer Science and Engineering  
    School of Information  

University of Michigan, Dearborn  
    Computer and Information Science  

University of Minnesota  
    Computer Science and Engineering  

University of Missouri  
    Computer Science and Engineering  

University of Nebraska, Lincoln  
    Computer Science and Engineering  

University of Nebraska, Omaha  
    Computer Science  
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    Information Systems and Quantitative Analysis  

University of Nevada, Las Vegas  
    Computer Science  

University of New Mexico  
    Computer Science  

University of North Carolina, Chapel Hill  
    Computer Science  
    School of Information and Library Science  

University of North Carolina, Charlotte  
    College of Computing and Informatics  

University of North Carolina, Greensboro  
    Computer Science  

University of North Texas  
    Computer Science and Engineering  

University of Notre Dame  
    Computer Science and Engineering  

University of Oklahoma  
    School of Computer Science  

University of Oregon  
    Computer Science  

University of Pennsylvania  
    Computer and Information Science
University of Pittsburgh
    Computer Science
    Informatics and Networked Systems
University of Rochester
    Computer Science
University of South Florida
    Computer Science and Engineering
University of Southern California
    Computer Science
University of Southern Mississippi
    Computing Sciences and Computer Engineering
University of Texas, Arlington
    Computer Science and Engineering
University of Texas, Dallas
    Computer Science
University of Toronto
    Computer Science
University of Utah
    School of Computing
University of Virginia
    Computer Science
University of Washington
    School of Computer Science and Engineering
    Human Centered Design & Engineering
    Information School
University of Waterloo
    School of Computer Science
University of West Florida
    Computer Science
University of Wisconsin, Madison
    Computer Sciences
University of Wisconsin, Milwaukee
    Electrical Engineering and Computer Science
Vanderbilt University
    Computer Science
Virginia Commonwealth University
    Computer Science
Virginia Tech
   Computer Science
Washington University in St. Louis
   Computer Science and Engineering
Wayne State University
   Computer Science
Wellesley College
   Computer Science
West Virginia University
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Whitman College
   Computer Science
Williams College
   Computer Science
Worcester Polytechnic Institute
   Computer Science
Wright State University
   Computer Science and Engineering
Yale University
   Computer Science
York University
   Electrical Engineering and Computer Science
By the numbers

U.S. News & World Report rankings

Graduate programs

#12 Industrial engineering, Online Master’s Program
#18 Industrial engineering
#33 Computer engineering
#43 Computer science

Undergraduate programs

#20 Computer engineering
#23 Artificial intelligence (computer science specialty)
#28 Cybersecurity (computer science specialty)
#54 Computer science

Fall 2022 Enrollment

11,368 total students
8,364 On-campus
3,004 Online
7,596 Undergraduate
3,473 Master’s
299 Doctoral
*estimated 1st day enrollment data

Awards

21+ early career or NSF CAREER awards
10+ fellows of societies and institutes, including the National Academy of Engineering
$35M awarded FY2021

One Regents and one President’s Professor, two of the highest honors awarded to ASU faculty members

Research FY2021

$174M proposals
$27M expenditures

The School of Computing and Augmented Intelligence, part of the Ira A. Fulton Schools of Engineering, is aspiring for long-term targets, including:

- Establishing national research leadership with local and regional impacts with $350 million in research.
- Fostering comprehensive partner engagement with $50 million in philanthropic gifts.
The Augusta University School of Computer and Cyber Sciences is a comprehensive college with conducting research and offering degree programs in computer science, cybersecurity, and information systems. Since the school's founding in 2017, our faculty has quadrupled from 10 to 40 full-time faculty and our enrollment more than doubled from 320 to 710 students. The school offers five B.S. degrees, including a program in cybersecurity engineering, two M.S. programs, two cybersecurity certificates, and a Ph.D. program. Our faculty pursue research in Distributed and High-Performance Computing, Cyber Security and Privacy, Software Engineering, Formal Methods, Programming Languages, Information Systems, Social Media, Cyber-Physical Systems, and IoT and Edge Systems. During 2022, our faculty continued winning research awards from the National Science Foundation (NSF), Department of Defense (DOD), National Security Agency (NSA), and Office of Naval Research (ONR).

New Faculty: In 2022 the school proudly welcomed 10 new faculty members.

Faculty Highlights:

Dr. Weiming Xiang won a 2022 NSF CAREER Award in the amount $500K. His project is titled “Enabling Trustworthy Upgrades of Machine-Learning Intensive Cyber-Physical Systems.”

Dr. Hoda Maleki is the PI of a new $600K grant from the National Science Foundation (NSF). Her project is titled "Secure Querying of Massive Scientific Datasets."

Dr. Ahmed AlFroud won a $500K award from the Office of Naval Research (ONR). His research project is titled "A Socio-political Analysis of Arabic Social Media Attacks Using Computational Modeling."

Center for Cybersecurity: Augusta University is designated Center of Academic Excellence in Cyber Defense (CAE-CD) by the National Security Agency (NSA) and Cybersecurity & Infrastructure Security Agency (CISA).
Founded in 1889 and affiliated with Columbia University, 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 and a relatively small number of students majored in Computer Science. Computer Science at Barnard has grown dramatically since then. It is currently among the ten largest majors at Barnard, and an increasing number of students of all majors take Computer Science classes.

Recent Highlights:

- Created a Distinguished Lectures in Computer Science series and a Computer Science Seminar series.
- Developed and ran an undergraduate Computer Science summer research program with around 25 students per year working on mentored research projects on topics across computing and its applications.
- Received funding from the National Science Foundation for projects including "Exploring Human-in-the-loop Program Synthesis Through Live Coding" and “Computing Fellows Program: Increasing Meaningful Computing Engagement Across Disciplines.”
- Hosted the DivHacks Hackathon, the annual diversity hackathon organized by Columbia’s Womxn in Computer Science club.
- The Vagelos Computational Science Center facilitates the understanding, exploration, and use of computational science and technology across disciplines through workshops and other programs.

Visit us at cs.barnard.edu
Department of Computer Science
Binghamton University
https://www.binghamton.edu/computer-science/index.html

Faculty: 36 full-time faculty members: 9 professors, 9 associate professors, 11 assistant professors, 7 lecturers, and 5 adjunct faculty.

Students: 1,263 students: 707 undergraduate students, 448 MSCS students, 41 MSIS students, and 67 PhD students.

New Faculty Hires:

Jayson Boubin
PhD, Ohio State University
Research Areas: Systems, Autonomous Systems, Unmanned aerial vehicles, Edge computing

Zeyu Ding
PhD, Penn State University
Research Areas: Privacy Algorithmic fairness Machine learning Security

William Hallahan
Ph.D. Yale University
Research Areas: Formal methods Functional languages Networks

Adnan Siraj Rakin
PhD, Arizona State University
Research Areas: Security of deep learning algorithms Adversarial weight attacks and defenses Adversarial input attacks and defenses Attacks using memory side-channel Computer vision Hardware vulnerabilities Efficient machine learning framework

Yingxue Zhang
PhD, Worcester Polytechnic Institute
Research Areas: Deep learning Meta learning Imitation learning Spatial-temporal data mining

Selected recent research news:

● Weiyi Dai, Xiang He, Jodi Weinstein (Xiang and Jodi are with SUNY Stony Brook). “Function MRI in Schizophrenia.” NIH R21, $467,180, 9/1/2022-8/31/2024.

Other recent highlights:

● A new Master of Science in Information Systems degree program launched in Fall 2022.
● Two tracks – AI and Cybersecurity – have been added to our Master of Science in Computer Science degree program starting in Fall 2022.
● David Yu Liu received Fulbright Scholar Award.
● Weiyi Meng promoted to SUNY Distinguished Service Professor.
## Faculty Awards

<table>
<thead>
<tr>
<th>Photo</th>
<th>Name and Accomplishments</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Mark Bun" /></td>
<td>Mark Bun received a 2022 Sloan Fellowship for research on data privacy</td>
</tr>
<tr>
<td><img src="image" alt="Manos Athanassoulis" /></td>
<td>Manos Athanassoulis received an NSF CAREER Award for building Robust LSM-Based Data Stores</td>
</tr>
<tr>
<td><img src="image" alt="Adam Smith" /></td>
<td>Adam Smith was awarded a 2021 ACM Paris Kanellakis Theory and Practice Award</td>
</tr>
</tbody>
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## Research News

- **Margrit Betke** was involved in research about machine learning that revealed a new factor for predicting a stroke survivor’s ability to regain language skills.
- **John Liagouris and his Co-Principal Investigators Mayank Varia (Faculty of Computing & Data Sciences) and fellow CS Assistant Professor Vasiliki Kalavri** received a SaTC Medium award to build the next version of Secrecy (for secure collaborative analytics).
- **Abraham Matta** received an NSF Award for collaborative research that will evaluate a new architecture for petabyte-scale file transfer in the FABRIC testbed.

## PhD Student Accomplishments

- **Graduate Student Fellow Afra Feyza Akyürek** was interviewed for her work using machine learning to help computers process and interpret human languages better.
- **PhD students Ali Raza and Zongshun Zhang** won the Best Research Track Paper Award at the 2021 IEEE International Conference on Cloud Engineering (IC2E).
- **PhD student Anam Farrukh** won the Best Student Paper Award and Outstanding Paper Award at 2022 IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) for her paper titled “FlyOS: Integrated Modular Avionics for Autonomous Multicopters”.

## Other Highlights

- **Alumna Manuela Veloso (GRS’86)** was elected to the National Academy of Engineering.
- **Theoretical Computer Science** published a volume titled “Taming Randomness and Complexity” in honor of Peter Gacs, Boston University Computer Science Professor Emeritus.
$20M BU/Red Hat Partnership & ECE Research

The Red Hat Collaboratory, Boston University’s unique partnership with Red Hat, was renewed in 2021 with a $20M expansion. ECE faculty & team members received a combined total of $1.5M in funding from the Collaboratory’s inaugural Research Incubation Awards for projects that engage deeply in its mission: AI, cloud computing, open-source tools, reconfigurable hardware, societal data modeling, and more.

New Robotics and Autonomous Systems Center (RASTIC)

Opening Summer 2023: a 2,000-square-foot dedicated R&D space, funded 50% by MassTech, a public agency.

Featuring:
- a miniaturized city for road testing miniature self-driving vehicles
- a “playroom” for taking drones and ground robots for test drives
- a “brain space” for testing next-gen autonomous robots
- resources for developing soft robotics for medical applications
- space for students, faculty & industry researchers to innovate & collaborate

BU’s New Center for Computing & Data Sciences

OPENING JANUARY 2023
6 ECE Faculty Among CDS Co-Founders

2021 IEEE Region 1 Technological Innovation Award
Miloš Popović
For pioneering work on the development of silicon photonic circuits

200% Increase Over 10 Years

$13M $26M $38M
2012 2017 2022

MAJOR RESEARCH FUNDING

- $5M for custom chip designs to realize a universal decoder algorithm for wireless systems (DARPA)
- $4.8M to develop an electro-photonic computing (EPIC) system for Autonomous Vehicles (IARPA)
- $3M in grants to strengthen telemetry infrastructure, network security & network management (NSF)
- $1M MURI to develop metasurfaces/quantum optics for better sensors for micro/nano electronics (AFOSR)

ECE Faculty Take New Leadership Roles

Professor Ioannis Paschalidis: new Director of the Rafik B. Hariri Institute for Computing
Professor Ayse Coskun: new Director of the Center for Information & Systems Engineering

MAJOR RESEARCH FUNDING

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DEPARTMENT OF
COMPUTER SCIENCE

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

Interdisciplinary Program Offered
• Master of Science in Data Science
• Doctor of Philosophy in Data Science

Faculty News
• **Dr. Abbas Heydarnoori** is hired as our new tenure-track, assistant professor. He had received his Ph.D. in Computer Science from University of Waterloo, Canada. And his research interests include software analytics, intelligent software engineering, software maintenance and evolution, empirical software engineering, and software engineering for AI-based systems.

• **Dr. Robert Green** has worked on software development project that allowed for “simulated re-matching” of past kidney exchanges based on kidney exchange data provided by SRTR. This software was extended and used to build enhanced models that evaluated the impacts of prioritizing under-privileged patients to understand the impacts of such prioritization.

• **Dr. Qing Tian** has received a 2-year NSF research grant, titled, “CRII: IIS: Deep neural network pruning for fast and reliable visual detection in self-driving vehicles”. The primary goal of this project is to simplify large general-purpose deep neural networks for fast and trustworthy visual detection in self-driving vehicles.

Some of Recent Publications
• “Improving Access to HLA-Matched Kidney Transplants for African American Patients,” Frontiers in Immunology, 2022. (Dr. Green)
• “Predicting the Objective and Priority of Issue Reports in Software Repositories,” Empirical Software Engineering, 2022. (Dr. Heydarnoori)
• “Automated Recovery of Issue-Commit Links Leveraging Both Textual and Non-textual Data,” 2002 IEEE Int’l Conf. on SW Maint. and Evol., 2021. (Dr. Heydarnoori)
• “A Privacy-Preserving Outsourcing Computing Scheme based on Secure Trusted Environment,” IEEE Trans. of Cloud Computing, 2022. (Dr. Li)
• “Efficient CityCam-to-Edge Cooperative Learning for Vehicle Counting in ITS,” IEEE Trans. On Intelligent Transportation Systems, 2022. (Dr. Li)
• “Class-Incremental Learning for Wireless Device Identification in IoT,” IEEE Internet of Things Journal, 2021. (Dr. Niu)
• “Distance Domain Transfer Learning for Medical Imaging,” IEEE Journal of Biomedical and Health Informatics, 2021. (Dr. Niu)
• “Improving Apparel Detection with Category Grouping and Multi-Grained Branches,” Multimedia Tools and Applications, 2022. (Dr. Tian)
• “Adaptive Instance Distillation for Object Detection in Autonomous Driving,” 26th IEEE Int’l Conf. on Pattern Recognition, 2022. (Dr. Tian)
• “Features Selection and Prediction for IoT Attacks,” High-Confidence Computing, 2022. (Dr. Wu)

For more information
Department of Computer Science
419-372-2337 | Email: bgcs@bgsu.edu | Website: bgsu.edu/cs
Student highlights
CS&IS had significant increases in enrollment in Fall 2021.
Qing Qing Yang was the CS&IS 2021-2022 honor student and joined our CS MS program.
Monica Hanson and Keegan Curran-Seijo led the Raspberry Pi computing club.

Faculty research highlights
Sherif Abdelfattah co-authored five papers for IEEE System, IEEE ACCESS, IEEE ISNCC 2021, etc.
G G Md Nawaz Ali co-authored ten papers for IEEE Transactions on Intelligent Transportation Systems 2021, Sensors 22, etc., secured four grants with a total amount of $12,800, and was nominated for the First Year Faculty Teaching Award.
Babu Baniya secured one NSF grant ($499,500) from the CNS Division of Computer and Network Systems and co-authored Four papers in IEEE ICACT 2021, IEEE iSES, etc.
Samuel Hawkins co-authored one paper in IEEE Access 2022 and supervised two Student Scholarship Expo.
Mohammad Sadat co-authored a paper for IEEE CCNC 2022 and secured two grants with a total amount of $11,000 and mentored a student for the 2022 Student Scholarship Expo.
Owen Schaffer co-authored two papers in ACM CHI 2022 and HCI Games 2022.
Vladimir Uskov chaired the SEEL-2022 conference, led and co-edited, co-authored with other faculty and five graduate students, and published four chapters in the Smart Education and e-Learning Smart Pedagogy book published by Springer in 2022. He also served as a Keynote/Invited speaker for three conferences and supervised a master's thesis on Smart Pedagogy.

Curriculum updates
MS Computer Science Online launched in May 2022

Faculty updates
The CS&IS department welcomes five new faculty members: Abdelfattah Sherif (Ph.D. Expected Dec. 2022), Babu Baniya (Ph.D.), Dr. Samantha Syeda Khairunnesa (Ph.D.), Tony Grichnik (Ph.D.), and Tony Du (Ph.D.)
Yun Wang served as the department chair starting in May 2022.
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 42 by U.S. News & World Report.

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

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. 22% of Brandeis Undergraduates take COSI courses.

**Primary Research Areas**

- Artificial Intelligence & Adaptive Systems
- Computational Linguistics & NLP
- Databases
- Educational Technologies
- Machine Learning & Data Mining
- Operating Systems

**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:** Machine learning, deep learning, data mining, graph mining & learning, recommender systems, time series & spatial–temporal learning.

**Dr. Iraklis Tsekovakis,** Associate Professor

**Expertise:** Computer vision, multiple-view and video–based 3-D reconstruction.

**Department Highlights**

**Faculty Searches**

The computer science department is looking to hire multiple talented faculty:

- Tenure-track Assistant Professor in Data Intensive Systems
- Tenure-track Assistant Professor in Computational Linguistics
- Two Teaching faculty position

**New Grants and Awards**

Professor Nianwen Xue and James Pustejovsky were awarded a $999,689 NSF Grant for a project entitled "Building a Broad Infrastructure for Uniform Meaning Representations." When humans attempt to talk with a computer, our language needs to be translated into a meaning representation that can be processed and understood by the computer. Uniform Meaning Representation (UMR) is designed as a machine-readable language that all languages, from high-resource languages such as English and Chinese, to low-resource languages like Arapaho, can be translated into. UMR can also be extended to multi-modal settings to represent the content of videos and images, allowing computers to better process and understand the content of these media forms. This project aims to build the necessary infrastructure for translating languages and other media into UMRs.

A paper entitled "Multimodal Semantics for Affordances and Actions" authored by Professor James Pustejovsky and Nikhil Krishnaswamy has been selected to receive the Best Paper Award of the HCI 2022 Thematic Area.

Computer Science Professor Harry Mairson's focus outside the classroom is on building violins, violas, and violoncellos. At the same time, he’s trying to understand and share the "secrets of Stradivari," and those of other great Italian makers of renowned classical stringed instruments. And he’s brought his digital tools to this work, together with his workshop’s traditional hand tools.
Recent Accomplishments

In 2022 Dr. Sean Warnick was asked to serve as the Senior Technical Advisor for Advanced Computing in the Department of Homeland Security’s Science and Technology Directorate.

Dr. Xinru Page received a Facebook Research Award (People’s Expectations and Experiences with Digital Privacy) for her digital privacy education research titled "Deploying Visual Interventions for Users of Varying Digital Literacy Levels"

Dr Eric Mercer was the 2021 Amazon Research Awards recipient for his research into "Symbolic Execution for Generating Java Tests from Dafny Models"

BYU animation students, recently won the Center its sixth Student Academy Award for the short film “Grendel”
Established in 1885, Bryn Mawr was founded to offer a more rigorous education than any then available to women. From its founding, Bryn Mawr has prized superb teaching and research. The College is a leader in academic innovation, with a particular focus on putting learning into action through research, fieldwork, community and social justice engagement, and internships. Bryn Mawr further expands students’ options to learn and explore through long-standing partnerships with Haverford and Swarthmore Colleges and the University of Pennsylvania, as well as through the cultural and social resources of Philadelphia.

The Computer Science major has grown dramatically over the last five years making it the fifth largest major on the campus. All faculty in the department maintain active research programs and engage in several large collaborative projects with R1 universities.

For more information, please visit: https://cs.brynmawr.edu
NEW FACULTY HIGHLIGHTS

JESSE HAVILL ’92
Professor of Computer Science
Research Interests:
Computational biology, Online algorithms, Introductory and Interdisciplinary computer science education
Ph.D. The College of William & Mary

RAJESH KUMAR
Assistant Professor of Computer Science
Research Interests:
Harnessing the power of smart devices, machine learning and statistical methods.
Ph.D. Syracuse University

ANNIE ROSS
Swanson Fellow and Assistant Professor of Computer Science
Research Interests:
Human-computer interaction and accessibility
Ph.D. University of Washington

SAM GUTEKUNST
John D. and Catherine T. MacArthur Assistant Professor of Data Science
Research Interests:
Algorithms and combinatorial optimization, data-driven decision making
Recent Grant: Awarded a $155,000 NSF CRII grant to capitalize on recent Circulant Traveling Salesman Problem
Ph.D. Cornell University

STUDENT HIGHLIGHTS

KIT JACKSON ’24
COMPUTER SCIENCE & ENGINEERING
• Recipient of the Department of Defense (DoD) Science, Mathematics, and Research for Transformation (SMART) Scholarship, which provides full tuition and full-time employment with the DoD after graduation
• Founder of the Lewisburg Children’s Museum Robotics Club
• Has performed research in a wide variety of areas, including developing a system to monitor river mussels in the nearby Susquehanna River

SAMI WURM ’22
COMPUTER SCIENCE AND MUSIC COMPOSITION
• Worked on an artificial intelligence project that used a coding environment to program a robot
• Developed computer-based instruments to enhance and augment her voice during live performances
• Pursuing master’s degree in Music, Science & Technology at Stanford University

“We have a lot of research opportunities that expose undergraduate students to industry-level problems and challenges.”

CONTACT US:
Computer Science Department
csci@bucknell.edu
570-577-1394

@BucknellCS
@BucknellCS

20
Our average number of students per class

15
Faculty

230
Declared CS Majors

Students regularly gather in our brand new student lounge

Twice a semester we hold ice cream or pancake socials, with faculty serving the students
FACULTY RESEARCH HIGHLIGHTS

- Brandon Lucia’s lab developed the Tartan-Artibeus-1 Satellite, the world’s first batteryless pocketcube nanosatellite, that deployed to Low-Earth Orbit aboard the SpaceX Transporter-3 Rocket.

- Vanessa Chen and researchers at the Energy-Efficient Circuits and Systems Lab are inventing new ways to secure IoT devices by using radio frequency fingerprinting.

- Qing Li created chip-scale broadband light sources from silicon carbide, which has been traditionally used as an abrasive or for electronic devices that operate at high temperatures or high voltages.

- Marc Dandin is researching ways to make circuits that are able to function in wet environments for cell research.

- Vyasa Sekar’s and Giulia Fantl’s labs are developing high-fidelity, privacy-preserving synthetic data models to share sensitive data between (or even within) organizations.

RECENT AWARDS

- Yuejie Chi named a 2022 IEEE Signal Processing Society Distinguished Lecturer.

- Soummya Kar has been elevated to fellow status in the Institute of Electrical and Electronics Engineers.

- Shawn Blanton accepted the 2022 Lifetime Achievement in Academia Award at the National Society of Black Engineers’ annual conference.

RESEARCH CENTER HIGHLIGHTS

- The Intel/VMware Crossroads 3D-FPGA Academic Research Center has been formed to determine the role of FPGAs in extending the performance and efficiency of future datacenters.

- The Parallel Data Lab’s Mochi Project recently received the prestigious R&D 100 Award from R&D World magazine, a leading resource for research scientists, engineers, and technical staff members at laboratories around the world.

- ECE faculty form $7.5M Center for Software-Defined Nanosatellite Constellations funded by NSF to develop computational and cyber-physical systems capabilities in large collections of tiny, sensor-rich satellites.

2022 STUDENT POPULATION: 1,550

[548 B.S.][758 M.S.][244 Ph.D.]

RANKINGS

2023 U.S. News & World Report

Undergraduate
Computer: 1
Electrical: 8

Graduate
Computer: 4
Electrical: 8

2021/2022 DEGREES GRANTED: 619

165 B.S.
419 M.S.
35 Ph.D.

SPONSORED RESEARCH

$33M
The CUNY GC’s Computer Science Dept. offers a state-of-the-art graduate education in the heart of New York City, with a top ranked PhD Program in Computer Science, a 2-year Master’s degree in Data Science, and a new Advanced Certificate in Data Science.

**Recent Activity**

- Profs. Raffi Khatchadourian and Anita Raja win 3-year NSF grant on Deep Learning systems.
- Prof. Saptarshi Debroy wins 5-year NSF grant for disaster response networks.
- Prof. Shweta Jain wins NSF CISE MSI grant with colleagues.
- Dr. Suzanne Tamang (PhD, 2014 alum) is now tenure track faculty at Stanford University.

**Sample of Research Labs**

- Distributed Systems and Security Lab (DiSSEct)
- CSI Computational Vision and Learning Lab
- Computer and Network Security Lab
- Computer Networks and Mobile Systems (NeMo)
- CCNY Robotics Lab
- Smart Cities and Urban Computing Lab
- Queens College Health-Care Informatics Lab
- Distributed Network Management Lab

**Sample Alum Outcomes**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Academia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>Tenure-track professorship at Stanford University</td>
</tr>
<tr>
<td>Amazon</td>
<td>Postdoctoral research fellowship at Concordia University</td>
</tr>
<tr>
<td>Microsoft</td>
<td>Lecturers and Professors within CUNY system</td>
</tr>
<tr>
<td>Facebook</td>
<td>Postdoc fellowship at University of Edinburgh</td>
</tr>
</tbody>
</table>

**Highlights**

- Ranked within top 75 CS PhD programs by CSRanking.org
- Ranked #1 within New York City for Best Master’s Degree in Data Science in 2022, and #11th nationwide by Forbes Education

**By The Numbers**

10 affiliated CUNY campuses across New York City, 1 Graduate Center campus located in Midtown Manhattan; ~100 affiliated faculty members; ~100 current PhD students; ~50 MS students

*Scan this QR code (or click here) to find out more about Computer Science and Data Science at CUNY’s Graduate Center!*
Faculty and School Highlights
- Paige Rodeghero received a $1M+ grant from NSF entitled Preparing High School Students with Autism for the Future of Remote Software Development Work.
- Nathan McNeese named Clemson's Junior Faculty Researcher of the Year. This award is presented to the top faculty researcher at Clemson who received their terminal degree in the past 10 years.
- Long Cheng and his students won the Best Paper award at ACM AsiaCCS 2022.
- Three faculty members were promoted, Rong Ge was promoted to Professor, Ioannis Karamouzas was promoted to Associate Professor, and Christopher Plaue was promoted to Principal Lecturer.
- Bart Knijnenburg had a poster accepted to the ACM's 27th Annual Conference on Intelligent User Interfaces with a Daniel High School student as the first author.
- MS/MFA Digital Production Arts programs moved home base to Zucker Family Graduate Education Center in Charleston, SC.

Student Highlights
- Recent PhD-HCC graduate, Daricia Wilkinson, will be a postdoctoral researcher with Microsoft’s Fairness, Accountability, Transparency and Ethics in AI (FATE) Lab. During her tenure at Clemson, Dr. Wilkinson was selected as a Meta Fellow, a Google Scholar, and a Trailblazer in Research by the United Nations for her work on online safety in the Caribbean.
- PhD-HCC student, Errol Francis, awarded CECAS’ Call Me Doctor Fellowship, which partners underrepresented STEM doctoral fellows with leaders in academia and industry to advance STEM research and education.
- CU Cyber beat nine other teams at the Palmetto Cyber Defense Competition this spring. It was Clemson's seventh first-place finish in 10 years.
- More than 120 students participated in Clemson’s all student-led hackathon, CUhackit, with premier sponsor Amazon Web Services in January’s two day event.

New Acting Director
- Brian Dean
  - Acting Director, School of Computing
  - Ph.D. Massachusetts Institute of Technology
  - Algorithmic computer science and its applications in biomedical data science and computer science education

New Faculty Members
- Emma Dixon
  - Assistant Professor
- Mert Pesé
  - Assistant Professor
- Varun Prashant Gangal
  - Assistant Professor
- Carlos Toxtli-Hernández
  - Assistant Professor
- Alex Adkins
  - Lecturer
- Rodney Florencio Da Costa
  - Professor of Practice
- Anthony Summey
  - Professor of Practice
- Dan Wooster
  - Professor of Practice

New Associate Director
- Connie Taylor
  - Associate Director, School of Computing
  - M.S., Johns Hopkins University
  - 30 years of industry experience

Degrees Offered
- Undergraduate
  - BS Computer Science
  - BA Computer Science
  - BS Computer Info Systems
- Graduate
  - PhD/MS Computer Science
  - PhD/MS Biomedical Data Science & Informatics
  - MFA/MS Digital Production Arts
  - PhD Human-Centered Computing
  - Masters in Applied Computers

Faculty
- Total: 53
- Tenure/Tenure Track: 39

Student Enrollment
- Undergraduates: 1205
- Graduate Students: 391

As of 9/12/22

www.clemson.edu/computing
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 one new tenure stream Assistant Professor join the department in the 2022-23 academic year: Grusha Prasad.

**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 five years
- The department is sending ~15 students to the GHC in 2022, 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 2 new tenure stream faculty members in 2022-2023.
CS at CofC: By the Numbers

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

Research clusters

- Software Security
- AR/VR Simulation
- Game Design
- Data Mining and IoT Connectivity
- AI, Music and Interaction
- Computing Education Research
- Cybersecurity and Blockchain
- Machine Learning and Data Science
- Critical Art and Technology

Degrees offered

- BS Computer Science
- BA Computer Science
- BS Software Engineering
- BS Data Science
- BA Computing in the Arts
- BS Computer Information Systems
- MS Data Science and Analytics
- MS Computer & Information Sciences (joint program)

New in 2022:

- Software Engineering Bachelor's Degree program
- Dance Concentration added to Computing in the Arts degree
The Department of Computer Science at the Colorado School of Mines has announced several new faculty members and organizational news. Here are the highlights:

**WELCOME! NEW FACULTY**

- **Tolga Can**, Teaching Professor, Joined Fall 2022
- **C. Estelle Smith**, Assistant Professor, Starting Spring 2023
- **Zibo Wang**, Teaching Assistant Professor, Joined Fall 2022
- **Dong Chen**, Assistant Professor, Joined Spring 2022

**ORGANIZATIONAL NEWS**

- Mines was ranked 3rd on the list of best engineering colleges by Money Magazine and #33 for public universities in the U.S., according to the latest U.S. News and World Report! CS@Mines is #57 in Best Undergraduate CS Programs, according to niche.com.
- **93 Scholarships** were awarded to students through our Computing-Mines Affiliates Partnership Program (C-MAPP).
- CS@Mines hosted the Colorado NCWIT Aspirations Award ceremony for the fourth year! The event recognized almost 80 high school and collegiate students from across the state of Colorado.

**FACULTY HIGHLIGHTS**

- Former Founding Department Head and Professor, **Dr. Tracy Camp**, retired in May 2022 after 24 years of service. She is now the Executive Director at Computing Research Association where she aims to increase diversity in computing research, help the community accomplish their research visions and expand upon CRA’s lead in computing research.
- **Dr. Iris Bahar** is the new Department Head and Professor since January 2022. Before joining Mines, she was on the faculty at Brown University for 26 years and held dual appointments as Professor of Engineering and Professor of Computer Science. Her research interests focus on energy-efficient and reliable computing, from the system level to device level. She is an IEEE Fellow and ACM Distinguished Scientist.

**STUDENT ACHIEVEMENTS, NUMBERS, & GROWTH**

- Three CS@Mines students advanced to ICPC North America Championship and North America Programming Camp (ICPC NAC-NAPC).
- Five CS@Mines female faculty members have advanced as finalists for the 2022 CO Outstanding Young Woman in STEM Award as part of celebrating International Women’s Day.
- Four CS@Mines students received the competitive 2022-23 Department of Defense Cyber Scholarship Program award, which comes with full tuition, room/board stipend, and a paid internship.
- Computer Science has grown again and is the 2nd most popular major at Mines! For Fall 2022, we have 1101 CS undergraduates, 122 CS graduate & certificate students, 24 Robotics students, and 26 Data Science students.

**OUTREACH PROGRAMS**

- **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/
- **C-START**: Offers Colorado K-12 educators professional development courses and workshops in computer science. https://cstart.mines.edu/

Visit us at: cs.mines.edu
RESEARCH HIGHLIGHTS

- RMFIS: Representations of Vectors and Abstract Meanings for Information Synthesis (DARPA)
- Performant Data Analysis and Learning (NSF)
- Ego-Centric Emotion Recognition using Augmented Reality Headsets (DARPA)
- WAR Fighting Performance: Augmented Reality Multi-Modal Interaction Techniques for JTAC and Battlefield Readiness (DOD Navy)
- Understanding Gesture User Behavior in Augmented Reality Headsets (NSF)

FACULTY AND STUDENT HIGHLIGHTS

- President's Committee on the National Medal of Science The White House, Craig Partridge
- Best Paper Award International Conference on Human-Computer Interaction (HCII), Nikhil Krishnaswamy
- Goldwater Scholarship Barry Goldwater Scholarship and Excellence in Education Foundation, Rachel Masters
- ACM Distinguished Speaker Sudeep Pasricha
- Top Three Sweep Bio-Cybersecurity Student Challenge, Eric Martin, Blake Davis, Sean Kouma, Tyson O'Leary, Malachy Swonger, Jake Jepson
- Diversity, Social Justice, and Inclusion Award CSU Fraternity and Sorority Life, Sheridan Reed

20 Tenure-track and Instructional Faculty
1032 Undergraduates
157 Graduate Students
20% Women Undergraduates
$10M 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
## DEI Initiatives

**CS@CU MS Bridge**
- the one-year program prepares non-CS students for the MS Program

**PhD Pre-Submission Application Review**
- the program offers a one-time review done by a current PhD student

**Emerging Scholars Program**
- the peer-led class teaches 1st and 2nd-year students the problem-solving side of CS

### New Faculty

- **Xia Zhou**
  - Associate Professor
  - Mobile systems
  - PhD, UC Santa Barbara

- **Brian Borowski**
  - Lecturer in Discipline
  - PhD, Stevens Institute of Technology

- **Kostis Kaffes**
  - Assistant Professor
  - Software Systems
  - PhD, Stanford University

## Student Statistics (2021 - 2022)

- **1,286** majors
- **45%** of CS majors are women
- **946** MS students
- **179** PhD students
- **16,300** class enrollments

### Faculty Numbers

- **66 Faculty**
  - 1 ACM A.M. Turing Award Winner
  - 9 Elected to National Academy of Engineering
  - 4 Elected to National Academy of Sciences
  - 7 Elected to American Academy of Arts and Sciences
  - 2 Elected to American Philosophical Society
  - 1 Elected to National Academy of Inventors
  - 1 Harvey Prize
  - 3 IEEE John von Neumann Medal Winners
  - 2 ACM/IEEE Knuth Prize Winners
  - 3 AAAI Fellows
  - 5 AAAS Fellows
  - 3 ACL Fellows
  - 4 Guggenheim Fellows
  - 20 ACM Fellows
  - 17 IEEE Fellows
  - 1 Elected to Internet Hall of Fame
  - 3 Packard Foundation Fellowships
  - 19 Alfred P. Sloan Foundation Fellows
  - NSF Awards: 4 PECASE, 37 CAREER, 2 NYI, 4 PYI

## Test of Time Awards

- **Online Learning for Latent Dirichlet Allocation** (2011)
  - SIGKDD Test of Time Award for Research
  - Authors: Matthew Hoffman, David Blei, and Francis Bach

  - SIGecom Test of Time Award
  - Authors: Constantinos Daskalakis, Paul Goldberg, and Christos Papadimitriou

## Best Paper Awards

- **ChiroRaI, Collecting Human Reaction Labels from Millions of Social Media Users**
  - EMNLP 2021
  - Authors: Zehaoa Yan, Shayam Housemary, Julia Hirschberg

- **FlingNet: The Unreasonable Effectiveness of Dynamic Manipulation for Cloth Simulation**
  - CoRR, 2021
  - Authors: Kay Ha, Shuran Song, Yuxin Chen

- **Iterative Residual Policy for Goal-Conditioned Dynamic Manipulation of Deformable Objects**
  - RSS 2022
  - Authors: Cheng Chi, Benjamin Burchfeld, Eric Cousineau, Siyuan Feng, Shuran Song

- **Argus: Debugging Performance Issues in Modern Desktop Applications with Annotated Casual Tracing**
  - USENIX ATC 2021
  - Authors: Jason Nieh, Junfeng Yang
Seven faculty members joined the field of computer science in Fall 2022

Joining in Spring 2023:
- Giulia Guidi, Assistant Professor, computational biology and software infrastructures
- Rachee Singh, Assistant Professor, computer networking

News and Highlights:
- Led by Dean Kavita Bala, Cornell launched the Cornell AI Initiative to deepen opportunities to develop and apply AI within the field, and beyond.
- Five-year strategic partnership with LinkedIn supports AI research and bolsters diversity initiatives.
- $300,000 grant from the Clare Boothe Luce Program for Women in STEM to increase the number of undergraduate women pursuing research in computer science.

Who we are:
The Department of Computer Science in the Cornell Ann S. Bowers College of Computing and Information Science is among the best-ranked programs in the world, distinguished by its interdisciplinary spirit, contributions to core challenges of the field, and history of pioneering emerging fields. With an academic footprint spanning the Ithaca campus and the Cornell Tech campus in New York City, the college creates a unique and powerful technology ecosystem.

Faculty Accolades:
- Deborah Estrin, 2022 recipient of the John von Neumann Medal
- Bharath Hariharan, Volodymyr Kuleshov, and Emma Pierson, NSF Faculty Early Career Development Award
- Dexter Kozen, 2022 Alonzo Church Award for Outstanding Contributions to Logic and Computation
- Carla Gomes, 2022 recipient of the ACM – AAAI Allen Newell Award
- Bharath Hariharan, 2022 PAMI Young Researcher Award
- Cornell President, Martha E. Pollack, elected to the American Academy of Arts and Sciences
- Jon Kleinberg, appointed National AI Advisory Committee
- Éva Tardos, 2022-2023 ACM Athena Lecturer
- Claire Cardie, elected AAAS Fellow
- Robert D. Kleinberg and Steve Marschner, named 2021 ACM Fellows

CS By the Numbers:
- 1,300+ undergraduate majors
- 38% of majors are women
- 16% are underrepresented minorities
- 150+ M.Eng. and Master’s students
- 200 Ph.D. students
- 63 faculty

Expected to open in 2025, the college’s new multi-use building will house an exemplary environment for teaching, research, interdisciplinary exchange, and interactive learning.

Scan to see more

Cornell Bowers CIS
Computer Science

$15 million collaboration with NewYork-Presbyterian will fund research using AI to improve outcomes for people with cardiovascular disease.
Six faculty joined Cornell Bowers CIS in Fall 2022, including four from IS:

- Deborah Estrin, 2022 recipient of the John von Neumann Medal
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Faculty Accolades:

- Jon Kleinberg, appointed to National AI Advisory Committee
- Claire Cardie, elected AAAS Fellow
- Tanzeem Choudhury, 2021 ACM Fellow, inducted into SIGCHI Academy
- Lillian Lee, ACL Distinguished Service Award
- David Williamson, 2022 AMS Steele Prize for Seminal Contribution to Research
- Paul Ginsparg, inaugural Einstein Foundation Berlin Award for Promoting Quality in Research
- Cornell President, Martha E. Pollack, elected to American Academy of Arts and Sciences

Who we are:
The Department of Information Science in the Cornell Ann S. Bowers College of Computing and Information Science brings together leading scholars from across the university’s Ithaca and New York City campuses to study the use of technology and its impacts. Bolstered by Cornell’s historic, cross-disciplinary strength in computer science and social science, the department has rapidly grown to a position of global leadership in exploring technology through the lenses of law, sociology, policy, economics, design, and more.

IS By the Numbers:

- 600+ undergraduates
- 57% of majors are women
- 20% are underrepresented minorities
- 100 MPS
- 120+ Ph.D.
- 42+ faculty in Ithaca and NYC

Cornell Bowers CIS has grown sixfold over the past decade, with a record 2,000 majors in spring 2022. More than 76% of all Cornell undergraduates take at least one class in the college.

Scan to see more

infoisci.cornell.edu

Cornell Bowers CIS Information Science
2021-2022 Highlights

- CCI reached record undergraduate and graduate enrollments for the fall 2022 entering class, continuing a streak of enrollment gains that has topped 50% since 2015. It is Drexel’s fastest growing college.
- CCI began its 2022 fall semester with the highest amount of research expenditures in its history.
- Expanding its portfolio of industry-aligned master’s degrees, CCI added a deeply technical MS in Cybersecurity: Computer Security and Privacy.
- CCI Dean & Isaac L. Auerbach Professor Yi Deng, PhD was the featured expert in an article from Technical.ly Philly about how Philadelphia area universities are diversifying the STEM field (Read at: drexelcci.info/techphilly)

Faculty & Research

- Prof. & Info. Science Dept. Head Andrea Forte, PhD was recognized by the Association for Computing Machinery (ACM) as a 2021 Distinguished Member.
- Prof. Denise Agosto, PhD received a 2022 Fulbright U.S. Scholar Program award in information science from the U.S. Department of State and the Fulbright Foreign Scholarship Board.
- Asst. Prof. Jina Huh-Yoo, PhD received the 2022 National Science Foundation (NSF) Early Career Development (CAREER) award, joining nine other CCI faculty who have received this prestigious recognition.
- Assoc. Prof. Christopher J. MacLellan, PhD received two research grants from the Army Research Laboratory (ARL) as part of the Army Strengthening Teamwork for Robust Operations in Novel Groups (STRONG) program.
- Assoc. Prof. Michelle Rogers, PhD completed her fellowship in the prestigious Executive Leadership in Academic Technology, Engineering and Science (ELATES) at Drexel® program, along with 46 women faculty from over 35 different institutions across the U.S. and Canada.
- In 2022, Assoc. Prof. Alex H. Poole, PhD won two awards from the American Library Association’s (ALA) Library History Round Table (LHRT): the Donald G. Davis Article Award and the Justin Winsor Library History Essay Award.
- Asst. Prof. Mat Kelly, PhD and Assoc. Prof. Alex Poole, PhD are collaborating with Old Dominion University’s (ODU) Web Science and Digital Libraries (WS-DL) Research Group on a project analyzing the preservation of past online advertisements to help inform future archiving methods, funded by the Institute of Library and Museum and Library Services (IMLS).
- Assoc. Profs. Christopher MacLellan, PhD, Rosina Weber, PhD, and Edward Kim, PhD received a grant from DARPA to study sparse coding and extraction of ultrasound knowledge for explainable point-of-care ultrasound Artificial Intelligence.

Student Achievements

- PhD in Computer Science student Joel Pepper, with Alice B. Kroeger Professor Jane Greenberg, PhD, and Professor David E. Breen, PhD, won Best Student Paper award at the 2021 ACM/IEEE Joint Conference on Digital Libraries (JCDL).
- Deborah Garwood, PhD information science ’21, and Asst. Prof. Alex Poole, PhD won Best Student Paper award at the 2022 meeting of the Association for Information Science and Technology (ASIS&T), the premier international conference dedicated to the study of information, people and technology in contemporary society.
- Deborah A. Garwood, PhD was also the recipient of the 2022 ALISE Eugene Garfield Doctoral Dissertation award and the 2022-23 Beckman Center Fellowship from the Science History Institute’s Beckman Center.
- BS in Computer Science student Siddhanth Agrawal received undergraduate honorable mention within the Technology, Engineering and Math category at the 2022 AAAS (American Association for the Advancement of Science) Student E-poster competition.
- BS in Data Science students Xiao Fang, Ziao You, Haoran Zhao and Yuhao Zhang, & PhD in Info. Science student Alex Kalinowski (advised by Assoc. Prof. Yuan An, PhD) placed 2nd in their track in the Knowledge Base Construction from Pre-trained Language Models (LM-KBC) Challenge at the 2022 International Semantic Web Conference.

CCI Welcomes Eight New Faculty Members During the 2022-23 Academic Year:

- Dept. of Computer Science: Brian Mitchell, PhD; Naomi Sirken, PhD; Eric Sun, PhD; Sean Grimes, PhD; Daniel Moix, MSE
- Dept. of Information Science: Michael Cordano, PhD; Afsaneh Razí, PhD; John Seberger, PhD

drexel.edu/cci
NEW FACULTY MEMBERS

CS: The Biggest Major @Duke 2021

364 CS Majors graduated in 2021
71 CS Minors graduated in 2021
31% Women among 2021 graduates

Undergraduate Awards 2021-2022:

- Eisenhower: Swathi Ramprasad
- Goldwater & Marshall: Yasa Baig, Anish Karpurapu, Aditya Paul

Recent Graduate Fellowships 2021-2022:

- DOE & NSF GRF: Jerry Liu
- Facebook Finalist: Hanrui Zhang
- NSF GRF: Alex Oesterling, Andy Zhang, Jack Goffinet

Curricular Updates

Flexible Pathways:
- Major concentrations — AI/ML, Software Systems, and more
- Interdepartmental majors — Data Science, Linguistics + CS, Computational Media
- Minors — CS, Computational Biology
- 4+1 Program

Recent Faculty Awards

- AAAI Squirrel AI Award for the Benefit of Humanity: Cynthia Rudin (2021)
- AAAI Fellow and Guggenheim Fellow: Cynthia Rudin (2022)
- ACM Distinguished Member: Ashwin Machanavajjhala (2021)
- ACM Fellow: Helen Li (2021)
- Amazon Research Award: Danyang Zhuo (2021)
- American Academy of Arts & Sciences Member: Robert Calderbank (2022)
- Tweedie Award, Institute of Mathematical Statistics: Anru Zhang (2022)
- NSF CAREER Award: Lisa Wills (2021)
- National Academy of Engineering Member: Guillermo Sapiro (2022)
- Very Large Databases (VLDB) Early Career Award: Sudeepa Roy (2022)

Recent Faculty Members

- Bhuwan Dhingra: Assistant Professor (2021), NLP
- Matt Lentz: Assistant Professor (2021), Systems
- Michael Reiter: Professor (2021), Security
- Sam Wiseman: Assistant Professor (2021), NLP
- Pardis Emami-Naeini: Assistant Professor (2022), Security
- Jian Pei: Professor (2022), Data Science

Recent Student Highlights

- Computing Research Association (CRA) Awards for Outstanding Undergraduate Research 2021-2022:
  - Eisenhower: Swathi Ramprasad
  - Goldwater & Marshall: Yasa Baig, Anish Karpurapu, Aditya Paul

- Postdoctoral associates and PhDs who recently accepted faculty positions:
  - Hsien-Chih Chang: Dartmouth
  - Yu Cheng: University of Chicago
  - Rupert Freeman: UVA
  - Xi He: University of Waterloo
  - Seyed Zahedi: University of Waterloo
  - Nathan Kell: Denison University
  - Xiao Hu: University of Waterloo
  - Amir Gilad: Hebrew University
  - Chaofan Chen: University of Maine
  - Tiantyu Wang: Fudan University
  - Marco Morucci: NYU

- Recent Graduate Fellowships 2021-2022:
  - DOE & NSF GRF: Jerry Liu
  - Facebook Finalist: Hanrui Zhang
  - NSF GRF: Alex Oesterling, Andy Zhang, Jack Goffinet

- ACADEMIC PLACEMENTS
  - Postdoctoral associates and PhDs who recently accepted faculty positions:
    - Michael Albert: UVA
    - Hsien-Chih Chang: Dartmouth
    - Yu Cheng: University of Chicago
    - Rupert Freeman: UVA
    - Xi He: University of Waterloo
    - Seyed Zahedi: University of Waterloo
    - Nathan Kell: Denison University
    - Xiao Hu: University of Waterloo
    - Amir Gilad: Hebrew University
    - Chaofan Chen: University of Maine
    - Tiantyu Wang: Fudan University
    - Marco Morucci: NYU
DEPARTMENT SUMMARY

• 18 Tenured/Tenure Track faculty (and growing!)
• 4 Faculty on Continuous Teaching Track
• Five NSF and NIH Early Career Awards
• Faculty & Student research funded by NSF, NIH, PCORI, AFOSR, DOE, IARPA, ONR, and various other corporations, agencies, and foundations.
• Major Research Areas: AI, HCI, NLP, Information Retrieval, Graph/Data Mining, Machine Learning, High End Computing /Storage, Security and Privacy.

UNDERGRADUATE PROGRAMS

• BS and BA degrees in Computer Science
• Joint majors with Math, Econ, QTM
• New interdisciplinary AI courses and programs
• 275 majors, 93 degrees in 2022, 9 honors theses
• ~2200 student enrollments in CS each year

GRADUATE PROGRAMS

• Interdisciplinary PhD & MS programs in Computer Science and Informatics (CS, BMI, Biostatistics)
• Currently 69 PhD, 26 MS students
• 13 PhD, 4 MS (Covid reduced) awarded 2022
• Recent graduate placements include Toronto, USC, UCSD, UNC, Amazon, Meta, Google, Microsoft, IBM

STUDENT ACTIVITIES

• Vibrant and engaged student community

• Emory CS sponsors GHC attendance, local GWC, undergraduate ProgramHers, Robotics, and CS clubs, BPC and Women in Computing endeavors
• Student recognitions include: Covid Innovation Award for Teaching & Research; Silver medal at ICPC Programming Contest; KDD Health Day best paper; Alexa competition finalist; Google fellowship

NEW FACULTY

• Six new faculty members join Emory in AY 2022-23

UNDERGRADUATE PROGRAMS

Yana Bromberg
Professor (Jt Bio)

Chinmay Kulkarni
Assoc. Professor

Fei Liu
Assoc. Professor

Nirmalya Thakur
Asst. Teaching Prof

Kristin Williams
Asst. Professor

Andreas Zufle
Assoc. Professor

FACULTY HONORS

• Promotion, Named Chair, Innovation Award

Joyce Ho
Assoc Prof w Tenure

Li Xiong
S C Dobbs Professor

Ymir Vigfusson
Innovator 2022

SELECTED HIGHLIGHTS

• Faculty Distinctions
  ▪ Li Xiong elected IEEE Fellow
  ▪ Eugene Agichtein (PC Chair) and Li Xiong (General Chair) lead organization of CIKM 2022
  ▪ Jinho Choi and Emora (a caring chatbot) featured in Atlanta Journal-Constitution

• Recent Grants
  ▪ Joyce Ho: NSF – Aequitas: Comprehensive ML Frameworks to Decode Health Disparities
  ▪ Li Xiong: NIH – Sensor HW and Intelligent Tools for Assessing Health Effects of Heat Exposure
  ▪ Three separate awards from Kaiser Permanente: Eugene Agichtein – Understanding User Intent; Jinho Choi – Conversational AI for Healthcare; Li Xiong – Healthcare Recommender System
  ▪ Liang Zhao & Andreas Zufle: Homeland Security – Cross-Platform Cybercrime Detection on Interconnected Heterogeneous Networks
ACADEMIC PROGRAMS

**PhD programs:**
- Computer Science
- Computer Engineering
- Electrical Engineering

**BS programs:**
- Computer Science
- Computer Engineering
- Electrical Engineering

**MS programs:**
- Artificial Intelligence
- Computer Science
- Computer Engineering
- Electrical Engineering
- Data Science and Analytics
- Biomedical Engineering
- Information Technology and Management

RECENTLY RECEIVED MAJOR FEDERAL GRANTS

- **$26 Million** NSF ERC for Smart Streetscapes with Columbia, Rutgers, UCF & Lehman College (2022)
- **$1 Million** NSF-NIST Rings Grant for Post-Quantum Cryptography in Next G Networks (2022)
- **$2.6 Million** NIH Grant for Development of an Automated HIV Self-Testing Assay (2021)
- **$3.4 Million** NSF Grants for Graduate Traineeship in Data Science and AI (2020)

STUDENTS

- Bachelor's Students: 970
- Master’s Students: 413
- Ph.D. Students: 136

FACULTY & AWARDS

- 43 Full-time faculty
- 7 NSF CAREER awards in the last 5 years
- 2 NIH-MIRA awards in the last 5 years

Professor Hari Kalva, Ph.D., was inducted into National Academy of Inventors 2022

Your Future Awaits!

www.fau.edu/engineering/eecs
The Department of Computer Science proudly welcomes our 14 newest faculty members, bringing our total faculty strength to 57 tenured/tenure–track and 21 teaching-track faculty.

George Mason University holds a grant from BREAK THROUGH TECH to propel more students who identify as women and non-binary into tech education—and ultimately tech careers—through curriculum innovation, career access, and community building. Mason’s Break Through Tech program is directed by the College of Engineering and Computing, the School of Computing, the Departments of Computer Science and Information Sciences and Technology, and led by Computer Science Professor Shvetha Soundararajan.

The group working on this initiative seek to attract and retain women and underrepresented communities to pursue computing degrees and careers in tech in the D.C. metropolitan area.

For more information visit [here](#).

### Degree Programs

<table>
<thead>
<tr>
<th>Year</th>
<th>BS Computer Science</th>
<th>BS Applied Computer Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>2021-2022</td>
<td>2,218</td>
<td>965</td>
</tr>
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</table>

### Degree Programs

<table>
<thead>
<tr>
<th>Year</th>
<th>MS Computer Science, MS Information Systems, MS Information Security and Assurance, MS Software Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020-2021</td>
<td>337</td>
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</table>

### FAST FACTS

<table>
<thead>
<tr>
<th>Degree Program</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>MS Computer Science</td>
<td>4</td>
</tr>
</tbody>
</table>

### Department News

- Department of Computer Science ranked top 45 in CSRankings.org
- Dr. Gurdip Singh was appointed Divisional Dean of the new School of Computing, a division of Mason’s College of Engineering and Computing
- Dr. Foteini Baldimtsi was awarded the National Science Foundation (NSF) CAREER Award for her project on *Privacy Preserving Transactions with Accountability Extensions*, bringing the total number of CS faculty receiving a CAREER award to 20
- The State Council of Higher Education for Virginia (SCHEV) approved a new Graduate Certificate on Foundations of Computing, providing a bridge to our Masters programs in Computer Science for students with non-STEM undergraduate degrees
- Dr. Daniel Menascé was appointed Professor Emeritus following 30 years of distinguished service to Mason
Research Highlights

Professor Srinivas Aluru’s research on FastANI was published in Nature Communications, cited 1,460 times, and software downloaded 32,900 times.

Associate Professor B. Aditya Prakash and his students led research focusing on computational epidemiology. This includes organizing the 4th SIGKDD Epidemiology meets Data (epiDAMIK) workshop, presenting at the Forecasting for Social Good Research Network, and a keynote presentation at the AI @ DOE roundtable.

Associate Professor Elizabeth Cherry performed the first application of Hamiltonian Monte Carlo for obtaining posterior distributions of cardiac model parameters and developed the first the first three-dimensional interaction simulation of bird flocks using WebGL.

CSE alumnus Fred Hohman won the 2022 SIGCHI Outstanding Dissertation Award for his dissertation, “Interactive Scalable Interfaces for Machine Learning Interpretability.”

Organizational News

Located on the 13th floor of the Coda building at Tech Square, School of CSE acquired over 8,000 square feet of east wing to provide more working space for students, faculty, and staff.

Named two associate chairs, Edmond Chow and Elizabeth Cherry, for first time in School history to improve administrative functions and structure.

12 Schools across Georgia Tech participated in School of CSE graduate programs as home units, plus further expansion into interdisciplinary programs such as M.S. in Urban Analytics.

Faculty News

Professor Edmond Chow was promoted to Professor, chaired the ACM Gordon Bell Prize committee, and served as co-chair of the 2022 SIAM Annual Meeting.

Professor C. David Sherrill was promoted to Regents’ Professor and elected to the Board of the World Association of Theoretical and Computational Chemists.

Assistant Professor Srijan Kumar was named in Forbes 30 under 30 for 2022.

Assistant Professors Chao Zhang and Xiuwei Zhang won NSF CAREER awards.

Assistant Professor Anqi Wu was selected as a DARPA Riser, and both she and Assistant Professor Spencer Bryngelson won Georgia Tech seed grants.

Student News

CSE Ph.D. student Srinivas Eswar was selected as the 2022 J.H. Wilkinson Postdoctoral Fellow at Argonne National Laboratory.

CSE Ph.D. students Pranav Shetty and Zijie (Jay) Wang received J.P. Morgan Chase AI Ph.D. Fellowships.

CSE Ph.D. student Alexander Rodriguez was named a Rising Star in Data Science and selected as a young researcher at the 9th Heidelberg Laureate Forum.

By the Numbers (FY 2022)

- Tenure-track faculty: 21
- Master’s Students: 111 (Male: 77, Female: 34)
- Ph.D. Students: 79 (Male: 68, Female: 11)
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.

**AWARD-WINNING FACILITIES**

The Scott A. McGregor Computer Science Center is the new 36,000-square-foot home to Harvey Mudd’s rapidly growing computer science department. It houses a permanent makerspace, labs, Clinic space, student study and collaboration space, as well as administrative and faculty areas. The building brings faculty offices, teaching labs, research labs and project work areas into one space to help build a sense of community and belonging while also allowing the College to respond to student needs in an integrated, cohesive way. The design, tied to strategies that invigorate interdisciplinary collaboration, was lauded by Engineering News-Record California, which named the McGregor Center as Southern California’s Best Higher Education/Research Project.

**DEPARTMENT NEWS**

- **2022 CRA Award for Outstanding Undergraduate Researchers**
  Awardee: Amani Maina-Kilaas ’23 researched AI methods for investigating how intention perception can benefit artificial agents in adversarial situations. He also received a 2022 Astronaut Scholarship.

- **NSF Grant Activity**
  Zach Dodds and Lucas Bang awarded NSF IUSE: EHR grant, “Computing as Literacy,” $544,284

**SELECTED 2021–2022 CLINIC PROJECTS**

- **Esri** – Students explored how geographic information system technology can make learning computational concepts accessible and intuitive.

- **Schmidt Academy and Cai Labs (Caltech)** – Students facilitated new biological insights by developing a robust and responsive interface to analyze high-dimensional spatial genomic data.
A Computer Science program in a School of Engineering at a Liberal Arts university. Since breaking away from the Math department, our student population has grown 110% in three years. Our program is 25% female, and we know each of our 130 majors and 25 minors by name. We celebrate in their success after graduation as they move on to companies like Red Hat, Fidelity, and FireEye.

Undergraduate Programs
- B.S. Computer Science
- B.S. Computer Science – Cybersecurity Concentration
- B.S. Cybersecurity
- B.S. Data Science
- Computer Science minor
- Data Science minor

Facilities
- Programming Lab
- Software Engineering Lab
- Cybersecurity Engineering Learning Facility
- Computer Networking Lab

Student Research
A number of student research projects have won local and regional competitions and been presented at the National Conference on Undergraduate Research.

computerscience@highpoint.edu
Stats
Research Funding (2022-23):
- Active Awards: $12,083,000
- Expenditures: $2,860,000

Students (Fall 2022):
- Undergraduate majors: 740
- Master’s students: 905
- PhD students: 78

Faculty (2022):
- Tenured/Tenure-Track: 20 faculty
- Research/Industry: 5 faculty
- Teaching: 10 faculty

Degree Programs
Undergraduate Majors
- Artificial Intelligence
- Computer Science
- Computer Information Systems
- Data Science (new - joint with Applied Math)

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

Organizations
- Active Computational Thinking (ACT) Center funded inaugural seed projects on pandemic response, effective educational tech, nutrition analytics, drug design, and combating misinformation
- Active student chapters of ACM, ACM-W, NCWIT, and UPE, and the ML@IIT machine learning club

Research
- Prof. Rujia Wang leading project to improve computer security by obfuscating memory access patterns
- Prof. Zhiling Lan leading interdisciplinary effort to develop and test energy-efficient scalable AI-based scientific computing systems.
- Prof. Mustafa Bilgic and colleagues are elucidating relationships between political typology and filter bubbles
- Prof. Kai Shu funded to help develop AI-enabled diabetes diagnosis system
- NSF-funded BigDataX (Big Data computing at eXtreme scales) summer REU program renewed for five years

Prominent Alumni
- Sanjiv Kapoor elected Fellow of National Academy of Inventors
- Martha Evens received ACL’s Lifetime Achievement Award
- Xian-He Sun named Distinguished Alumnus at Michigan State U.
- Cindy Hood to be Fulbright Fellow in Poland studying Smart Cities
- Welcome to new Research Professors Michael Papka and Bogan Nicolae (joint with Argonne Nat. Lab)

Highlights
- Illinois Tech CyberHawks team won National Centers of Academic Excellence in Cybersecurity Cyber Games National Championship
- Grainger Computing Innovation Prize awarded for energy efficient bitcoin
- Alumnus Jack Dongarra (MS ’73) wins ACM Turing Award
- Alumnus Vinesh Kannan created alumni mentored internship program

Enrollment Trends

- Bachelor's
- Master's
- PhD
DEPARTMENTAL OVERVIEW

5-YEAR GROWTH TRENDS

- 31% increase in student enrollment
- 45% increase in female enrollment
- 35% increase in grant funding

MULTIPLE NEW DEGREE PROGRAMS

- M.S. in AI
- B.A. in Computer Science
- B.S. in Data Science

2022-2032 STRATEGIC PLAN

We are thrilled to share with you the strategic plan for the next ten years, which acts as a compass for our department; guiding us into the next decade toward a brighter future. The Strategic Plan was the culmination of planning and development accomplished by the Strategic Plan Committee.

NSF CAREER AWARD WINNERS

- YAN-BIN JIA
- WEI LE
- ANDREW MINER
- HRIDES RAJAN
- MYRA COHEN

NEW AUTONOMOUS SYSTEMS LABORATORY

- YAN-BIN JIA
- WALLAPAK TAVANAPONG
- JIN TIAN
- GUANG SONG
- NOK WONGPIROMSARN

NEW FACULTY

- MENGDI HUAI
  Assistant Professor
  Data mining & machine learning
- CHENGLIN MIAO
  Assistant Professor
  Security & privacy
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  User modeling, human-computer interaction
- MATTHEW HOMAN
  Lecturer
  Programming languages

RESEARCH CLUSTERS

- AI, machine learning, and data science
- Bioinformatics and computational biology
- Human computer interaction
- Robotics and autonomous systems
- Software engineering and programming languages
- Systems and networking
- Theoretical foundations

DEPARTMENT OF COMPUTER SCIENCE

1,530* undergraduate students
205* graduate students
267* female students

*681 Software Engineering
*59 M.S.
146 Ph.D.
*50 M.S. & Ph.D.
120 Undergraduates
97 Software Engineering

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DEPARTMENT OF COMPUTER SCIENCE
NEWS & HIGHLIGHTS

- **Russell Taylor** elected to National Academy of Engineering for his contributions to the development of medical robotics and computer integrated systems
- **HopHacks**, a student-run, 36-hour biannual Hackathon now in its 9th year, went virtual with a record number of international participants and prizes
- **Steven Salzberg** named a Fellow of the Association for Computing Machinery
- PhD candidate **Eli Sherman** named 2020 Google Machine Learning Fellow
- **Peng “Ryan” Huang** receives NSF CAREER Award
- Team led by **Michael Schatz** develops open-source software that cuts time, cost from gene sequencing
- Researchers create **Anytown, USA tool** to simulate COVID-19 spread in small towns
- Undergrads partner with NATO on **digital triage assistant** to reduce combat casualties

AFFILIATED CENTERS & INSTITUTES

- Center for Language and Speech Processing (CLSP)
- Information Security Institute (ISI)
- Laboratory for Computational Sensing and Robotics (LCSR)
- Malone Center for Engineering in Healthcare (MCEH)
- Institute for Assured Autonomy (IAA)
- Institute for Data Intensive Engineering and Science (IDIES)
- Mathematical Institute for Data Science (MINDS)
The Institute for Assured Autonomy (IAA) is working to ensure the safety, resiliency, and reliability of autonomous systems. Through collaboration, the IAA research team combines artificial intelligence, machine learning, computing, and other disciplines to address a range of topics including health monitoring devices, first-responder robots, and self-driving cars. The IAA focuses on advancing multidisciplinary research and development related to the complex technological challenges and societal concerns associated with increasingly ubiquitous autonomous systems.

INFORMATION SECURITY INSTITUTE (ISI)

Housed within IAA, the Johns Hopkins University Information Security Institute (ISI) is home to world-class interdisciplinary experts who work closely with U.S. government research agencies and industry partners to advance research in areas including: cryptography theory and algorithms, applied cryptography, privacy, medical information security, network security, global cybersecurity trends and practices, internet of things security, and software and system security.

ISI offers a highly ranked, full-time Master of Science in Security Informatics (MSSI) degree program that covers the most current topics in information security.

For more information, visit isi.jhu.edu

QUICK FACTS

- Established in 2020, the Institute for Assured Autonomy is run jointly by the Johns Hopkins University Whiting School of Engineering (WSE) and the Johns Hopkins Applied Physics Laboratory (APL).
- Through collaborative research, the IAA research team combines artificial intelligence, machine learning, computing, and other disciplines to ensure that assured autonomy supports a safe, equitable, and prosperous society.

SELECTED RESEARCH PROJECTS

- Assuring safe operations of AI-enabled systems in offices, hospitals, and other social spaces.
- Developing software for safe traffic management in national airspace.
- Assuring privacy and fairness in AI technologies.
- Strengthening AI systems against adversarial attacks.
- Creating a policy framework for autonomous vehicles.

LEADERSHIP

Jim Bellingham
Executive Director

Anton Dahbura
Co-Director

Cara E. LaPointe
Co-Director

David Silberberg
Research Director

For more information, visit isi.jhu.edu
At the National Conference on Undergraduate Research (NCUR) and Posters on the Hill, Kean students took first place in a research competition, and met staff from U.S. Senator Cory Booker’s office.

2 new programs: a B.A. in Computer Science and a B.S/M.S 5-year in Computer Information Systems.

6 Kean University CS/IT students received awards at the 2021 Great Minds in STEM (GMiS) Conference.

40+ students will participate this fall in AI4ALL.

50+ undergraduates participated in REUs this past summer.

60+ HS students and educators in computing were acknowledged in the 8th annual NCWIT Aspirations Award Ceremony hosted at Kean on April 2022.

75+ students participate annually in the Grace Hopper, Tapia, National Conference on Undergraduate Research & Great Minds In STEM conferences.

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**News Highlights**

**DR. DAEHAN KWAK**
Kean Assistant Professor Daehan Kwak, Ph.D., received the 2022 Faculty Mentor Award from the Council on Undergraduate Research (CUR).

**NSA CAE–CD DESIGNATION AWARDED**
Kean University has been designated by the National Security Agency as a National Center of Academic Excellence in Cyber Defense addressing the shortage of trained cybersecurity professionals nationally. Dr. Jing Chiou-Liou led the effort, in collaboration with the Kean’s Center for Cybersecurity.

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**By The Numbers**

- 488 Computer Science Majors (5 Tracks)
- 219 Information Technology Majors (3 Tracks)
- 707 Total Undergraduate Students
- 52% Population of Diverse Students
- 50% Female Faculty Members

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**Research Areas**

- Human Computing Interaction
- Machine Learning
- Data Science
- Cybersecurity
- Software Engineering
- Computer Science Education

---

**Alliance to Broaden Participation in Graduate School**
NSF, $2,891,942

**ASK for Success Cybersecurity & Data Science**
NSF, $1,641,645

**Embedding Equitable Design**
NSF, $130,546

**Pathway to Success**
NSF, $1,684,277

**Expanding Access to Computer Science Education**
NJ Dept. of Education, $266,665

---

**New Faculty**

**Lakshmi Devi Subramanian**
Ph.D, University of Iowa
Virtual Reality (VR), Augmented Reality (AR), Human Computer Interaction (HCI)

**Kuan Huang**
Ph.D, Utah State University
Computer Vision, Deep Learning, Pattern Recognition, Fuzzy Logic
Spotlight on Blockchain

Prof. Hank Korth leads the Lehigh Blockchain initiative, an interdisciplinary team spanning computer science and business with a variety of activities in blockchain research, education, and applications. With the cooperation of faculty and students across Lehigh's colleges and departments, we pursue research and teach a set of courses aiming to advance blockchain technology and inform future decision-makers in business and government. In its early stage, Lehigh Blockchain already raised more than $350k in research funding from industry and academia to support students' activities.

Newly hired faculty

Bilal Khan
Professor

Maryam Rahnemoonfar
Associate Professor

Masoud Yari
Teaching Associate Prof.

Newly promoted faculty

Eric P.S. Baumer
Associate Professor

Roberto Palmieri
Associate Professor

Brian D. Davison
Professor & Dept. Chair

Selected Grant Activity

• CSE faculty Eric P. S. Baumer and Dominic DiFranzo lead a new $1.2 million NSF grant for mixed-methods, interdisciplinary research on the role of framing in the COVID-19 pandemic.

• Associate professor Brian Chen is co-PI on a Lehigh and Ohio State University collaboration to develop novel structural materials for high-strength applications. The partnership will receive up to $25 million over five years from the U.S. Army Research Lab.

• Assistant professor Sihong Xie was awarded the NSF Career award ($556k) for his proposal Bilevel Optimization for Accountable Machine Learning on Graphs.

New MS in Data Science

CSE faculty collaboratively established a new interdisciplinary MS program in Data Science.

New Department Chair

In August, Brian Davison was named chair of computer science and engineering.
National Center of Academic Excellence in Cyber Defense Education for BS: Cybersecurity (2020-2025)

NEW PROGRAMS

**MS: Data Science**, launched in Fall 2022

**MS: Computer Science** with Artificial Intelligence, Cybersecurity

Computer Systems concentrations, started Fall 2021

FACULTY & ALUMNI NEWS

**George K. Thiruvathukal** appointed as Chair of the Computer Science Department in January 2022.

**Peter Nabicht (2004 alum)**, promoted to President of STAC- Securities Technology Analysis Center

**Yasin Silva**, NSF SaTC Grant to support the BullyBlocker Project, an interdisciplinary effort between LUC and ASU. This grant was transferred to LUC in Spring 2022 and includes an REU Supplement (NSF - SaTC No. 2227488, PI: Yas Silva, $390,421.00, 2022–2024).


**Eric Chan-Tin**, Motorola Foundation Grant for Scholarships in Cybersecurity, 2022

**Dmitriy Dligach**, R01. NIH/NHLBI. Developing a clinical decision support tool for the identification, diagnosis, and treatment of critical illness in hospitalized patients (1R01HL157262). Site PI. Loyola budget: $200,441 over 5 years.

For more information on our Department’s Research involvement, please visit [https://ecommons.luc.edu](https://ecommons.luc.edu)

FACULTY RESEARCH AREAS

One department; three interlinked faculties. Between 46-48% of all MIT undergraduates find their home in EECS.

Thriving Stars: an exciting new initiative to promote equity
Including research and career panels, mentoring programs, informational sessions, and social occasions, MIT EECS’s ambitious initiative to increase gender representation in graduate work has already yielded impressive results in its first year.

Over $4 million in fellowships
Thanks to the Shiv Nadar Foundation and Cadence Design Systems

A record high number (47) and percentage (30.3%) of women enrolling in EECS for 2022.

By the numbers, 2022-23

142
Faculty members and 17 lecturers across EE, CS, and AI + D.

853
Graduate Students

1,663
Undergraduate Students

244
MEng Students

Highlights

• Ranked first by U.S. News and World Report in undergraduate computer engineering, EE, and CS, and graduate EE and CS.
• Regina Barzilay and Dina Katabi - both elected to the American Academy of Arts and Sciences.
• Vladimir Bulović - Fellow of the National Academy of Inventors.
• Anantha Chandrakasan - 2022 IEEE Mildred Dresselhaus Award.
• Daniel Huttenlocher - released book co-authored with Eric Schmidt and Henry Kissinger, “The Age of AI and Our Human Future”.
• Ronitt Rubinfeld - elected to 2022 National Academy of Sciences
• Daniela Rus - IEEE Automation and Robotics Award
• Vinod Vaikuntanathan - 2021 IEEE FOCS “Test of Time” award, 2022 Gödel Prize, and 2022 National Award Finalist by the Blavatnik Awards for Young Scientists.
Faculty
21 Tenure-track/Tenured
2 Lecturer Track

Enrollments – Fall 2021
Computer Science
BS 448
MS 18
PhD 28

Software Engineering
BS 96
Cybersecurity
MS 5
Data Science
MS 21

New Faculty

Dukka KC
Associate Professor
Areas of Expertise:
• Bioinformatics
• Data Science
• Machine Learning/Deep Learning
• High-performance Computing

Xinyu Lei
Assistant Professor
Areas of Expertise:
• Machine Learning
• Cybersecurity

Recognitions
Briana Bettin – 2022 Michigan Tech Distinguished Teaching Award
Tim Havens – Appointed Director of the Great Lakes Research Center

Student Highlights
Fall 2021 NCL cybersecurity competition – Michigan Tech ranked 10th out of nearly 4000 teams.

Funding Highlights

Ureel, L, Copper Country Coders Virtual Courses for U S Embassy in Bahrain, US. Dept of State

Oommen, T, Havens, T, Kueber, Watkins, M, Meadows, G, SCC-CIVIC-FA Track B: Helping Rural Counties to Enhance Flooding and Coastal Disaster Resilience and Adaptation, NSF

Pastel, R, Morgan, C, ENTERPRISE: Real Time Strategy Game for Military Commanders Phase 2 and Investigation of VR/AR/XR Technology Applied with Eye and Hand Interaction, National Center for the Advancement of STEM Education

Marcarelli, A, Brown, L, Kane, E, Techtmann, S, Emergent linkages between DOM composition microbial assemblages and respiration in streams, NSF

Lei, X, CRII: SaTC: Enabling Secure Machine Learning Queries over Encrypted Database in Cloud Computing, NSF

Ureel, L, Brown, L, Rich Immediate Critique of Antipatterns (RICA) in Novice Programmer Code: Broadening Adoption Supporting Student Learning and Enhancing Programming Competencies, NSF

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

KC, D, III: Medium: Collaborative Research: Multi-level computational approaches to protein function prediction, NSF

Havens, T, Operation and Maintenance: High Frequency Radar in the Straits of Mackinac Michigan - Year IV, Great Lakes Observing System

http://www.mtu.edu/cs
Letter from Department Head, Dr. Shahram Rahimi

"Welcome to the Department of Computer Science and Engineering (CSE) at Mississippi State University. CSE is one of the largest and fastest-growing departments in the Bagley College of Engineering and the university. The department strives to train the next generation of computer scientists and engineers who will be prepared to enter a rapidly growing technology field. We are proud to be a NSA Designated Center of Excellence for Cyber Defense, Cyber Operation, and Cyber Research."

New faculty

Dr. Jingdao Chen, Assistant Professor

Dr. Charan Gudla, Assistant Clinical Professor

Dr. Adam Jones, Assistant Professor

Dr. Sudip Mittal, Assistant Professor

Dr. Stephen Torri, Associate Professor

Dr. George J. Trawick, Associate Clinical Professor and Cyber Program Coordinator

Degrees offered:
Computer Science: BS, MS, Ph. D
Software Engineering: BS
Cybersecurity: BS, MS
Computer Engineering: BS

Graduate Distance Education:
Computer Science: MS, Ph. D
Cybersecurity: MS

NSF Career Award

Dr. Maxwell Young, Assistant Professor
Faculty Early Career Development (CAREER) award from the National Science Foundation (NSF) for $404,492.

McKay Excellence Endowment

Mississippi State alumnus Lamar McKay has endowed support to the Department of Computer Science and Engineering. This endowment will aid ongoing support benefitting Infrastructure, personnel, travel funds, and more to support the Predictive Analytics and Technology Integration Laboratory (PATENT).

CSE Hall of Fame

Emma L. Wade
Senior CSE major
- Member of the Astronaut Scholarship Foundation's 2022 Astronaut Scholars Class
- Recipient of the Goldwater Scholarship

Somayeh Bakhtiari Ramezani
Ph. D Student
- Recipient of Computational and Data Science Fellowship from the Association for Computing Machinery, will receive $15,000 annually to further her studies.

Learn more at cse.msstate.edu
Faculty Opportunities in 2022-2024

- 1 Endowed Professorship – the Hambly Chair
- 4 Assistant Professor Positions
- More information: https://www.cs.montana.edu/opportunities.html

Highlights

- We received a generous $50M building gift from the Gianforte Family Foundation.
- We received a generous $5.5M gift from Larry and Ann Hambly that creates an endowed professorship, the Hambly Chair.
- Dr. Ann Marie Reynolds joined as an Assistant Professor.
- Dr. Neda Nazemi and Dr. Lucy Williams joined as Assistant Research/Teaching Professors.
- Reese Pearsall joined as a cybersecurity instructor.
- Our research expenditures rose from $1,616K in fiscal year 2021 to $2,222K in fiscal year 2022.
- Dr. John Sheppard received a $366K grant from Global Strategic Solutions.
- Dr. Clem Izurieta received a $200K grant from Wright Patterson Airforce Base.
- Dr. Clem Izurieta received a $162K grant from the US Department of Defense.
- Dr. Brendan Mumey received a $60K grant from the National Center for Genome Resources.
- Dr. Dave Millman and Dr. Mike Wittie received a $1M SBIR Phase II grant from the NSF for their blockchain start-up, Blocky.
- Dr. John Sheppard received the 2022 Provost’s Award for Graduate Research Mentoring.
- Dr. Brittany Fasy received the 2022 College of Engineering’s Excellence in Research Award.
- CS majors Marcus Twichel and Bruce Clark won the John Ruffato Business StartUp Challenge.

Student Numbers

- 579 students in Fall 2022 (includes B.S., M.S. and Ph.D. students)
- 553 students in Fall 2021 (includes B.S., M.S. and Ph.D. students)
- Awarded 3 Ph.D. degrees, 16 M.S. degrees and 97 B.S. degrees in AY 2021-22.

Larry and Anne Hambly
Ann Marie Reinhold
Reese Pearsall
Industrial Affiliates Program (IAP).................
is a unique portal for focused and direct interaction
between the college’s students, faculty and
companies. Member company benefits include
student engagement activities such as capstone
projects, internships, co-op courses, competitions,
recruiting events, continuing education courses and
joint R&D projects. Current IAP members include
major high-tech companies (Amazon, Google,
Microsoft, AT&T), as well as financial/Wall Street
companies (Bank of America, JPMorgan Chase,
Forbes, UBS) and pharmaceutical companies
(Johnson & Johnson, Merck).

NJIT@JerseyCity ........................................
is YWCC’s new satellite campus in Jersey City, located
across the Hudson River from Manhattan, at the
transportation hub of Exchange Place. Graduate
degrees and certificates are designed for working
professionals in the New York/Newark metropolitan
area.

Strategic Growth Areas ..........................
The Institute for Data Science, founded in 2019 by
Distinguished Professor David Bader, pursues Federal and
industry funded research out of NJIT’s Jersey City campus.
Its seminars series (viewable on the institute’s YouTube
channel) features world renowned speakers and has
attracted more than 3,800 attendees.

NSF has renewed NJIT’s Scholarship for Service (SFS)
funding until 2026 to train and place CyberCorps® scholars
in cybersecurity jobs in government. Since 2016, NJIT’s SFS
program has graduated 26 students and is currently
supporting 16 more.

A new Ph.D. in Data Science and MS in Artificial
Intelligence (AI) (Department of Data Science) will launch
during the 2022-2023 academic year.

The Institute for Future Technologies (IFT) is a partnership
between NJIT and Israel’s Ben-Gurion University of the
Negev (BGU). Located within the NJIT@JerseyCity campus,
IFT aims to provide graduate-level education, conduct
applied research and development, and support
innovation and entrepreneurship through technological
commercialization of R&D and other intellectual property
efforts in cyber technology.
BE BOLD. Shape the Future.
New Mexico State University
Department of Computer Science

By the numbers...

Undergrad Enrollment (Fall)

Graduate Enrollment (Fall)

Degrees Awarded

Research Expenditures

Highlights

- Diverse student population: 68% ethnic minority students and 25% female students
- BS Degree newly accredited until 2027
- Rank 126 in the US for Graduate CS
- Top 90 in Artificial Intelligence, Databases, Human Computer Interaction and Computer Security
- Degree concentrations in AI, HCI, SE, Security, and ML
- Funding Sources:
  - Government (NSF, DoD, DoE, …)
  - Industry (Google, Intel, …)

BS in Cyber-Security
Designed for students interested in developing expertise in the theoretical and practical aspects of cyber-security and cyber-defense.

Prof. Master in Data Analytics
Aimed at providing students with diversified backgrounds the necessary foundation in data management and analysis, computational and statistical thinking, and computer systems for applying data analytics techniques.

New Faculty: Joshua Reynolds
Research focus on web security, privacy, and trust, with a focus on user-centric system evaluation.

Research Specialties

cyber-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 • smart assistive technologies

Department of Computer Science, New Mexico State University, P.O. Box 30001, MSC CS, Las Cruces, NM 88003
NC State is the lead institution on a $9M, multi-institution NSF grant which establishes the Secure Software Supply Chain Center (S3C2 Team pictured above) bringing together researchers, industry partners and government agencies to develop scientific tools, metrics, data formats, and method to reduce risks with software.

2021-22 Highlights:

- **Dr. Munindar Singh** was named a 2021 Fellow of the Association for Computing Machinery, the department’s 3rd ACM Fellow.
- **Dr. James Lester** was awarded the Alexander Quarles Holladay Medal for Excellence, the highest honor bestowed by NC State.
- **Dr. Tiffany Barnes** was named the recipient of NCWIT’s 2022 Harrold and Notkin Research and Graduate Mentoring Award.
- **Dr. Bradley Reaves** received a Faculty Early Career Development (CAREER) Award, the department’s 34th CAREER recipient.
- **Drs. Bradford Mott, Wookhee Min, and Veronica Cateté** were awarded a $1.2M NSF grant for their proposal: Engaging Rural Students in Artificial Intelligence to Develop Pathways for Innovative Computing Careers, as part of a record $19.5M in new research funding brought in by our faculty during the 21-22 academic year.
- May 2022 grads had NC State’s HIGHEST median starting salaries:
  - $90,000 BS CSC
  - $129,000 MS CSC

14 New Faculty!

A $20M funding initiative from the North Carolina legislature titled Engineering North Carolina’s Future will bring us 950 additional students and greatly expand our research efforts over the next five years. As a result, the department hired a record 14 new faculty this year with more to come. Pictured L-R from the top: Dr. Alexander Card, Dr. Marcelo D’Amorim, Dr. Adam Gaweda, Dr. Zhishan Guo, Dr. Jung Eun Kim, Dr. Sandeep Kuttal, Dr. Jiajia Li, Dr. Xiaorui Liu, Dr. Yuchen Liu, Dr. Jianqing Liu, Dr. Sterling McLeod, Dr. Sharma Valliyil Thankachan, Dr. Dongkuan (DK) Xu, and Dr. Man-Ki Yoon.

<table>
<thead>
<tr>
<th>Fall 22 CSC Enrollment</th>
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<tbody>
<tr>
<td>Undergraduates</td>
<td>1,699</td>
<td></td>
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<tr>
<td>Graduates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters Students</td>
<td>638</td>
<td></td>
</tr>
<tr>
<td>Ph.D. Students</td>
<td>208</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2,545</td>
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</tbody>
</table>

$19.5M* New Research Awards
$13.2M* Research Expenditures

* Department Records
NEW DEAN ANNOUNCED
Dr. Elizabeth Mynatt was named as the Dean of Khoury College of Computer Sciences. She joined Northeastern University in January 2022 after a 23-year career at Georgia Institute of Technology (Georgia Tech), where she most recently served as Regents’ Professor in the College of Computing and executive director of the Institute of People and Technology.

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).

The Cybersecurity and Privacy Institute, which is housed in Khoury College (cyber.khoury.northeastern.edu), and lead by Executive Director and Associate Professor of Computer Science, David Choffness, is dedicated to safeguarding critical technology through research and education in collaboration with industry experts, government agencies, and global academic partners worldwide.

The Network Science Institute (NetSI) at Northeastern University, (networkscienceinstitute.org), is a multi-disciplinary research community that supports innovative research and education in network science. NetSI brings together faculty, researchers, and students from diverse disciplinary backgrounds including physics, computer sciences, political sciences, business, communication, economics, and health sciences.

BY THE NUMBERS
- 87 TT/T faculty total - (33% interdisciplinary with another college)
- 3,519 undergraduate students
- 44% of incoming undergraduate students identify as women
- 43 combined undergraduate majors across 7 colleges
- 58% of undergraduate students enrolled in combined majors
- 4 PhD programs - Computer Science, Cybersecurity, Personal Health Informatics, Network Science
- 280 PhD Students
- 28 PhD graduates in the last 12 months

NEW FACULTY AT KHOURY COLLEGE (2022-2023)

COOPERATIVE EDUCATION
Cooperative Education (co-op) is a cornerstone of our MS and undergraduate programs. Khoury College placed 1,789+ students in co-ops at over 564+ companies last academic year.

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

LATEST TENURED/TENURE-TRACK AND TEACHING FACULTY HIRES
- 30 tenured and tenure-track faculty over the past five years
- 60 teaching faculty across all ranks over the past five years

RESEARCH HIGHLIGHTS
BEST PAPER AWARDS (2018-2022)
Khoury College faculty and students won best paper/test of time awards at the following conferences, forums and workshops:
- ACM, CCS, COSN, WiSec, HRI, SIGKDD, VEE, SIGSOFT, AISec, DSN, ACL, ANRW, CHI, EAPLS, FGD, FPF, IEEE CNS, ICDM, SecDev, IEEE, S&P, AAMAS, EDBT, TACAS, ISWC, NDSS, PETS, SoSyM, SIGCOMM, FAST, UNEXIN Security

CAREER, YOUNG INVESTIGATOR & SLOAN FELLOWSHIP AWARDS
From 2016-2020, the following members were awarded the Sloan Research Fellowship, Young Investigator, ASA, NSF CAREER, or DARPA Young Faculty Awards:
- Chris Amato, Jonathan Bell, Carla Brodley, Dave Choffness, Seth Cooper, Cody Dunne, Ehsan Elhamifar, Paul Hand, Elizabeth Mynatt, Huy Le Nguyen, Rob Platt, Aanjhan Ranganathan, Jon Ulmann, Jan-Willem Van De Meent, Olga Vitek, Byron Wallace, Daniel Wichs, Christo Wilson

CONFERENCE GENERAL OR CO-CHAIRS (2016-2022)
Khoury College faculty have been general chair or co-chair for the following conferences:

NEW FACULTY AT KHOURY COLLEGE (2022-2023)

Tenured or Tenure-Track Faculty

Joint Tenured or Tenure-Track Faculty

Teaching Faculty

2023-2024 Tenured or Tenure-Track Faculty

David Bau | Assistant Professor | PhD, Massachusetts Institute of Technology
Soheil Behnezhad | Assistant Professor | PhD, University of Maryland
Mahsa Derakshan | Assistant Professor | PhD, University of Maryland
Elizabeth Mynatt | Dean + Professor | PhD, Georgia Institute of Technology
Robin Walters | Assistant Professor | PhD, University of Chicago
Enrico Bertini | Associate Professor | PhD, Sapienza University of Rome
Kathleen Creel | Assistant Professor | PhD, University of Pittsburgh
Michael Everett | Assistant Professor | PhD, Massachusetts Institute of Technology
Rebecca Kleinberger | Assistant Professor | PhD, Massachusetts Institute of Technology
Wallace Lages | Assistant Professor | PhD, Virginia Tech
Albert Lionelle | Associate Teaching Professor + Director of Align Online | PhD, Colorado State University
Blair MacIntyre | Professor | PhD, Columbia University
Chris Martens | Associate Professor | PhD, Carnegie Mellon
Varun Mishra | Assistant Professor | PhD, Dartmouth College
Herman Saksono | Assistant Professor | PhD, Northeastern University
Dakuo Wang | Associate Professor | PhD, University of California, Irvine
Shuo Zhang | Assistant Professor | PhD, University of California Santa Barbara
Mona Ali | Associate Teaching Professor | PhD, University of Manchester
Reshika Bhaderao | Assistant Teaching Professor | PhD, New York University
Mark Fontenot | Teaching Professor + Assistant Dean of Student Experience | PhD, Southern Methodist University
Eric Gerber | Assistant Teaching Professor | PhD, Purdue University
Jeongkyu Lee | Teaching Professor | PhD, University of Texas at Arlington
Robert Oboko | Visiting Associate Teaching Professor | PhD, University of Nairobi
Daniel Patterson | Assistant Teaching Professor | PhD, Northeastern University
Ryan Rad | Assistant Teaching Professor | PhD, Simon Fraser University
Sam Rovina | Teaching Professor + Director of Computing Programs – Arlington | PhD, University of California Santa Barbara
Ellen Spertus | Teaching Professor | PhD, Massachusetts Institute of Technology
Oscar Veliz | Assistant Teaching Professor | PhD, University of Texas at El Paso
West Viles | Assistant Teaching Professor | PhD, Boston University
Justin Wang | Assistant Teaching Professor | PhD, Marquette University
Megan Hofmann | Assistant Professor | PhD, Carnegie Mellon | Ay23-24
Ada Lerner | Assistant Professor | PhD, University of Washington | Ay23-24
New Tenure-Track Faculty

Peiwei Li
Assistant Professor
Information Systems

Brian Sauer
Assistant Professor of Practice
Software Engineering

Hanieh Shabanian
Assistant Professor
Computer Science

Current Programs

Undergraduate Majors

- Applied Software Engineering
- Business Information Systems
- Computer Information Technology
- Computer Science
- Cybersecurity
- Data Science
- Health Informatics
- Library Informatics

Graduate Degree Programs

- Business Informatics
- Cybersecurity
- Health Informatics

School 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. NKU ranked 40th nationally, awarding 171 degrees in Computer Science with 21.1 percent going to women.

- The Bachelor of Science in Data Science has earned the ABET accreditation in August 2022, being one of the first two Data Science programs in the World that achieved this prestigious accreditation.

- The Bachelor of Science in Business Information Systems and Master of Science in Business Informatics have their AACSB accreditation renewed in June 2021.

SCA School by the Numbers

Faculty:

- 43 full-time faculty, including 11 Full Professors, 6 Associate Professor, 13 Assistant Professors, 2 Professors of Practice, and 11 Lecturers.

Students:

- Over 1000 current majors.
- 4 Years average time to degree.
- 75% of students stay in Northern Kentucky/Greater-Cincinnati region after graduation.
Technical excellence. Whole-brain thinking. Highly interdisciplinary work.

We are driven to push the boundaries of the field with exceptional work in programming languages, machine learning, robotics, network security, computer science theory, artificial intelligence, computational imaging, human-computer interaction, high-performance computing, networking, algorithms, mechanism design, and personalized education.

New Faculty

Jointly Appointed Faculty

Sam Kriegman (CS+chemical and biological engineering and mechanical engineering) automated design and manufacture of mechanical, chemical, and biological robots

Miklos Z. Racz (CS+statistics) probability, statistics, computer science, and information theory

Core Tenure-track CS Faculty

Andrew Crotty design of systems for large-scale data analytics and data science

Clinical Faculty

Andrew Fano Codirector of Northwestern’s Kellogg School of Management and McCormick School of Engineering MBAi program

Faculty of Instruction

Joseph Hummel programming languages, high-performance computing

Zach Wood-Doughty natural language processing methods

By the Numbers

Faculty: 42 tenure track, 11 faculty of instruction, one clinical faculty member, 21 affiliated faculty

Undergraduate Students: 980 majors, 203 minors

Graduate Students: 125 PhD and 215 MS

Enrollment: 9,564

(Academic year 2022-23)

Research Institutes

In collaboration with the UL Research Institutes’ Digital Intelligence Safety Research Institute, the Center for Advancing Safety of Machine Intelligence (CASMI) is establishing best practices for the evaluation, design, and development of machine intelligence that is safe, equitable, and beneficial.

The Institute for Data, Econometrics, Algorithms, and Learning (IDEAL) received a five-year, $10 million NSF Phase II award to advance the theoretical foundations of data science.

Diversity Initiatives

Northwestern CS PhD student Mara Ulloa and Professor Maia Jacobs received a Social Justice Mini Grant from Northwestern’s Office of Diversity and Inclusion to support a coding education project with the volunteer-run nonprofit We All Code.

Code’n’Color, a group supporting Black, Indigenous, and Latinx students and faculty in CS, won a Social Justice Mini Grant to expand outreach to undergraduate students.

Northwestern CS and the YWCA Evanston/North Shore were awarded a 2022 Racial Equity and Community Partnership grant from Northwestern’s Office of Neighborhood and Community Relations to support the YW Tech Lab economic empowerment training program.

Our DEI committee members supported more than 60 Northwestern CS students in the Grace Hopper Celebration of Women in Computing, and the Richard Tapia Celebration of Diversity in Computing Conference.

CS+X Connections

CS+X Interdisciplinary researchers across Northwestern are leaders in the emerging fields of CS+Economics and CS+Law.

The new Future of Health and Computing Collective aims to bridge the fields of health and computing.

A CS+Mechanical Engineering workshop seeks to build on the strong collaboration in robotics by expanding into areas of manufacturing and design.

The Design, Technology, and Research (DTR) program is a fast-paced, multiple-quarter course structured around self-directed student research projects.

Awards

The Northwestern CS community is recognized for their accomplishments in research, education, and mentorship.

Jason Hartline won a 2022 ESA Test of Time Award.

Professors Josiah Hester, Annie Liang, Zhaoran Wang, and Xinyu Xing received NSF CAREER awards.

Aggelos Katsaggelos was elevated to an IEEE Life Fellow member.

PhD student Jacob Kelter received the 2022 Northwestern University Presidential Fellowship.

PhD student Ryan Louie was selected as a 2022 Google Fellow in Human Computer Interaction.

Uri Wilensky was elected to the National Academy of Education.

Xinyu Xing received an Amazon Science Research Award.
HISTORY
We began to offer electrical engineering study in 1891. Soon after modern computing came of age in the 1950s, the Russ College pioneered its own computer science courses in 1957.

Established in 1999 by the visionary namesakes of the Russ College of Engineering and Technology at Ohio University, the Russ Prize is awarded biennially by the National Academy of Engineering and Ohio University to recognize a bioengineering achievement in widespread use that improves the human condition.

DEGREE PROGRAMS
• B.S. in Computer Science and Electrical Engineering
• M.S. in Computer Science and Electrical Engineering
• Ph.D. in Electrical Engineering and Computer Science
• Certificate in Bioinformatics.

RESEARCH GRANTS
$6.4 million
in sponsored research in 2021 from Federal Aviation Administration, National Aeronautics and Space Administration, Ohio Space Grant Consortium, Boeing and Intel in areas such as cybersecurity, artificial intelligence, flight safety, virtual reality, material science, space communication and semiconductors.

DEPARTMENTAL NEWS
• Ohio University awarded Intel grant funding and will serve as lead institution for Appalachian Semiconductor Education and Technical (ASCENT) Ecosystem
• Choose Ohio First Scholarships awarded in Computer Science, Advanced Manufacturing and Energy Engineering
• OHIO team soft launches first sensor in low altitude weather network

RESEARCH CENTERS
• Avionics Engineering Center
• Center for Scientific Computing and Immersive Technologies
NEW FACULTY

ALIREZA AGHASI
Associate Professor, Electrical and Computer Engineering
Aghasi’s research focuses on optimization theory and statistics, with applications to various areas of data science, artificial intelligence, modern signal processing, and physics-based inverse problems.

WILL BRAYNEN
Professor of Practice, Computer Science
Braynen leads the software innovation track in the computer science master’s program.

JASON V. CLARK
Professor of Practice, Electrical and Computer Engineering
Clark’s research involves the metrology, control, design, modeling, and simulation of complex microsystems.

CHRIS HUNDHAUSEN
Professor, Computer Science
Hundhausen serves as director of the Center for Research in Engineering Education Online. His research explores innovative technologies and pedagogical approaches to support computing and engineering education.

NIRMALA KANDADAI
Assistant Professor, Electrical and Computer Engineering
Kandadai’s research interests include optical fiber sensors in harsh environments, novel optical materials, mid-IR sensors, lasers, ultrafast laser spectroscopy, laser ablation of thin films, optical imaging, and laser-matter interaction.

HARISH SUBBARAMAN
Associate Professor, Electrical and Computer Engineering
Subbaraman’s research interests include silicon and polymer-based photonics, optical interconnects, flexible and printed photonic and electronic devices, micro- and nano-manufacturing technology, nano-photonic and slow-light devices, and RF photonic devices and systems.

HUAZHENG WANG
Assistant Professor, Computer Science
Wang’s research interests include machine learning, reinforcement learning, information retrieval, and data mining.

JIAYU XU
Assistant Professor, Computer Science
Xu’s research spans theoretical and practical aspects of cryptography and its applications to network security.
### Core Research Areas

<table>
<thead>
<tr>
<th>Data Sciences and Artificial Intelligence</th>
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<tbody>
<tr>
<td>Human-Computer Interaction</td>
</tr>
<tr>
<td>Privacy and Security</td>
</tr>
<tr>
<td>Social and Organizational Informatics</td>
</tr>
</tbody>
</table>

### New Faculty Hires

#### Tenure/Tenure-Track

- **Jie Cai**
  - Assistant Research Professor
  - Human-Computer Interaction
  - M.S., Hofstra University

- **Jonathan Dodge**
  - Assistant Professor
  - Data Sciences and Artificial Intelligence
  - Ph.D., Oregon State University

- **Taegyu Kim**
  - Assistant Professor
  - Security
  - Ph.D., Purdue University

- **Aron Laszka**
  - Assistant Professor
  - Data Science and Artificial Intelligence
  - Ph.D., Budapest University of Technology and Economics

- **Cindy Lin**
  - Assistant Professor
  - Social and Organizational Informatics
  - Ph.D., University of Michigan

- **Lu Lin**
  - Assistant Professor
  - Data Sciences and Artificial Intelligence
  - Ph.D., University of Virginia

### Teaching

- **Chris Gamrat**
  - Assistant Teaching Professor
  - Social and Organizational Informatics
  - Ph.D., Penn State

- **Jhon Bueno-Vesga**
  - Associate Teaching Professor
  - Human-Computer Interaction
  - Ph.D., University of Missouri-Columbia

- **Urjaswala Vora**
  - Associate Teaching Professor
  - Social and Organizational Informatics
  - Ph.D., IIT Bombay

### BY THE NUMBERS

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Faculty and Research</th>
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<tbody>
<tr>
<td>1,733 B.S.</td>
<td>$23.73M New Funding (FY20-22)</td>
</tr>
<tr>
<td>59 M.S.</td>
<td>147 New Grants (FY20-22)</td>
</tr>
<tr>
<td>172 Ph.D.</td>
<td>76 Full-Time Faculty</td>
</tr>
<tr>
<td>1,300+ Online</td>
<td>50 Tenure/Tenure-Track</td>
</tr>
</tbody>
</table>

### Featured Research

- Real-time, accurate virus detection method could help fight next pandemic
- Deepfakes expose vulnerabilities in certain facial recognition technology
- Tech designed to aid visually impaired could benefit from human-AI collaboration
- Using tweets to predict real-time food shortages
- Sharing source-backed information can help reduce COVID-19 misinformation online

### Experts in the News

- “Inside the good, bad, and very ugly of social media algorithms” (Fast Company)
  - Kelley Cotter, assistant professor

- “The secret to creative breakthroughs, hot streaks and success” (The Washington Post)
  - Lee Giles, David Reese Professor of IST

- “TikTok spat between Kanye West and Kim Kardashian has lessons for all parents” (NBC News)
  - Priya Kumar, assistant professor

- “Using AI and ML to fight Zero-Day Attacks” (Security Boulevard)
  - Peng Liu, Raymond G. Tronzo, MD Professor of Cybersecurity

- “How 5G works, according to an electrical engineer” (PBS News Hour)
  - Prasenjit Mitra, professor

- “Could the Flu Uncover the Next Pandemic?” (Yahoo! News)
  - Justin Silverman, assistant professor

### Recognition and Highlights

- Dongwon Lee received a 2022 Fulbright Cyber Security Scholar Award, through which he is conducting collaborative research on misinformation and deepfakes at the University of Cambridge.
- Assistant Professors Hadi Hosseini and Linhai Song earn NSF CAREER Awards to explore robust fairness in matching and allocation markets and improve the toolchain design of Rust, respectively.
- Professor Lynette Yarger was appointed membership to The National Academies of Sciences, Engineering and Medicine’s Roundtable on Systemic Change in Undergraduate STEM Education.
- James Wang was named a distinguished professor, the highest professorial distinction at the University. He also received his fourth consecutive Amazon Research Award, supporting his work to understand people’s emotional expressions from their body language.
- Created by David Reese Professor of IST C. Lee Giles, CiteSeerX—one of the world’s earliest open source academic search engines and based in the College of IST—was named by British Computer Society as the 2021 Best Open Source Project.
- Associate Professor Fred Fonseca is serving as the Associate Editor at the Journal of the Association for Information Science and Technology, a top journal in Information Science.
- Professor Carleen Maitland was appointed to the Board of Trustees of her alma mater, Worcester Polytechnic Institute.
- Jeffrey Bardzell, professor and associate dean of undergraduate and graduate studies, was named to the 2022-23 Big Ten Academic Alliance Academic Leadership Program.
- Assistant Teaching Professor Chris Gamrat served as an expert panelist for the EDUCAUSE 2022 Teaching and Learning Horizon Report.
US NEWS RANKS PURDUE

MIKHAIL ATALLAH // Test of Time Award from the Annual Computer Security Applications Conference (ACSAC)

ELISA BERTINO // Elected vice president of the Association for Computing Machinery (ACM)

BEDRICH BENES // Fellow of the European Association for Computer Graphics (Eurographics)

ANTONIO BIANCHI // 2021 Google ASPIRE Award

Z. BERKAY CELIK // 2021 Google ASPIRE Award

SONIA FAHMY // Named IEEE Fellow // Facebook Networking Research Award

NINGHUI LI // Named Fellow to the Association for Computing Machinery (ACM)

ANIKET BERA // Robotics, AI

XUEHAI QIAN // Systems, ML, Quantum

SARAH SELLKE // Associate Professor of Practice

ANDRES BEJARANO // Assist. Professor of Practice

BRIAN BULLINS // Machine Learning

ERIC SAMPERTON // Quantum Computing

KAZEM TARAM // Security, Architecture

RAYMOND YEH // Machine Learning

RUQI ZHANG // Machine Learning

PAN LI // JP Morgan Faculty Award

VOICU POPESCU // Facebook Networking Research Award

ALEX PSOMAS // 2021 Google Research Scholar

LIN TAN // Promoted to Full Professor // Named Distinguished Member of the Association for Computing Machinery (ACM) // Early Career Academic Achievement Alumn Award - UIUC

BRUNO RIBEIRO // 2021 Amazon Research Award

EUGENE SPAFFORD // Named Distinguished Member of the Association for Computing Machinery (ACM) // Early Career Academic Achievement Alumn Award - UIUC

WOJCIECH SZPANKOWSKI // Fellow Asia-Pacific Artificial Intelligence Association

9 NEW FACULTY 2022

AWARDS AND PROMOTIONS

4 NSF CAREER AWARDS
Professors Pedro Fonseca, Berkay Celik, Dave (Jing) Tian, and Alex Psomas received NSF CAREER AWARDS in 2022

$8M ALGORAND GRANT
Prof. Vassilis Zikas and research group receives $8M for project titled, MEGA-ACE - to transform the blockchain ecosystem at global scale

NSF, DOD ACCELERATOR AWARD
Professors Elisa Bertino, Sonia Fahmy, and Muhammad Shahbaz part of NSF’s Convergence Accelerator Awards

$16 MILLION RESEARCH EXPENDITURES
FY2022

3 UNDERGRADUATE DEGREES
Computer Science | Data Science | Artificial Intelligence

AN ERA OF GROWTH
197% Increase growth in undergrad population over 10 years (2012-2022)
2,611 CS Majors (9 Tracks)
477 DS Majors (program began 2017)

UNDERGRADUATE WOMEN POPULATION
Freshman class - 26% Undergraduates - 24%

SUPPORT
171 RAs | 219 TAs | 9 Fellowships

GRADUATE STUDENTS
538 MS and PhD Students
117% Increase growth in grad population over 10 years

cs.purdue.edu
Follow @PurdueCS
Computer and Cyber Sciences Department

At Regis University, Anderson College of Business and Computing, we believe in empowering students to expertly design and implement computational and cybersecurity solutions drive the strategic thinking needed to solve the world's most challenging problems in a socially just manner.

Program format
On Campus and Online options

Program options
Bachelors, Masters, and Combined degrees
- Computer Science,
- Cybersecurity,
- Software Engineering

Professional credentials
Certificates available to sharpen

Leading the way
First online BS in CS program to receive accreditation from the Computing Commission of ABET
Designated a National Center of Academic Excellence in Cyber Defense by the NSA and DHS
Annual host of the Rocky Mountain Cyber Defense Competition
Hosted 2022 ACM Computers and Society Executive Board Meeting

Faculty Highlights
Pam Smallwood, Associate Professor
Working under NSF Award to author POGIL activities that clarify understanding of Computer Architecture concepts for CS students

Hugo Bergier, Assistant Professor
Collaborated with Sorbonne Center for Artificial Intelligence (Paris) and InterPARES to work on logic-based AI archival ontologies

Richard Blumenthal, Professor
Steering Committee, Computer Science Curricular Committee; Executive Board ACM Committee on Professional Ethics

Department Chair
Richard Blumenthal, Ph.D.
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Rice University
COMPUTER SCIENCE

RESEARCH SPECIALTIES

Computational Biology & Bioinformatics
Robotics & AI | Computer Systems & Engineering
Programming Languages, HPC & Formal Methods
ML & Data Science | Quantum Computing

PROGRAMS OFFERED

- Bachelor of Arts / Bachelor of Science
- Master of Computer Science
- Master of Data Science (since 2020)
- PhD / MS Thesis

BY THE NUMBERS

1,090 CURRENT CS STUDENTS

65% Graduate Students
35% Undergrad Students

Largest Department at Rice

PROGRAMS BY SIZE

PHD 11%
MDS 11%
UG 35%
MCS 43%

(2020-2022)
NEW FACULTY

Vladimir Braverman
Professor

Nai-Hui Chia
Assistant Professor

Rodrigo Ferreira
Assistant Teaching Professor

Kaiyu Hang
Assistant Professor

Xia "Ben" Hu
Associate Professor

Huw Ogilvie
Assistant Research Professor

Vicente Ordóñez-Román
Associate Professor

Tilsa Oré Mónago
Lecturer

Tirthak Patel
Assistant Professor

Arlei Silva
Assistant Professor

Alexei Stolboushkin
Lecturer

Vaibhav Unhelkar
Assistant Professor

Core CS Faculty 13 new faculty, for a total of 47
Tenured & Tenure-Track Faculty 32

2021-22 NSF CAREER AWARD WINNERS

cs.rice.edu
**Faculty highlights**

**Rajendra Raj** is the ACM Computer Society chair of the ACM/IEEE task force to revise CS curricular guidelines (CS202X).

**Richard Zanibbi** is part of the Molecule Maker Lab NSF AI Institute and is the Program Chair for ICDAR 2023.

**Student highlights**

★ Our students are participating in **co-op education** at a record rate: in 2022 our BS students will have completed 639 experiences and MS students will have completed 149.

★ **CS undergraduate Quinn Kolt** was awarded a Goldwater Scholarship for research in applied mathematics.
Computer science drives knowledge creation and innovation in today’s ever-evolving technology industry. In these Roosevelt undergraduate degree programs, you’ll receive cutting-edge training that will prepare you for any computer science, technology or information security career.

**Computer Science (BS)**
The BS program follows an enhanced traditional curriculum, emphasizing fundamentals, data theory and computing systems theory. Students are prepared to pursue careers in highly advanced areas such as data systems, systems programming and software engineering, or pursue graduate study in computer science.

**Cyber and Information Security (BS)**
As an NSA/DHS-recognized National Center of Academic Excellence in Cyber Defense (CAE-CD), Roosevelt’s program in Cyber and Information Security delivers a cutting-edge combination of fundamentals and hands-on classes in a comprehensive program designed to prepare students for employment in this exciting and expanding field. Students will learn and engage in cybersecurity activities in and out of the classroom and our cybersecurity center under the guidance of certified cybersecurity professionals.

**Data Analytics (BS)**
We provide a comprehensive foundation in modern, cutting-edge data analytic techniques and algorithms with a focus on fundamentals. Students learn how to reveal hidden insights in data and how to make data-driven predictions or decisions.

**Information Technology (BA)**
This comprehensive program studies the techniques, management and technologies of information infrastructure and tools used in modern enterprises and society. Students have access to the resources and advanced program facilities of a diverse computer science department, housed within a flexible program allowing for a significant amount of personal customization.

**Computer Science (MS)**
You will study fundamentals of computer science including algorithms and computation algebra theory. Our wide selection of classes includes topics such as cloud computing, algorithm design, artificial intelligence, data mining and cryptography.

**Cyber and Information Security (MS)**
The graduate degree in cyber security and information assurance educates professionals for the fast-growing and wide-ranging information security and cyber security markets. Students gain foundational knowledge in the multi-disciplinary field of global security and learn how to properly design, implement, and manage secured IT infrastructure and risks in an enterprise.

**Music and Computing (BA)**
Learn about music theory, composition, math and computer science in one degree. You’ll receive personal attention in your technical and creative development. Work with performers and experience live performances of your compositions. You’ll complete your degree with a capstone project that showcases a creative application of music and computer programming.
Department of Electrical and Computer Engineering

A community of innovators in wireless communications, computer systems and software engineering, information processing and systems, micro- and nano-electronics, next generation internet architectures, cyber security and much more.

**STUDENTS**

898 Undergraduates  
94 Master’s  
105 Doctoral

**2022 FACULTY HIRES**

Shiram Ramanathan  
Professor, Rodkin-Weintraub Chair in Engineering

Daniel Burbano Lombana  
Assistant Professor

Shirin Jalali  
Assistant Professor

Guosong Yang  
Assistant Professor

Sasan Haghani  
Visiting Professor and Undergraduate Director

**RESEARCH HIGHLIGHTS**

- Associate Professor Jorge Ortiz leads Rutgers team in multi-university $26 million NSF-funded project to create center for smart streetscapes.
- Professor Yingying Chen receives an NIH grant to use smartphone app to examine cannabis use on driving behavior and an NSF grant for accelerating AI on resource-constrained edge devices.
- Assistant Professor Bo Yuan is a co-PI on a Rutgers team awarded an NSF grant to explore computation-informed learning of melt pool dynamics.
- Associate Professor Salim El Rouayheb receives an NSF grant for advancing resiliency and privacy of learning in edge networks.
- NJ Health Foundation supports development of Assistant Professor Umer Hassen’s smartphone enabled sepsis biosensor.

**NEW PROGRAMS**

- Cybersecurity in Electrical and Computer Engineering Certificate Program
- Machine Learning for Electrical and Computer Engineering Certificate Program

**STATE-OF-THE-ART LABORATORIES**

- WINLAB (Wireless Information Network Laboratory)
- ORBIT Wireless Testbed
- Communications and Signal Processing Lab
- Coding and Securing Information Lab
- Data Analysis and Information Security Lab
- Information, Networks, and Signal Processing Research Lab
- Integrated Circuits and Neuroimaging Lab
- Immuno-engineering and Micro-Technologies for Personalized Healthcare Lab
- NanoBio Technology Lab

**DEGREES**

BS — Electrical or Computer Engineering  
BS/BA, BS/MS, BS/MBA  
MS  
PhD

**ECE BY THE NUMBERS**

- 1 National Academy of Engineering Member
- 1 National Academy of Inventors Member
- 8 IEEE Fellows
- 9 NSF Early CAREER Awards
- 4 DARPA Young Faculty Awards
- 2 Presidential Early Career Award for Scientists
- 36 Faculty Members
The School of Computing Science at Simon Fraser University (SFU) is comprised of worldclass 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 Canadian schools in computer science and has internationally competitive programs.

NEW FACULTY HIREs IN 2021-2022

- **Matt Amy**
  Assistant Professor
  University of Waterloo
  Area: Quantum Computing

- **Xing-Dong Yang**
  Associate Professor
  University of Alberta
  Area: Human-Computer Interaction

- **Lawrence Kim**
  Assistant Professor
  Stanford University
  Area: Human-Computer Interaction, Human-Robot Interaction

- **Anders Miltner**
  Assistant Professor
  Princeton University
  Area: Programming Languages

- **Jason Peng**
  Assistant Professor
  UC Berkeley
  Area: Reinforcement Learning, Computer Animation, Robotics

- **Andrea Tagliasacchi**
  Associate Professor
  Simon Fraser University
  Area: Computer Vision, Computer Graphics, Deep Learning

- **Sharan Vaswani**
  Assistant Professor
  University of British Columbia
  Area: Machine Learning, Optimization, Reinforcement Learning

ACADEMY AND SOCIETY FELLOWS
- 4 Royal Society of Canada Fellows
- 1 ACM Fellow 2 IEEE Fellows
- 1 SIAM Fellow
- 1 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
- INFOCOM- 2015
- ACM SIGKDD- 2015, 2017
- ICCV Helmholtz- 2017
- ICDE- 2018
- IEEE PAMI Longuet-Higgins- 2020
- ACL- 2021

MAJOR AWARDS AND HONOURS 2021-2022
1. Stella Atkins: CS-Can | Info-Can Lifetime Achievement Award. 2022
2. Jason Peng: ACM SIGGRAPH Outstanding Doctoral Dissertation Award. 2022
3. Sheelagh Carpendale: Royal Society of Canada Fellow. 2021
4. Manolis Savva and Richard Zhang: Canadian Human-Computation Communications Society Awards (Early-Career and Achievement). 2022
5. Christopher Stoile: SFU Outstanding Alumni Award. 2022
6. Google PhD Fellowship: Zhiqin Chen. 2021
NEW FACULTY

Omar Chowdhury joins us as a SUNY Empire Innovation Scholar and an Associate Professor. His research interests lie in computer security, privacy, formal methods, and automated reasoning.

Nengkun Yu joins us as a SUNY Empire Innovation Scholar and Associate Professor. His research interests include distributed quantum computing, quantum network, logic, and algorithms.

Jalal Hoblos joins us as Associate Professor of Practice. Her research interests include data quality analysis, cloud computing, wireless network security and statistical mathematics.

RESEARCH ADVANCES

With nearly 150 active research projects with CS as the campus lead and an equal number of campus collaboration efforts, the department holds a unique position on the research landscape. Innovative advances include building an AI expert pathologist, introducing technology to improve daily living for individuals with significant locomotor disability (SLD); and studying bot-detection that focuses on creating a safe and secure online environment.

SMOLKA NAMED ACM FELLOW

Distinguished Professor of Computer Science, Scott A. Smolka, was elected as a Fellow of the ACM. Smolka’s contribution spans a number of computing fields including process algebra, model checking, and runtime verification. Smolka also received the Edsger W. Dijkstra Prize in Distributed Computing in 2021.

RECENT HONORS AND AWARDS

Erez Zadok was named ACM Distinguished Member in recognition of his outstanding scientific contributions to computing.

Our latest NSF Career awardee is Omkant Pandey whose research focuses on securing computer systems.

Distinguished Professor Steven Skiena joins the ranks of world leaders and academics as a Fulbright Scholar.

Klaus Mueller earned the distinction of member from the prestigious IEEE VGTC Visualization Academy.
Welcome to the Department of Computer Science – home of the second-largest program in the College of Engineering and one of the fastest-growing majors on campus!

**Record Growth:**
We have more than 750 students in our undergraduate and graduate programs.

**Redshirt Program:**
Tennessee Board of Regents awarded $50K to enhance the success of our pre-computer science majors.

**Student Organizations:**
- Association for Computing Machinery: ACM and ACM-W student chapters
- CyberEagles Club
- Women in CyberSecurity (WiCyS) student chapter
- Data Science League
- Game Development Club
- Graduate Student Club
- Autonomous Robotics Club
- Nationally ranked cyber competition teams

**Fast Track to Master’s Degree:**
Get a head start on your master’s in Computer Science through our Fast Track program, which allows you to take courses that satisfy requirements for both undergraduate and graduate degrees at undergraduate cost.

**Concentrations:**
- Data Science and Artificial Intelligence
- High Performance Computing
- Information Assurance and Cybersecurity

**Diversity:**
We encourage and celebrate diverse faculty, staff and students.

**Faculty-Led Centers:**
- Data Science Collaboratory
- Cybersecurity Education, Research and Outreach Center (CEROC) (NCAE-C CD designated)

**Enhanced Environment:**
Bruner Hall features newly renovated classrooms, research labs and student lounges. Clement Hall houses an expanded CEROC Cyber Range.

**Showcasing Knowledge:**
Students have opportunities to prove their technical and professional skills through numerous competitions and exhibitions.

**Scholarships:**
CyberCorps Scholarship for Service (largest in Tennessee, among top five in nation), Department of Defense Cyber Scholarship Program, Mary Patterson Scholarship, Bernice Kasbaum-Brooks Scholarship, Blue Cross Blue Shield Diversity Scholarship, and Boshart-Kosa Academic Excellence Scholarship.
Artificial intelligence research may help with Alzheimer’s disease
Blood pressure e-tattoo promises continuous, unobtrusive monitoring
New methods could improve security of two-factor authentication systems
Cryptography security enhanced through zero-knowledge schemes
Researchers receive NSF grant to enhance security of next-generation wireless systems
New Assistant Professors

Dr. Tao Hou: Ph.D. University of South Florida; Network security, software security, and machine learning for cybersecurity.

Dr. Heena Rathore: Ph.D. Indian Institute of Technology; Cognitive AI, cyber physical system security, and biologically inspired algorithms.

Dr. Lu Wang: Ph.D. University of Toronto; Data science, health and bioinformatics, human-centered AI, and machine learning.

Organizational News

We have multiple programs to increase opportunities for underrepresented groups in Computer Science:

- The continuation of Meta’s Engineer in Residence program. In Fall 2022, Laith Hasanian is teaching full time on campus and connecting with students.
- A partnership with CodePath, whose mission is to eliminate inequity within technical careers.
- A diagnostics project with Northeastern University’s Center for Inclusive Computing to help increase the representation of women in Computer Science.

- The Computer Science program is highlighted as an Excellent Program in the Texas Higher Education Coordinating Board Accountability System.
- The department hosted 12 distinguished scientists from eight DOE laboratories to connect Texas State students with innovative DOE research, resources, and internship opportunities.

Student Highlights

- Yiqian Liu and Noushin Azami along with their advisor, Dr. Martin Burtscher, won the Best Paper Award of ISPASS-2022.
- Chase Phelps, Arunavo Dey, and Alicia Guite participated in the Sustainable Research Path program at Brookhaven National Laboratory.
- Chase Phelps was also recognized by Lawrence Livermore National Laboratory as a contributor to a prototype adopted for their Exascale Checkpoint Restart Service.

Faculty Highlights

- Dr. Tanzima Islam awarded the 2022 Early Career Award by the Department of Energy (DOE). She also received a research grant from AMD for her work on performance analysis using machine learning.
- Dr. Anne Ngu awarded the 2021 Texas State University Presidential Distinction Award for Excellence in Scholarly and Creative Activities.
- Dr. Vangelis Metsis and Dr. Jill Seaman awarded the 2021 Texas State University Presidential Distinction Award for Excellence in Teaching.
- Dr. Ziliang Zong received funding from the Microsoft AI for Earth program. He also received a grant from the Green Software Foundation.
- Dr. Jelena Tesic received a grant from the Texas Department of Transportation (TXDOT) for developing AI-based pavement condition assessment techniques.
- Dr. Dan Tamir received a grant from the Department of Homeland Security (DHS) to continue his DHS Summer Research Team work on distributed ledger technology use within the DHS.

Numbers

<table>
<thead>
<tr>
<th>Undergraduate Students</th>
<th>Master’s Students</th>
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<td>1,547</td>
<td>195</td>
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<th>Ph.D. Students</th>
<th>Tenured/Tenure-Track Faculty</th>
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<tr>
<td>43</td>
<td>22</td>
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Recent Faculty Hire

Tianxi Ji - Assistant Professor
Ph.D., Computer Engineering, Case Western Reserve University (2022)
Data Security and Privacy, Wireless Communication, Federated Learning

Research Highlights

$3M National Science Foundation grant on developing a novel data science introduction course and studying its impact on students’ learning of data science and its foundations in computer science, mathematics, & statistics (Drs. Zhang and Sheng with investigators from Concord Consortium and University of Florida)

National Science Foundation grant on improving the deployment of base stations within a cellular network (Dr. Wei with investigator from Mississippi State University)

Research grants from U.S. Army and AVX aircraft company on validating the aircraft health metrics and investigating integrity & quality issues of aviation logistics and maintenance data (Dr. Dang)

Organizational News

Accelerating Impact through Partnerships
National Science Foundation Phase-II IUCRC Center on Cloud and Autonomic Computing conducts fundamental research and development in collaboration with University of Arizona and industry and government partners, including the National Security Agency, Los Alamos National Laboratory, Dell EMC, Lancium, Lubbock County, Naval Information Warfare Center, Monsoon, Blackfuir, Legendary, and Defense Information Systems Agency.

Degrees Offered

- Bachelor of Science in CS
- Master of Science in CS
- Master of Science in Software & Security Engineering
- Doctor of Philosophy (PhD) in CS
- Certificate in Software Engineering
- Certificate in Security

Tier One Research University

Carnegie Classification of Very High Research Activity University
Texas Tech University surpassed the $100 million mark in sponsored research awards in 2021, including a record of more than $50 million in federal awards and with total research expenditures equaling $191.3 million.

We have faculty openings!
We hire at all ranks
Visit us at: www.cs.ttu.edu

HSI Hispanic Serving Institution
Texas Tech University offers a comprehensive series of programs, services, initiatives, and organizations to underrepresented students, students of color, and first-generation students.

Degrees Awarded

Undergraduate Degree
152

Graduate Degree
52

Undergraduate Student Enrollment
900

Graduate Student Enrollment
564

Last Year
167

268

Visit us at www.cs.ttu.edu

www.cs.ttu.edu
From here, it’s possible.
New Faculty Hires:

Sam Buchanan
Research Assistant Professor (PhD Columbia)
Machine Learning; Analysis of algorithms for high-dimensional data with low-dimensional structure

Lee Cohen
Research Assistant Professor (PhD Tel-Aviv University)
Learning Theory, with a particular interest in problems that relate to societal challenges.

Saeed Sharifi-Malvajerdi
Research Assistant Professor (PhD University of Pennsylvania)
Machine Learning with Ethical and Societal Constraints, including Fairness, Privacy, and Data Deletion.

Ohad Trabelsi
Research Assistant Professor (PhD Weizmann)
Fine-Grained Complexity and Design of Algorithms; Network Flow and related problems

Ali Vakilian
Research Assistant Professor (PhD MIT)
Design and Analysis Algorithms for Massive Data, Learning Based Algorithm Design, Algorithmic Fairness

Research Highlights:

- Prof. Karen Livescu was chosen as IEEE SPS Distinguished Lecturer and as Program Co-Chair for Interspeech 2022.
- Prof. Avrim Blum received the ACM Paris Kanellakis Theory and Practice Award.
- Student Melissa Greuter was awarded an NSF CSGrad4US Award.
- Profs. Kevin Gimpel and Karen Livescu, student Shubham Toshniwal and collaborators received a Best Short Paper award at the 4th Workshop on Computational Models of Reference, Anaphora, and Coreference.
- President Matthew Turk was appointed to the CRA’s Computing Community Consortium Council.
- TTIC faculty and students published in major research venues including AAAI, ACL, AISTATS, Bioinformatics, COLT, CVPR, EC, FAccT, Field Robotics, FOCS, FORC, ICASSP, ICLR, ICML, ICRA, ITCS, NAACL, NeurIPS, PLoS Computational Biology, RSS, SICOMP, SODA, and STOC.
- TTIC faculty received significant funding awards from the NSF, NIH, DARPA, the Simons Foundation, and many corporate sponsors. TTIC is also proud to be part of an NSF TRIPODS Phase II award.

2022 PhD Graduates:

Congratulations to 2022 PhD graduates Mingda Chen (advised by Kevin Gimpel), Chip Schaff (advised by Matt Walter), Shubham Toshniwal (advised by Kevin Gimpel and Karen Livescu) and Igor Vasiljevic (advised by Greg Shakhnarovich).

Research Assistant Professor Placements:

- Brian Bullins joined Purdue as an Assistant Professor
- Audrey Sedal joined McGill as an Assistant Professor
- Bradly Stadie joined Northwestern as an Assistant Professor
- Saeed Sedighin joined Jump Trading
- Raymond Yeh joined Purdue as an Assistant Professor
- Mike Yu joined Amazon as a Senior Applied Scientist

By the Numbers:

- Fall 2022 Students: 40
- Research Assistant Professors: 9
- Tenured and tenure-track faculty: 12
Fall 2022 Department Highlights
University at Buffalo Department of Computer Science and Engineering

Department News

- **Siwei Lyu** and **Shambu Upadhyaya** selected as Institute of Electrical and Electronics Engineers (IEEE) Fellows.
- **Siwei Lyu** selected as International Association for Pattern Recognition (IAPR) Fellow.
- **Nalini Ratha** selected as an NAI member.
- **Atri Rudra** and **Junsong Yuan** awarded SUNY Chancellor’s Awards.
- **Chunming Qiao** named the recipient of the IEEE Communications Society Optical Networking Technical Committee Outstanding Achievement Award.
- **Atri Rudra** received the 2022 ACM PODS Alberto O. Mendelzon Test-of-Time Award for his ACM PODS 2012 paper titled “Worst-case Optimal Join Algorithms” co-authored with Hung Ngo, Ely Porat and Christopher Re (which also had won the PODS 2012 best paper award).
- UB’s Center for Information Integrity (CII), led by **Siwei Lyu**, will conduct convergence research focusing on combating online mis/dis/malinformation.
- UB’s Center for Embodied Autonomy and Robotics (CEAR), led by **Karthik Dantu**, brings together researchers in robotics and autonomy from all schools at UB and facilitates interdisciplinary research, teaching and industry interaction.

Expanding Department

- **Tom Hayes**: Associate Professor
- **Andrew Hirsch**: Assistant Professor
- **Kaiyi Ji**: Assistant Professor
- **Haoran Lu**: Assistant Professor
- **Eric Mikida**: Assistant Professor of Teaching
- **Chen Wang**: Assistant Professor
- **Yaxiong Xie**: Assistant Professor

Awards and Recognitions

- **Siwei Lyu** awarded the Convergence Accelerator Phase-II project - A multi-disciplinary and multi-institute research team has been awarded a two-year, $5 million National Science Foundation Convergence Accelerator grant to create digital tools that help older adults better recognize and protect themselves from online deceptions and other forms of disinformation.

- **Kenny Joseph** awarded the National Science Foundation (NSF) CAREER award. He received a $574,710 award for his project, entitled “Promoting Equal Opportunities through Measurement, Simulation, and Education.”

BY THE NUMBERS

$15M new research awards (2021-2022)

57 faculty members

2800+ graduate and undergraduate students

engineering.buffalo.edu/cse
According to csrankings.org as of September 2022, the department ranks:

- #6 in Canada for computing science.
- #9 in the world in the combined areas of artificial intelligence, machine learning, and data mining.

$18M+

in research funding

2,200+

undergraduate students in all programs in 2022/23

400+

graduate students

53

faculty members (11 assist., 8 assoc. and 34 full), and 19 adjunct professors

RECENTLY ADDED FACULTY MEMBERS:

- Levi Lelis (Assist. Prof., PhD U Alberta, 2013)
- Nidhi Hegde (Assoc. Prof., PhD U Missouri-Kansas City, 2000)
- Matt Taylor (Assoc. Prof., PhD U Texas at Austin, 2008)
- Xiaqi Tan (Assist. Prof., PhD HKUST, 2018)
- Euijin Choo (Assist Prof., PhD North Carolina State U., 2015)

- Natural Language Processing breakthrough in decoding the 15th century (no longer!) mysterious Voynich manuscript.
- Creators of Coursera-hosted highly popular MOOCspecializations in Software Product Management, Software Design and Architecture, and Reinforcement Learning, and the Problem Solving, Python programming, and Video Games MOOC.
- Changing Edmonton’s high tech landscape by attracting major research collaborators such as DeepMind, Scotia Bank, Mitsubishi, IBM Centre for Advanced Studies, among others.

- Home of the Alberta Machine Intelligence Institute, one of three federally funded institutes in Canada for advancing artificial intelligence and machine learning research.
- Co-founder of highly popular Certificate in Game Design program.
- Excellence in games research (e.g., Poker, Go, Hex, Skat)
- Our students are routinely recruited by top companies such as Google, Facebook, Amazon, Twitter, Microsoft, and IBM, and by a vibrant, local startup ecosystem, involving companies such as Jobber and AltaML.
- Professor Rich Sutton, one of the founders of reinforcement learning, elected as a fellow of the Royal Society of London.
- Associate Professor Karim Ali, AITO Dahl-Nygaard Junior Prize 2021
- Professor Nelson Amaral, SPEC Presidential Award 2022
- Professor Mike Bowling, elected as a Fellow of the Association for the Advancement of Artificial Intelligence (AAAI)
- Assistant Professor Alona Fyshe, Women in AI Awards (North America) 2022, and Edmonton Edify “Top 40 under 40” 2020
- Professor Russ Greiner, Canadian Artificial Intelligence Association (CAIAC) Lifetime Achievement Award 2021
- Associate Professor Martha White, named by IEEE Intelligent Systems in its “AI’s 10 to Watch” 2020

Edmonton, Alberta, Canada
ualberta.ca/computing-science
By the Numbers

Faculty: 28
Research Funding: $3.7 million
Undergraduate Students: 1,668
Graduate Students: 89

Connect

520.621.4632
1040 E. 4th Street
P.O. Box 210077
Tucson, AZ 85721

Research Faculty

Kobus Barnard
Eduardo Blanco
Lei Cao
Christian Collberg
Saumya Debray
Alon Efrat
Chris Gniady
Kwang-Sung Jun
John Kececioglu
Stephen Kobourov
Joshua Levine
David Lowenthal
Jason Pacheco
Todd Proebsting
Sazzadur Rahaman
Michelle Strout
Mihai Surdeanu
Beichuan Zhang
Chicheng Zhang

Awards and Recognition

Dr. Katherine Isaacs - DOE Early Career Research Award and NSF Career Award
Dr. Joshua Levine - DOE Early Career Research Award
Dr. Michelle Strout - Then and Now DOE Early Career Award
Staci Smith, PhD, 2020 and Dr. David Lowenthal - Best Paper, ACM HPDC 2021
Rebecca Faust, PhD, 2021 - 2021 Computing Innovations Fellow

New Faculty

Eduardo Blanco
Associate Professor
PhD Univ. of Texas

Lei Cao
Assistant Professor
PhD Worcester Poly.

Janalee O'bagy
Assistant Professor of Practice
PhD Univ. of Arizona

Adriana Picoral
Assistant Professor of Practice
PhD Univ. of Arizona

Broadening Participation

The department is committed to broadening participation in computing. See our Broadening Participation in Computing Plan for more information.
In the Department of Computer Science and Computer Engineering, faculty and students are working to improve existing technology and create the next generation of computing hardware and software. This department is the largest in the college in terms of student enrollment, with two undergraduate programs, a graduate certificate program, two M.S. programs, and two Ph.D. programs. In the Computer Science program, students develop skills needed to deliver high-quality software tools that industries and organizations depend on, while also considering scheduling and budgetary concerns. Computer Engineering students design computer products that are efficient and secure. Faculty in the department are focusing on cutting-edge technology areas such as artificial intelligence, big data, and cybersecurity. In recent years, new research centers created within the department have begun to tackle some of the most pressing issues in the digital world, finding ways to organize and interpret large amounts of data, and protecting the security and privacy of organizations and individuals.

Research Areas

- Cybersecurity
- Big Data, Data Analytics, and Blockchain
- Machine Learning and Quantum Machine Learning
- Computer Vision and Image Processing
- Trustworthy and Responsible Artificial Intelligence
- Computer System Design and High-Performance Computing
- Deep Learning and Natural Language Processing
- Algorithmic Self-Assembly and Biomolecular Computing
- Computer-Aided Design

Degrees Offered

Undergraduate Programs
- B.S. in Computer Science
- B. S. in Computer Engineering
- B. A. in Computer Science

Graduate Programs
- M.S. in Computer Science
- M.S. in Computer Engineering
- Ph.D. in Computer Science
- Ph.D. in Computer Engineering

BY THE NUMBERS

- 22 Faculty
- 624 Undergraduate
- 83 Graduate

*Numbers are based on Fall 2021-Spring 2022 data reported by the Office of Institutional Research and Assessment (oir.uark.edu)
Improving human experiences through computer science

STRENGTH IN NUMBERS

Over $9.2M received in research grants in FY 2021/2022
Over 2,700 undergraduate students
32% of undergraduate students identify as female
248 graduate students
21st best computer science university department worldwide*

PEOPLE POWER:

RECENT ACCOLADES

Cristina Conati • Educational Data Mining Test of Time Award
Chen Greif • SIAM Fellow
Michiel van de Panne • SIGGRAPH Computer Graphics Achievement Award
Alla Sheffer • ACM Fellow
Best & impact papers from: CSCW, DIS, HotStorage, ICSE, ISAL, QRS

RECENT NEWS HIGHLIGHTS

Strong showing at top venues. Six papers at SIGGRAPH; seven papers at NeurIPS; eight papers at CVPR.

UBC CS has 25 of the world’s top 2 per cent most cited scientists. The top 2 per cent of the world’s most-cited computer scientists are at UBC, which equates to 40 per cent of the department’s entire faculty body.

Startup success stories for UBC CS alums. Alum Ryan Wong’s company, Visier, is now valued at $1 billion. UBC CS spinoff company Tasktop gained a $100M investment and was bought by Planview. Its alum CEO/CTO Mik Kersten created a scholarship from book proceeds. Spare, co-founded by alums Josh Andrews and Alexey Indeev, partnered with Lyft.

UBC’s Capture the Flag team won first at DEF CON. The Maple Mallard Magistrates took first place at the world’s #1 CTF cybersecurity competition.

Daochen Wang
Assistant Professor; Quantum Computation

Shengjia Zhao
Assistant Professor; Reliable and Aligned AI

FRESH TALENT

We’re hiring the best and brightest.

www.cs.ubc.ca
September 2022
UC Berkeley’s Department of Electrical Engineering and Computer Sciences (EECS) houses top-ranked programs that attract stellar students and professors from around the world, pioneering the frontiers of information science and technology with broad impacts on society. As the largest and one of the most distinguished departments on the Berkeley campus, EECS has been at the forefront of research that has led to important advancements in semiconductor and MEMS devices, design technology, computer architecture, operating systems and databases, and wired and wireless networking. Our graduates now make up the core of today’s technology industry.

Did you know?

- UNIX, the industry standard operating system for workstation and networked computing and a key component in the internet’s infrastructure, got its start when Berkeley electrical engineering graduate student Kenneth Thompson and Bell Lab scientist Dennis Ritchie wanted to play a computer game on an old mainframe computer.

- Bill Joy, co-founder of Sun Microsystems and dubbed the “Edison of the Internet,” developed Berkeley UNIX and the Berkeley Software Distribution System while he was an EECS graduate student. This marked the start of the open-source movement.

- EECS professor David Patterson directed the “reduced instruction set computer” (RISC) project at Berkeley, making CPUs faster and more efficient. Today, 99% of the 16 billion microprocessors produced annually are RISC processors. In 2018, Patterson and Stanford’s John Hennessy won a Turing Award, the Nobel Prize of computing, for this work.
Advancing knowledge and practice wherever people interact with information and technology.

The UC Berkeley School of Information is a graduate research and education community committed to expanding access to information and to improving its usability, reliability, and credibility while preserving security and privacy.

1,300+ students enrolled across all I School programs, as of Fall 2022. Our largest enrollment to date and a growth of about 100 students since Fall 2021

#1 ranked* online master’s program in cybersecurity (Master of Information and Cybersecurity)

#2 ranked* online master’s program in data science (Master of Information and Data Science)

*according to recent analysis by Fortune Magazine

**Our Programs**

- Master of Information Management and Systems (MIMS) — Educating information professionals to provide leadership for an info-driven world.
- Ph.D. in Information Science — A research program for next-generation scholars of the information age.
- Master of Information and Data Science (MIDS) — Online degree preparing data science professionals to solve real-world problems.
- 5th Year Master of Information and Data Science (5YMIDS) — Online degree training UC Berkeley undergraduates for data science careers.
- Master of Information and Cybersecurity (MICS) — Online degree preparing cybersecurity leaders for complex cybersecurity challenges.

**Recent Research, Funding, & Awards**

An article by Dr. Joshua Blumenstock and Ph.D. student Emily Aiken, was featured on the cover of Nature: “Machine learning and phone data can improve targeting of humanitarian aid.”

Dr. Niloufar Salehi was accepted in March to the William T. Grant Scholars Program class of 2027.

A group of UC Berkeley researchers, including I School Professors Aditya Parameswaran and Niloufar Salehi, received a 3-year, $2 million NSF grant to improve the useability of big criminal justice datasets for public defenders and others.

Dr. Morgan G. Ames has been awarded the 2021 Computer History Museum Prize for her book The Charisma Machine: The Life, Death, and Legacy of One Laptop per Child (MIT Press, 2019).

Citizen Clinic, a public interest cybersecurity clinic at the School of Information, received a 1.9 million boost from craigslist founder Craig Newmark for University Cybersecurity Clinics.

**Recent Ph.D. Placements**

- Richmond Wong (’20)
  Assistant Professor, Georgia Tech
- Nick Doty (’20)
  Senior Fellow, Center for Democracy and Technology
- Noura Howell (’20)
  Assistant Professor, Georgia Tech
- Sarah Van Wart (’20)
  Assistant Professor, University of North Carolina, Asheville
- Doris Lee (’21)
  Founder and CEO, Ponder

**Fall 2022 Distinguished Lecture Series: Trustworthy Information**

In a new speaker series, five luminaries in their fields will discuss the challenges of battling misinformation and the path to more trustworthy information from the perspectives of psychology, social media studies, information visualization, and image analysis.

- Sep. 28: Hany Farid, UC Berkeley
- Oct. 26: Jeff Hancock, Stanford
- Nov. 9: Jessica Hullman, Northwestern
- Nov. 16: Kate Starbird, University of Washington
- Nov. 30: David Rand, MIT
The world-class Department of Computer Science in the College of Engineering at University of California, Davis is known for high quality and impactful research by its internationally-recognized faculty in all areas of computer science and we adhere to a long-standing commitment to quality teaching and advising both at the graduate and undergraduate levels. Our undergraduate program enriches students with strong research experiences and a curriculum that provides significant flexibility in course selection and electives, and integrates fundamentals, application and ethics within individual courses. The graduate program, supported in coordination with the Graduate Group in Computer Science (GGCS), features foundational and advanced courses in all areas of computer science. Our graduate students have the opportunity to participate in faculty research programs in all core computer science areas and challenging and impactful interdisciplinary projects, both of which are supported by grants from government agencies and industry.

Enrollment

<table>
<thead>
<tr>
<th>Total Enrollment</th>
<th>1,790</th>
</tr>
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<tbody>
<tr>
<td>Undergraduate</td>
<td>1,470</td>
</tr>
<tr>
<td>Graduate</td>
<td>320</td>
</tr>
</tbody>
</table>

Average Time to Degree

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>3.8 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D.</td>
<td>5.5 years</td>
</tr>
</tbody>
</table>

39 faculty
3 Association for Computing Machinery Fellows
6 Institute of Electrical and Electronics Engineers fellows

Rankings

#29 Undergraduate Program (U.S. News & World Report, 2023)
#43 Graduate Program (U.S. News & World Report, 2022)

NEW FACULTY

- Isaac Kim: Quantum Computing
- Slobodan Mitrović: Neural Networks
- Hamed Pirsiavash: Computer Vision
- Jiawei Zhang: Graph Data

ACCOLADES

- Matt Bishop: IEEE Taylor L. Booth Education Award
- Raissa D’Souza: NetSci Outstanding Service Award
- Prem Devanbu: Alexander von Humboldt Research Award
- Jason Lowe-Power: NSF CAREER Award
- Chris Nitta & Team: DOE EcoCAR EV Challenge

$7,712,734 in research expenditures (2020-2021)
35,856 square feet of space
With almost 60 full-time faculty members, 200+ Ph.D. students and 250+ Master’s students in two programs (professional MCS & research-oriented MS), and 2,300+ undergraduates, UC Irvine’s Department of Computer Science provides a world-class research environment spanning not only the core areas of computer science — including computer architecture, system software, networking and distributed computing, data and information systems, the theory of computation, AI/ML, and computer graphics — but also highly interdisciplinary programs, such as biomedical informatics, data mining, security and privacy, and ubiquitous computing.

- Computer Science is UC Irvine’s 2nd largest undergraduate major
- Top 15 Computer Science Graduate and Undergraduate Programs among public universities (U.S. News & World Report)
- Faculty Honors: 2 NAE Members, 14 ACM Fellows, 11 IEEE Fellows, 14 AAAS Fellows, and many other international award winners

Faculty Highlights

Michael Franz
Doctor of Technical Sciences, ETH Zurich, the Swiss Federal Institute of Technology
**Building Faster and Safer Software**
2020 ACM Breakthrough in Computing Award

Sameer Singh
Ph.D., University of Massachusetts Amherst
**Designing Robust NLP and ML Algorithms**
2021 NSF CAREER Award

Jing Zhang
Ph.D., University of Southern California
**Developing Methods to Analyze Gene Regulation and Genetic Variations**

Stephan Mandt
Ph.D., University of Cologne
**Researching Bayesian Deep Learning**
2021 NSF CAREER Award

Vijay Vazirani
Ph.D., UC Berkeley
**Solving Algorithmic Problems in Economics and Game Theory**

Sangeetha Abdu Jyothi
Ph.D., University of Illinois, Urbana-Champaign
**Researching Problems at the Intersection of Systems, Networks and ML**

Ardalan Amiri Sani
Ph.D., Rice University
**Building Trustworthy Systems**
2019 NSF CAREER Award

Sang-Woo Jun
Ph.D., MIT
**Designing High-Performance Computational Storage**

Mohsen Imani
Ph.D., UC San Diego
**Building Bio-Inspired Architectures and Systems**

Ioannis Panageas
Ph.D., Georgia Tech
**Applying Theory of Dynamical Systems to Algorithms and Machine Learning**

Alex Berg
Ph.D., UC Berkeley
**Working on Computer Vision and Machine Learning**

Faisal Nawab
Ph.D., UC Santa Barbara
**Applying Data Science in the Context of Autonomous Applications**

Faculty Highlights
Breathing Life Into Technology
With more than 30 full-time faculty members, 80+ Ph.D. students, 30+ Master’s students, and 800+ undergraduates, UC Irvine’s Department of Informatics 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.

Investing in Digital Ethics
UCI’s Donald Bren School of Information and Computer Sciences established the Steckler Center for Responsible, Ethical, and Accessible Technology (CREATE, create.ics.uci.edu) in 2020 to build on its decades-long history of research leadership on the social implications of digital technology. Led by Chancellor’s Professor of Informatics Paul Dourish, who is serving as CREATE’s founding director, the center promotes research and education into the challenges of creating technological futures that produce positive change in the world, focused on principles of equity, accountability, and care. As it continues to grow, CREATE will house a community of scholars whose research draws on a range of disciplines, including information science, computer science, science and technology studies, law, anthropology, media studies, sociology, philosophy, political science, and economics.

How We Imagine the World
With technology impacting and enabling so much of our lives, our faculty shared how they imagine a world where …

- “… technology integrates, instead of isolates, people with disabilities.”
  Stacy Branham

- “… everyone can feel safe and secure in their digital experiences.”
  Sam Malek

- “… our technologies strengthen (rather than undermine) democracy, equality, and mutual respect.”
  Constance Steinkuehler

- “… technology minimizes (not creates) barriers to services for physical and mental health for all people.”
  Madhu Reddy

- “… communication technologies help people live more sustainable and fulfilling lives rather than undermine our expectations of ourselves and each other.”
  Melissa Mazmanian

- “… the trailblazing term Informatics continues to redefine the jobs and workplaces of the future.”
  Hadar Ziv

- “… individuals can better manage their health and wellness without much burden.”
  Yunan Chen

- “… the creators of new technology are armed with the information and insights needed to design a more equitable world.”
  Kylie Peppler

- “… where you can be virtually anywhere on Earth and beyond, with anyone you want, whenever you want, without having to physically travel.”
  Crista Lopes

- “… technology helps create futures that benefit all species, including humans.”
  Bill Tomlinson

informatics.uci.edu
**NEW FACULTY**

- **Bolei Zhou**
  Computer Vision and Machine Learning
  PhD, MIT 2018

- **Aditya Grover**
  AI and Machine Learning
  PhD, Stanford 2020

**PLACEMENTS IN ACADEMIA**

In the 2021-22 hiring season our PhDs and postdocs were hired as faculty at the following institutions:

- Arizona State University
- Harvey Mudd College
- Institute of Computing Technology, Chinese Academy of Sciences
- New York University
- University of California, Riverside
- University of Hong Kong
- University of Michigan
- University of Southern California
- University of Toronto
- Yale University

**AWARDS AND HONORS**

- NSF CAREER Award: Baharan Mirzasoleiman
- Sloan Fellowship: Quanquan Gu
- Fellow of the ACM and of the AAAS: Rafail Ostrovsky
- American Academy of Arts and Sciences Member: George Varghese
- National Academy of Inventors Fellow: Majid Sarrafzadeh
- IEEE Robert Noyce Medal: Jason Cong
- Michael and Sheila Held Prize from the National Academy of Sciences: Amit Sahai
- Computer History Museum Fellow: Leonard Kleinrock
- Internet Hall of Fame inductees: George Varghese and Lixia Zhang
- Best Paper / Test of Time Awards at NeurIPS 2021, OSDI 2022, NAACL 2022, EUROCRYPT 2022, FPGA 2022, VLDB 2022

**RANKINGS**

- **US News**: UCLA is the #1 public university in the country
- **UCLA CS is ranked #11 overall**
- **csrankings.org**: #1 in Cryptography, #2 in Comp. bio & bioinformatics, #3 in Artificial intelligence, #6 in Design automation, #7 in Machine learning & data mining

**CS.UCLA.EDU**
GROWING FAST AND BREAKING RECORDS

42 FACULTY MEMBERS
$26M RESEARCH FUNDING
189 PH.D. STUDENTS
482 M.S. STUDENTS
1,879 B.S. STUDENTS

FEATURED NEWS

ANOTHER YEAR OF STELLAR HIRING
- CSE welcomes four new faculty this year: The department is thrilled to incorporate four new faculty members this coming year: Qian Zhang, Mingxun Wang, Greg Ver Steeg, and Yue Dong.

OUR MAJOR EDUCATIONAL AND OUTREACH EFFORTS
- A $2.1M in new awards to improve inclusivity in CS. A new series of grants shine a spotlight on broadening participation in the computing profession.
- Summer programs. Our summer of coding included: a) Data Science bootcamp 2022, b) Summer Code Camp 2022: The camps introduce students to data science and programming.

ANOTHER YEAR OF GREAT RESEARCH FUNDING
- Another record-breaking year for funding: 34 awards totaling $26M in the last academic year.
- CSE Prof. Lonardi received a $3.2M NIH's Transformative Research grant from NIH Director’s Transformative Research program on using AI originally developed for producing deep-fake videos to stop future pandemics.
- CSE Prof. Faloutsos got a $1M grant to enhance the sustainability of the California Citrus industry (with UCR Profs. Pagliaccia and Borneman).
- Three more CSE professors got the NSF CAREER award! Congratulations to Profs Papalexakis, Song, and Eldawy.

FACULTY ACCOMPLISHMENTS AND DISTINCTIONS
- CSE Prof. Lesani received the DARPA YFA (Young Faculty Award) for his research on "Information and Vulnerability Flow Type Systems".
- UCR-grown startup placed 2nd at the USA World Cup Championship. FarmSense was founded by CSE Profs. Keogh and Dr. Singh (UCR).
- CSE Prof. Papalexakis receives Next Generation Data Scientist Award from the IEEE International Conference on Data Science and Advanced Analytics.

STUDENT SUCCESS AND HIGHLIGHTS
- A team of students and postdocs led by Prof. Keogh won the ACM SIGKDD Test-of-Time Award, which recognizes outstanding papers from past KDD Conferences beyond the last decade.
- Ph.D Student Won 3rd Place in ACM Student Research Competition: CSE Ph.D student Madhurima Chakraborty took third place in the ACM Student Research Competition (SRC) for 2022!
- UCR places first in cyber defense competition: Members of Cyber@UCR's Cyber Defense team took home first place at the Lockdown v12 Cyber Defense Competition hosted by the University of Buffalo.
NEW FACULTY

Michael Coblenz  
Software Engineering

Earlence Fernandes  
System Security

Daniel Grier  
Quantum Computing

Amy Ousterhout  
Computer Systems

Barna Saha  
Theoretical Computer Science

FACULTY AWARDS & HONORS

Our faculty members in the 2021-2022 academic year once again received national recognition for contributions to their fields and society. Highlights include:

Christine Alvarado  
NCWIT Joanne McGrath Cohoon Service Award

Shachar Lovett  
Simons Foundation Investigator Award

Yuanyuan (YY) Zhou  
ASPLOS Most Influential Paper

Dean Tullsen  
MICRO Test-of-Time

Nadia Heninger  
USENIX Security Test-of-Time Award

Mihir Bellare  
IACR Test-of-Time

Ranjit Jhala, Tajana Simunic, Rosing  
ACM Fellows

Dejan Stefan  
Alfred P. Sloan Research Fellowship

Geoff Voelker, Stefan Savage  
IEEE Security and Privacy Test-of-Time

Taylor Berg-Kirkpatrick, Ndapa Nakashole, Rose Yu  
NSF CAREER

CSE RESEARCH INNOVATION & IMPACT

Computer Scientist Plays Major Role in $25M Cancer Grand Challenges Project

Vineet Bafna is part of a team of world-class researchers that has been awarded a five-year grant to learn how extrachromosomal DNA (ecDNA), a destructive genetic lesion, influences numerous cancers and to identify possible therapies.

Introducing EnCORE

A new NSF initiative has created a $10 million dollar institute, EnCORE, led by computer and data scientists at UC San Diego that aims to transform the core fundamentals of the rapidly emerging field of Data Science.

Mission Critical

Laurel Riek has received a $7.5 million grant from the Department of Defense MURI program to look at how humans and robots can work together more effectively during an emergency or disaster.

For a complete list of CSE faculty awards, visit cse.ucsd.edu/faculty-research/faculty-awards
Our department resides in both Silicon Valley and Santa Cruz, housing faculty within multiple interdisciplinary areas connecting Human-Computer Interaction, Artificial Intelligence, Games Research, Human-Robot Interactions, and the Humanities.

- #1 Academic Program in Games**
- #2 Game Design MS Program (Animation Career Review)
- #5 Game Design Undergraduate Program (U.S. News and World Report)
- #15 Game Design MS Program (Princeton Review)

Research + Industry: We collaborate with industry and build innovations focusing on global issues with practical considerations, maximizing societal impact and minimizing social injustice.

- $3 million this past year from organizations such as NSF and JSMF
- Industry engagements with Honda, Microsoft, Google, NetEase, Truist, MasterCard, and many others
- Over 70 companies visit our campus each year to engage and collaborate with faculty and students

Interdisciplinary Approach to Education combining project-based and experiential learning

A total of 744 students in 5 programs: B.S. in Computer Science and Game Design, M.S. in Games and Playable Media, M.S. in HCI, M.S. and Ph.D. in Computational Media.

7 labs researching disciplines within Computational Media

Mad Mixologist: VR game designed by ALT Game Lab. Winner of multiple tech and research awards.

SWEL Camp, hosted by SET Lab

LUX: ARG designed by GULL and ID Labs

Spoke It: playful speech therapy by ASSIST Lab

* The Higher Education Video Game Alliance (HEVGA) Fellows Program recognizes senior scholars, elected by their peers, for outstanding games-based research, design, and theory.

** Based on number of papers published at conferences and journals dedicated to the technical portion of games and interactive entertainment research over the past 10 years.
Recent Major Investments: Artificial Intelligence and Digital Twins

The UCF Strategic Investment Program invests in academic activities to support President Alexander N. Cartwright’s vision that UCF will become a “University for the Future” as a top public institution and the world’s leading public metropolitan research university.

UCF seeks to be a leading artificial intelligence (AI) research and workforce provider in offering a top-quality education in AI for undergraduate and graduate students. Through the AI investment, nearly twenty AI tenure-track faculty will be hired at UCF.

UCF is also focused on digitally replicating real-world objects or systems to explore and improve concepts before spending time and money to physically build them. Through the Digital Twin investment, UCF will develop a framework and tools to enable governments, industry, and academia to create custom digital twins.

In January, Dr. Mubarak Shah was selected as an Association for Computing Machinery (ACM) Fellow for his contributions to human action recognition in video and his leadership in promoting undergraduate research.

In March, eight UCF computer science and business undergraduate students won 1st place at the second annual Hispanic Serving Institution (HSI) Battle of the Brains Competition.

In Fall 2022, UCF will receive $8.8M for its Digital Twin Initiative as part of the U.S. Department of Commerce’s $50.8M award to Osceola County to help lead the nation in semiconductor research, design, and manufacturing.

The National Science Foundation (NSF) announced a five-year award of $26M for a new NSF Engineering Research Center for Smart Streetscapes (CS3), spearheaded by Columbia University. UCF will address situational awareness.


New Degree Program

In Fall 2022, UCF launched its new MS in FinTech, which prepares students for careers applying the latest technological innovations to financial services.

UCF’s undergraduate and graduate degrees include:

- BS in Computer Science
- BS in Information Technology
- MS in Computer Science
- MS in Computer Vision
- MS in Cyber Security and Privacy
- MS in Data Analytics
- MS in Digital Forensics
- MS in FinTech
- PhD in Big Data Analytics
- PhD in Computer Science

This Fall, 3 new Assistant Professors have joined the UCF CS Department:

- Jongouk Choi, Ph.D. from Purdue
- Qian Luo, Ph.D. from Indiana
- Xueqiang Wang, Ph.D. from Indiana

Follow us on:

https://www.cs.ucf.edu
The ambitious expansion of the computer science program at the University of Chicago has built a world-class department. Since 2017, we have added 32 new full-time faculty, and this year’s hires bring new depth in security, data visualization, AI & machine learning, the economics of data, natural language processing, and data science education. The broad expertise and collaborative nature of our department has led to innovative, award-winning research, large grants funding visionary scientific agendas, prestigious appointments for our graduates, and new partnerships with industry and scholars from other fields. We hope you’ll join us in defining the future of computer and data science.

Michael J. Franklin, Liew Family Chair of Computer Science

News Highlights

Faculty Awards: Professor Ian Foster received the ACM/IEEE Ken Kennedy Award for his contributions to HPC and cloud computing as well as his community service and mentoring. Asst. Prof. Ken Nakagaki was named an "Innovator Under 35" by MIT Technology Review, featuring his work on tangible user interfaces, and Asst. Prof. Yanqing Li received an Under-40 Innovators Award from the Design Automation Conference.

Research Honors: Faculty and student research received awards at USENIX Security, PEARC, TQc, HPCA, OGE, and UIST conferences. Michael J. Franklin received the SIGMOD Systems Award, and Shan Lu received the Influential Paper award from ASPLOS.

Funded Collaborations: A $5 million NSF grant to UChicago CS faculty Haryadi Gunawi, Hank Hoffmann, and Shan Lu will develop a novel ecosystem for the development of extreme-scale systems, while a $3.5 million NSF grant to UChicago CS and Argonne National Laboratory will curate “gardens” for AI models used in scientific exploration.

Early-Career Awards: Asst. Prof. Junchen Jiang received the NSF CAREER award – one of six UChicago CS CAREER recipients in the 2021-2022 cycle – for his research on using machine learning to optimize video streaming experience. Asst. Prof. Pedro Lopes received the Sloan Research Fellowship for his work on human-computer integration and interactive devices.

Industries Partnerships: Assistant Professors Bill Fefferman and Chenhao Tan received Google Scholar Awards, and the Data Science Institute launched its Industry Affiliate Program with founding partners American Family Insurance, DRW, Prudential, and Verizon. Quantum computing startup Supertech, founded by PhD alumn Pranav Gokhale and Prof. Fred Chong, was acquired by quantum ecosystem leader ColdQuanta.

Student Achievements: Students received honors and awards including the DOE Computational Science Graduate Fellowship and the Siebel Scholarship, while PhD and postdoc alumni started faculty positions at Maryland, Ohio State, UNH, and Virginia Tech, and industry positions with IBM, ByteDance, Meta, Databricks, and Snowflake.

Faculty Fellowships: Liew Family Chair of Computer Science Michael Franklin was named a AAAS Fellow; Professor Ben Zhao was named an ACM Fellow; Professor Rebecca Willett was named an IEEE Fellow.

Affiliated Programs

Data Science Institute (DSI) A new initiative executing the University of Chicago’s bold, innovative vision of Data Science as an emerging discipline. The DSI seeds research on the interdisciplinary frontiers of the field, forms partnerships with industry, government, and social impact organizations, and supports holistic data science education.

Masters of Science in Computational Analysis and Public Policy (MSCAPP): A joint program with the Harris School of Public Policy training new leaders who will be prepared to translate expertise in data and evidence into effective policy solutions.

Masters Program in Computer Science (MPCS): Celebrating its 25th anniversary in 2022-23, MPCS offers a comprehensive and professionally-oriented computer science education that combines the foundations of computer science with the applied and in-demand skills necessary for careers in technology.

New Faculty

Department of Computer Science

Grant Ho
Area: Security
Title: Assistant Professor, CS
PhD: UC Berkeley
Previously: UCSD, Corelight Labs

Alex Kale
Area: Data Visualization
Title: Assistant Professor, CS & DSI
PhD: University of Washington

Haifeng Xu
Area: Machine Learning, Theory
Title: Assistant Professor, CS & DSI
PhD: UC
Previously: U. of Virginia, Harvard

Allyson Ettinger (co-appointment with Linguistics)
Area: Natural Language Processing
Title: Assistant Professor, CS & Linguistics
PhD: University of Maryland
Previously: TTIC

Data Science Institute

Aaron Schein
Area: Causal Inference, Machine Learning
Title: Assistant Professor, Statistics & DSI
PhD: UMass Amherst
Previously: Columbia University

Amy Nussbaum
Area: Statistics
Title: Assistant Instructional Professor, DSI
PhD: Southern Methodist University
Previously: Mount Holyoke College

Nick Ross
Area: Data Science Clinic
Title: Associate Senior Instructional Professor, DSI
PhD: UCLA
Previously: University of San Francisco, Industry

(CS = Computer Science, DSI = Data Science Institute)
UNIVERSITY OF CINCINNATI
SCHOOL OF INFORMATION TECHNOLOGY

COLLABORATIVE

- The School of Information Technology (SoIT) defines the IT Discipline as the study of solutions and needs that connect people, information, and the technology of the time.

- The SoIT revised its strategic plan, CREATE 2.0, and transitioned into a functional structure composed of a leadership team and six cross functional teams.

- The revised strategic plan introduced eight Core Values: Pursue Learning and Scholarship, Strive for Excellence, Embrace Freedom and Openness, Celebrate the Uniqueness of Each Individual, Seek Integrity, Accept Responsibility, Promote Justice, and Practice Civility.

RESPONSIVE

- SoIT staff members Kelly Broscheid and Alana Calhoun presented the story of the Early IT Program’s partnership with Cincinnati Public Schools (CPS) at the College Board A Dream Deferred Conference. The conference focused on the state of college readiness for African American students. The Early IT Program has partnerships with 13 community colleges, 43 school districts, three career centers, and three educational service centers across the state of Ohio.

- In July of 2022, an Ohio Cyber Reserve (OCR) team trained in a live Incident Response exercise, OpFor vs Blue, which was developed by the Ohio Cyber Range Institute (OCRI). The goal of this pilot exercise was to improve the OCR’s ability to conduct its mission while the OCRI developed its capability to provide a repeatable, tailored, challenging and realistic cyber incident exercise.

- SoIT faculty Murat Ozer is collaborating with the Ohio Department of Rehabilitation & Correction (ODRC) and Hamilton County Police Departments to conduct a pilot study to connect all disparate criminal justice data sources in one platform. This pilot study will promote evidence-informed decision/intervention targeting the multiple criminogenic needs of released offenders. The goal is to reduce recidivism and promote public safety through crime prevention.

ADVANCING

- The SoIT currently has two labs in the University of Cincinnati’s new Digital Futures Building: the Secure Cyber Lab and the Smart Synergies Lab. Digital Futures connects University of Cincinnati (UC) researchers and students with industry to focus on developing solutions to problems in the digital world.

- The Hacking for Defense (H4D) course is a national program that UC adopted in 2022. This university course is sponsored by the Department of Defense that teaches students how to work with the Defense and Intelligence Communities to rapidly address the nation’s emerging threats and security challenges.

- In 2021, the SoIT launched Ohio’s First Undergraduate and Graduate Cybercorps Scholarship for Service (SFS) Program through a $4M multi-year award from the National Science Foundation. Through the SFS program, the SoIT has been able to award full tuition scholarships and stipend packages to 20 students to support the U.S. National Cyber Strategy to develop a superior cybersecurity workforce.

$c4\text{ MILLION}$
External Funding Received

cech.uc.edu/it
Solving Problems with Technology
#WeAreIT

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UC School of Information Technology
Welcoming New Faculty Thought Leaders

Daniel Acuña
Science of science, computational discovery

Yueqi Chen
System and software security

Danna Gurari
Computer vision, analysis of visual information

Maribeth Oscamou
Data science and applied mathematics

Di Wu
Temporal databases, the semantic web, data science

Dan Larremore
2022 Alan T. Waterman Award winner
» Recognized for his world-class research on computational epidemiology and his work on the COVID-19 pandemic.
» Larremore’s research was instrumental in informing how COVID-19 vaccines were distributed and helping convince policymakers to prioritize rapid testing.

Leading in Innovative Research
Our faculty continue to attract multi-institutional research centers bringing in tens of millions of dollars in funding, including recent awards for tackling pressing socio-environmental challenges with big data analytics and the role of artificial intelligence in education. Learn more at colorado.edu/cs/research
» Environmental Data Science Innovation and Inclusion Lab
» NSF AI Institute for Student-AI Teaming
Just the Facts

2022

4 UNDERGRADUATE DEGREES
A traditional Bachelor’s, two minors and an accelerated Bachelor’s to Master’s degree

22% UNDERGRADUATE GROWTH
And, our largest group of Bachelor’s-Accelerated-Master’s students to date.

43 GRADUATE STUDENTS
Including 33 PhD and 10 Master’s students

3 NEWLY TENURED & PROMOTED FACULTY
We congratulate Jed Brubaker, Casey Fiesler and Steve Voida for receiving tenure and promotion to associate professor.

15 FACULTY MEMBERS
We welcome instructor faculty Shahzad Bhatti, Christopher Carruth and Abel Iyasele.

The Human Side of Data

Our interdisciplinary research—blending computing with social science and the humanities—investigates all aspects of human-data interaction. From health and community wellness to social equity and tech ethics, we use computing and data to address large societal issues.

Nationally Recognized Faculty
With one NSF Medium project under PIs Robin Burke and Amy Voida, and three NSF CAREER awards—to PI Jed Brubaker, PI Casey Fiesler, and PI Laura Devendorf—our faculty demonstrates their research is far-reaching, timely and nationally impactful.

Outstanding Graduate Student Achievements
We are thrilled to congratulate Janghee Cho, who won a Facebook/Meta Fellowship, and Jessie Smith, who won a Google Fellowship! Morgan Scheuerman continues his work as a Microsoft Fellow this year.

Our Faculty

Lecia Barker
Associate Professor
information technology education, women in computing

Robin Burke
Professor
rec sys, personalization, algorithmic fairness, digital humanities

Casey Fiesler
Founding Associate Professor
social computing, data & research ethics, internet law, fan

Leysia Palen
Professor, Founding Chairperson
crisis informatics, cooperative work, social computing

Amy Voida
Founding Associate Professor
philanthropic informatics, supporting technology use for non-profits

Shahzad Bhatti
Senior Instructor
quantitative reasoning, computational systems and machine learning

Christopher Carruth
Instructor
digital art, digital cultures, speculative design and pedagogy

Abel Iyasele
Instructor
law, finance, corporate behavior and performance

Ricarose Roque
Assistant Professor
learning, design, online communities, youth, creative computing

Steve Voida
Founding Associate Professor
information overload, information sharing, ubiquitous computing

Jed R. Brubaker
Founding Associate Professor
identity & data, social media, post-mortem data, marginalized users

Laura Devendorf
Assistant Professor, ATLAS Institute
design, human-machine interaction, computation and craft

Brian Keegan
Assistant Professor
computational social science, data science, large-scale collaboration

Bryan Semaan
Associate Professor
information technology to promote justice, fairness and equality

Jason Zietz
Instructor
computing for well-being, motivation, mindfulness

Connect with us:
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@cuinfoscience
The Department of CIS welcomes new hires

Dr. WEISONG SHI, an internationally renowned expert in edge computing, autonomous driving and connected health, has been named chair of the CIS department. Dr. Shi served as Associate Dean of Research and Graduate Studies of the College of Engineering at Wayne State University, NSF program director and chair of two technical committees of the IEEE Computer Society. He is a fellow of IEEE, and distinguished member of ACM.

Congratulations to our new NSF Career Award 2022 recipients!

Prof. Guangmo Tong
Enabling Combinatorial Decision Making in Stochastic Environments

Prof. Lena Mashayekhy
Towards Proactive and Collaborative Mobility-Aware Edge Intelligence

Quick facts

- 605 undergraduate, 27 MSc and 93 PhD students
- Funding from NSF, NIH, DOE, DOD, DHS, industry
- 33 full-time faculty (TT and CT)
- 40% of TT faculty received NSF Career awards

Research areas

- Artificial Intelligence
- Bioinformatics
- Computer Networks
- Computer Vision
- Cybersecurity
- Robotics
- Machine Learning
- Data Science
- Human-Computer Interaction
- High Performance Computing
- Quantum Computing
- Computer Science Education
- Natural Language Processing
- Software Engineering
- Theory of Computation
- Virtual Reality

(Under)graduate programs

- BSc/BA in Computer Science
- BSc in Information Systems
- MSc/PhD in Computer Science
- MSc in Bioinformatics and Computational Biology
- MSc in Data Science
- PhD in Bioinformatics Data Science
- PhD in Quantum Science and Engineering
- Certificates in Computer Science Education, Bioinformatics, Computational Science and Engineering

Selected Highlights

- Prof. Zhang awarded a named professorship from Daniel L. Chester who established multi-million-dollar fund for the CIS department
- Best student paper award from IEEE HPEC 2022. Leading student Cameron Ibrahim/Prof. Safro’s lab
- Prof. Pollock and Prof. Shanker received the Most Influential Paper award at IEEE/ACM ASE 2022

Innovation • Funding • Awards • Achievements • Honors

- Prof. Peng received the best paper award from NeurIPS’21 workshop
- Student Kristina Holsapple won the 2021 Seitz Award and the 2022 Adobe Women-in-Technology Scholarship
- Prof. Chandrasekaran, Eigenmann and Wu received $3M from NSF NRT-HDR for data science in materials innovation
- Prof. Polson and Prof. Wu received $1.5M from NIH for T32 graduate training program in computational biology

CIS and ECE have launched a new AI Center of Excellence
 Several departments including CIS have launched the Quantum Science and Engineering graduate program.
 Student Minji Kong/Prof. Pollock’s lab awarded the NSF Graduate Research Fellowship
 Prof. Siegel’s team placed 2nd in the “Verify This Program” competition

If you are interested in learning more, please visit https://www.cis.udel.edu/
OF THE 84 BLACK WOMEN ENROLLED IN COMPUTER SCIENCE PH.D. PROGRAMS NATIONWIDE ARE AT UF CISE. 2021 CRA DATA

DOMESTIC STUDENTS COMPRIS 51 PERCENT OF UF CISE’S PH.D. ENROLLMENT. 2022 DEPARTMENTAL ENROLLMENT DATA

OUT OF 40 PH.D. STUDENTS ENROLLED IN THE HUMAN-CENTERED COMPUTING PROGRAM, 50% ARE WOMEN. 2022 DEPARTMENTAL ENROLLMENT DATA

Research Highlights

UF to Lead $7.5M NSF-Funded Project on Protecting Security of Marginalized and Vulnerable Populations: Kevin R. B. Butler, Ph.D., professor, will use a $7.5 million grant from the National Science Foundation, to examine the needs of marginalized and vulnerable populations among security and privacy technologies.

Researchers Enhance Defense Readiness Through the Language of Mathematics: James Fairbanks, Ph.D., assistant professor, will use a $5.8 million DARPA award to further his approach to scientific computing that applies category theory to mathematically model mathematics itself.

Researchers Receive NIH Grant to Develop Automated Methods to Diagnose Neurodegenerative Disorders: Baba C. Vemuri, Ph.D., distinguished professor, will use a grant from the National Institutes of Health, National Institute of Neurological Disorders and Stroke, and National Institute on Aging to resolve the limitations of MRI for the purpose of differential diagnosis of neurodegenerative disorders.

Researchers to Augment Human Cognition to Aid in Extreme Work Environments: Using a $2.8 million grant from the Defense Advanced Research Projects Agency, Jaime Ruiz, Ph.D., associate professor, will work to augment human cognition by providing task guidance through AR headset technology in extreme environments, including high hazard and risky operations.

Awards & Recognition

IEEE Virtual Reality Academy: Benjamin Lok, Ph.D.; ACM Senior Member: Daisy Zhe Wang, Ph.D.; AAAI/EAAI Outstanding Educator Award: Christina Gardner-McCune, Ph.D.; Distinguished Professor: Sanjay Ranka, Ph.D., and Baba Vemuri, Ph.D.

Notable News

Ph.D. Student Earns NSF Graduate Research Fellowship: Tyler Hanks, a Ph.D. student, has been selected for the 2022 National Science Foundation Graduate Research Fellowship Program. There were 2,193 Fellows announced for 2022. Hanks is the only one chosen from CISE.

U.S. News & World Report Names UF No. 1 for Online Bachelor’s Degrees: U.S. News also recognized UF’s online programs as among the top in the country for veterans, with the MBA program earning the No. 1 spot nationally. UF also ranked No. 2 in the list of best online bachelor’s degree programs for veterans.
OVERVIEW
The University of Georgia has elevated its longstanding Department of Computer Science to the School of Computing (SoC). Taking an interdisciplinary approach, the SoC will be jointly administered by the Franklin College of Arts and Sciences and the College of Engineering. Its creation was effective as of July 1, 2022.

The SoC offers B.S., M.S., and Ph.D. degrees in Computer Science, an M.S. in Cybersecurity and Privacy, a B.S. and M.S. in Data Science jointly with the Statistics Department, and four Double Dawgs Programs: B.S. in Computer Science/M.S. in Computer Science, B.S. in Computer Science/M.S. in Artificial Intelligence, B.S. in Computer Science/M.S. in Cybersecurity and Privacy, and B.S. in Computer Science/M.A. in Journalism and Mass Communication to be completed in five years. The SoC also offers a Minor in Computer Science, an undergraduate Certificate in Computing, an undergraduate Certificate in Applied Data Science, and both undergraduate and graduate Certificates in Cybersecurity and Privacy. In April 2017, the University of Georgia established the Institute for Cybersecurity and Privacy (ICSP). The ICSP is housed in the School of Computing. In August 2017, the University of Georgia was designated as a National Center of Academic Excellence in Cyber Defense Research (CAE–R) until present.

The SoC has now grown to include 35 faculty members, 235 enrolled graduate students (a 30% increase over Fall 2021), and nearly 1,500 undergraduate majors (a 17% increase over Fall 2021). In addition, the SoC serves thousands of non-major undergraduate students. In FY22, the SoC hired one tenure-track in computer vision and one non-tenure track faculty. The SoC has been authorized to hire five tenure-track assistant/associate professors and four non-tenure track faculty to begin in August 2023.

RESEARCH
Among our growing, dynamic, research-oriented faculty are experts in artificial intelligence, bioimaging, cybersecurity and privacy, data analytics, machine learning, distributed systems, databases, vision and image processing, theory, algorithms, bioinformatics, scientific and high-performance computing, simulation, parallel and distributed computing, robotics, real time systems, virtual reality, and evolutionary computing.

During FY22, the following faculty have external funding: Brad Barnes, Suchendra Bhandarkar, Michael Cotterell, Prashant Doshi, Le Guan, Manijeh Keshtgari, In Kee Kim, Krys Kochut, Jaewoo Lee, Kyu Hyung Lee, Ninghao Liu, Tianming Liu, John Miller, Ramviyas Parasuraman, Roberto Perdisci, Shannon Quinn, Lakshmish Ramaswamy, Eman Saleh, Thiab Taha from sources such as NSF, NIH, DoD Army, Northeastern University, and industry.

AWARDS
Data science student Elise Karinshak received the 2022 Goldwater Scholar award. Prof. Sheng Li is the recipient of the 2022 Fred C. Davison Early Career Scholar Award.

Elise Karinshak
Sheng Li
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.

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 135,000 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.
Faculty Statistics

45 IEEE Fellows, 12 AAAS Fellows, 4 ACM Fellows, 5 APS Fellows
NAE Members: 6 active, 15 emeritus
113 Faculty members

Departmental News

- The IEEE established a new award, the Nick Holonyak, Jr. Medal for Semiconductor Optoelectronic Technologies, to honor professor emeritus and alumnus who pioneered LED lighting
- Illinois ECE researchers create the first high-yield plastic microprocessors that cost under a penny each.
- The NSF awarded a 7-year, $15 million project led by Illinois to research computers and robots that are human-designed, but living.
- Alumni-led Sun King raised $260 million in funding to deliver off-grid energy technologies in Africa and Asia.
- Center for Advanced Electronics through Machine Learning (CAEML) receives Phase II funding from NSF.
- Can Bayram received ARPA-E grant to support developing novel green LED lights with significantly less energy consumption and carbon emissions.
- Four ECE alumni were elected to the National Academy of Engineering in 2022.
- Alumna MyMy Aung, project manager for the Mars Ingenuity Helicopter, among TIME's 100 Most Influential People of 2021.

Student Statistics

2,161 Undergraduate Students
- 1,280 Computer engineering majors
- 881 Electrical engineering majors
- 468 First-year students (Fall '22)
- 314 Female undergraduate students

684 Graduate Students
- 161 MEng/MEng Online students
- 150 Master's students
- 373 PhD students
- 117 Female graduate students

Recent Honors

IEEE Tesla Award, Kiruba Haran | White House Fellow, Lav Varshney | Ten faculty received NSF CAREER Awards since 2020 | Gold Medal International Society of Magnetic Resonance in Medicine & National Academy of Inventors Fellow, Zhi-Pei Liang | IEEE-HKN Outstanding Chapter Award, UIUC Chapter | IEEE Edison Medal, alumnus Alan Bovik | Acoustical Society of America Silver Medal in Biomedical Acoustics, William O'Brien | SPIE Dennis Gabor Award in Diffractive Optics, Gabriel Popescu
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

NEW BACHELOR’S DEGREE
In fall 2022, the iSchool launched the **BS in Information Sciences + Data Science**. This degree is part of a campus-wide collaboration to provide interdisciplinary education in data science and consists of courses in information sciences, statistics, computer science, and math.

RECENT PHD STUDENT HIGHLIGHTS
• PhD student Ziwei Wu and Associate Professor Jingrui He coauthored a paper that received the distinguished paper award at the ACM Conference on Fairness, Accountability, and Transparency.
• A paper coauthored by Associate Professor Yang Wang and PhD student Smriti Kaushik received the International Association of Privacy Professionals SOUPS Privacy Award.
• Members of Associate Professor Halil Kilicoglu’s research lab won third prize in the LitCoin Natural Language Processing (NLP) Challenge, sponsored by the NIH.

SELECT CURRENT GRANTS
• Empowering Libraries with Conversational AI (Yun Huang)—IMLS, $399,996
• Promoting Computational Thinking Skills for Blind and Visually Impaired Teens through Accessible Library Makerspaces (JooYoung Seo & Kyungwon Koh)—IMLS, $498,638
• FairFL-MC: A Metacognitive Calibration Intervention Powered by Fair and Private Machine Learning (Dong Wang & Nigel Bosch)—NSF, $850,000
• Natural Language Processing to Assess and Improve Citation Integrity in Biomedical Publications (Halil Kilicoglu & Jodi Schneider)—HHS, $150,000
• TRAnsparency CErtified (TRACE): Trusting Computational Research Without Repeating It (Bertram Ludäscher)—NSF, $349,999
• Towards a New Framework for Interpreting Mantle Deformation: Integrating Theory, Laboratory Experiments, and Geophysical Observations Spanning Seismic to Convective Timescales (Matthew Turk)—NSF, $127,723
The Department of Computer Science at the University of Kentucky is one of the oldest CS departments in the country, established in 1966. We offer bachelor's, master's, and Ph.D. degrees in computer science. Our alumni go on to pursue a variety of careers and are currently succeeding in academia and companies like Google, Amazon, Microsoft, HP and others.

### New Hires (Assistant Professors)

<table>
<thead>
<tr>
<th>Name</th>
<th>Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Yang Xiao</td>
<td>Cybersecurity, Networking</td>
</tr>
<tr>
<td>Dr. Xin Liang</td>
<td>Data Analytics, High Performance Computing</td>
</tr>
<tr>
<td>Dr. Abdulah-Al-Zubaer Imran</td>
<td>AI, Computer Vision, Medical Imaging</td>
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### Recent Department Research Highlights

Eight faculty members from our department have received the prestigious NSF CAREER awards. Two recent career awards are:

**Dr. Stephen Ware** His project titled “Structured High-Agency Interactive Narratives for Virtual Environments and Using Models of Geo-Temporal Appearance” won the CAREER award and aims to use artificial intelligence planning algorithms to create narratives at run time in games and training simulations.

**Dr. Simone Silvestri** His project titled “Energy Management for Smart Residential Environments through Human-in-the-loop Algorithm Design” won the CAREER award and aims to develop techniques for energy management in smart communities.
Three New Faculty Joining CSE in 2021-2022

Dr. Pamela Bilo Thomas
Dr. Yanhai Xiong
Dr. Sabur Baidya

The Department of Computer Science and Engineering is pleased to welcome three new assistant professors in 2021-2022. Dr. Thomas received her Ph.D degree in computer science from the University of Notre Dame in spring 2021. Her research interests lie in computational social science, media literacy, and spread of misinformation on social media. Dr. Xiong is a Postdoctoral Scholar at Dartmouth with research expertise on applying AI techniques to improving efficiency and enhancing the cybersecurity of cyber-physical systems. Dr. Baidya is a Postdoctoral Scholar at the University of California, San Diego who works on autonomous and cyber-physical systems in the Internet-of-things involving sensing, communications and computing systems, developing novel distributed intelligence using optimizations and data-driven methods.

New Program – Bachelor of Arts in Computer Science

The CSE Department has created a new undergraduate degree program – Bachelor of Science in Computer Science (BACS). This program is in response to the existing need for technical jobs throughout the local industry in Louisville and Kentucky. The structure of the program offers the students a chance not only to become well equipped computer scientists but to also excel in other areas of studies that will match the students’ interests. It will fulfill the demand in careers that rely on computer science and broad knowledge in application areas. The program is designed to be eight semesters long with two internships in between, while leveraging the rigorous computer science curriculum and existing resources in the CSE Department and the Speed School.

The proposed BACS program has been approved by the Kentucky Council on Postsecondary Education (CPE). The program started in the fall semester of 2021.
CSEE Highlights

- The Center for Space Sciences and Technology, directed by Prof. Don Engel, was selected to receive over $63 million in NASA renewal of CRESST II space science consortium.
- Prof. Anupam Joshi was selected by the American Council on Education for the ACE Fellows Program, a customized learning experience that enables participants to immerse themselves in the study and practice of leadership.
- Prof. Cynthia Matuszek won a 5-year CAREER award for research on improving the ability of robots to interact with people in everyday environments equitably across different user populations.
- Prof. Mohamed Younis was elevated to the rank of IEEE (Institute of Electrical and Electronics Engineers) fellow.
- CSEE has partnered with AI4All to offer free online Discover AI class introducing AI technology to selected UMBC undergraduates without a traditional computer science background, creating pathways for entry into this demand area.

CSEE Numbers at a Glance, 2022

- Enrollment: 2,302 Undergraduates, 1,256 Graduates
- Degrees Granted: 360 Bachelors, 52 Masters, 20 Ph.D. Graduates
- Faculty: 38 Tenured and Tenure Track, 92 Teaching, 6 Research; 9 Fellows of professional societies; 14 (current or past faculty) CAREER awardees

Highlighting CSEE Student Accomplishments

Undergraduate Joshua Slaughter wins the prestigious Marshall Scholarship. His Ph.D. work will be on the study of equity in personalized medicine at the University of Edinburgh.
NEW FACULTY

Patti Ordóñez
Associate Professor

Ian Stockwell
Associate Professor

Ida Ngambeki
Assistant Professor

Lei Zhang
Assistant Professor

Sy Saulynas
Lecturer

Mohan Sundaram
Lecturer

Zehra Zaidi
Lecturer

FACULTY NEWS

The Center for Real-time Distributed Sensing and Autonomy (CARDS) and the Institute for Harnessing Data and Model Revolution in the Polar Regions (iHARP) receive $10 million+ grants each.

Vandana Janeja and Christine Mallinson received a two-year, $300,000 grant from the National Science Foundation (NSF) to study deepfakes, focusing on audio clips.

Karuna Joshi awarded new NIH-funded grant, as co-PI, titled “AIM-AHEAD Coordinating Center Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity”

Yaxing Yao awarded $75,000 Meta grant to investigate how to effectively communicate the data practices of high-realism VR avatars in virtual work.

Jianwu Wang awarded $187,620 NASA grant to conduct machine learning based automatic detection of AGWs in airglow from 10+ years of two NASA satellites.

Carolyn Seaman and Karen Chen awarded $300,000 NSF grant to pilot a peer mentoring program for undergraduate students in IS who are transfer students from a community college, or transferred to IS from another major.

STUDENT NEWS

Nadja Franklin ’23 news feature on work with the Maryland Department of Transportation involving radio frequency identification (RFID).

Lavanya Elluri ’22 completed her Ph.D. and is now an Assistant Professor of Computer Information Systems at Texas A & M University - Central Texas.

Kayla Massey ’22 placed second in the social impact track for her idea Pennies for Pointe at UMBC’s Cangialosi Business Innovation Competition.

Erin Higgins received a 2022 Generation Google Scholarship.

9 Outstanding Seniors in Information Systems and 6 Outstanding Seniors in Business Technology Administration award winners.
Ph.D. Graduate Student Niall Williams was awarded the Link Foundation fellowship in Modeling, Simulation, and Training.

Ph.D. Graduate Student Vishnu Sharma was awarded the Kulkarni Research Fellowship.

Ph.D. Graduate Student Trisha Mittal was named a 2022 Adobe Research Fellow.

Former Graduate Student Soheil Behnezhad (Ph.D. ’21) received the Charles A. Caramello Distinguished Dissertation Award.

Undergraduate Senior Naveen Raman was awarded the 2022 Churchill Scholarship.

Undergraduate Senior Naveen Raman was named a Philip Merrill Presidential Scholar.

Undergraduate Sophomore George Li was named a Goldwater Scholar.
RESEARCH CENTERS

Advanced Information Collaboratory (AIC) Exploring the opportunities and challenges of “disruptive technologies” for archives and records management.

Center for Archival Futures (CAFe) Developing and disseminating human–centered approaches to creating the systems, processes, and institutions which enable the use and care of digital objects and data over time.

Computational Linguistics and Information Processing (CLIP) Designing algorithms and methods that allow computers to effectively and efficiently perform human language-related tasks, as well as using computational methods to improve our scientific understanding of the human capacity for language (with Computer Science, Linguistics, and the Robert H. Smith School of Business).

Human Computer Interaction Lab (HCIL) Transforming the experience people have with new technologies through understanding user needs and advancing user interfaces and design methodology (with American Studies, Computer Science, Education, English, Journalism, and Psychology).

Maryland Center for Social Data Science (SoDa) Conducting research, providing education, and working with partners to advance social data science and measurement (with the College of Behavioral and Social Sciences).

Trace R&D Center Pioneering research and development in the field of technology and accessibility, capitalizing on the potential that technologies hold for people experiencing barriers due to accessibility, aging, or digital literacy.

ACADEMIC PROGRAMS

- B.S. Information Science
- B.S. Social Data Science
- M.S. Human Computer Interaction
- M.S. of Information Management
- M.S. Library and Information Science
- M.P.S. Game, Entertainment, & Media Analytics
- Ph.D. Information Studies

NEW M.P.S. in Data Journalism Launched Fall 2022 The INFO College and the Philip Merrill College of Journalism are offering a from-anywhere Data Journalism master's degree. The program combines the best of Merrill’s journalism training and the INFO College’s STEM data-management techniques to produce the next generation of data journalists.

NEW B.A. in Technology & Information Design Launched Fall 2022 InfoDesign teaches students to frame important problems at the intersection of people, technology, and information; to design solutions for those problems; and to realize, deploy and iterate on those solutions.

DIVERSITY

- 1,819 students from 52 countries
- 42% women students
- 31% undergraduate / 13% graduate students from underrepresented minorities

NEWS & IMPACT

InfoChallenge Initiative With a virtual camp and the first in-person InfoChallenge Summer Camp, we brought together high school students from around Maryland to learn about data analysis & visualization in the context of promoting social good.

Foundations of Information Literacy published Co-written by Dr. Paul T. Jaeger (INFO College) and Dr. Natalie Greene Taylor (UMD Alum, University of South Florida), the book provides an essential framework for understanding and teaching information literacy in an environment too often defined by the spread of misinformation.

The Promise of Access wins 2021 McGannon Book Award “The award committee unanimously agreed that The Promise of Access provided an impressive, expansive, and nuanced empirical critique of what Dr. Dan Greene (INFO College) calls the “access doctrine:” the often techno-solutionist perspective of projects designed to increase access to internet services, hardware, and digital skills.”

Archival Repatriation Committee The Society of American Archivists (SAA) Council approved a charge to create an Archival Repatriation Committee which will develop policies for SAA’s members to support the repatriation and ethical return of archival materials. Two professors at the INFO College and Center for Archival Futures (CAFe) are involved in this initiative: Dr. Diana Marsh and Dr. Eric Hung.

HCIL Founder receives IEEE Test of Time award for Treemap Research Evolving from Ben Shneiderman’s (UMD CS & INFO College) six-line piece of code, treemap research sparked thousands of research studies which expand on his original tree map software, and provoked multi-million dollar graphic user-interface corporations into developing their own treemap software variations to compete with Shneiderman’s original work conducted at UMD.

NEW TENURED AND TENURE TRACK FACULTY OF 2022

Cody Buntain Assistant Professor

Giovanni Luca Ciampaglia Assistant Professor

Sheena Erete Associate Professor

Amelia Gibson Associate Professor

CURRENT GRANT HIGHLIGHTS


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New Faculty Hires

Five recent faculty hires signal our continued growth in core and emerging research areas including quantum information systems, robotics, computer vision, and machine learning.

Chuang Gan
Assistant Professor
Computer Vision and Robotics
Starting Fall 2023

Stefan Krastanov
Assistant Professor
Quantum Information Systems
Starting Fall 2022

Scott Niekum
Associate Professor
Robotics and Machine Learning
Starting Fall 2022

Filip Rozpedek
Assistant Professor
Quantum Information Systems
Starting Fall 2023

Hao Zhang
Associate Professor
Robotics
Starting Fall 2022

BY THE NUMBERS

#16
in Artificial Intelligence
U.S. News & World Report Graduate School Rankings, 2022

#23
in Computer Science overall

1732
Undergraduate enrollment

396
Master’s enrollment

281
Doctoral enrollment

74
Tenure-stream, teaching, and research faculty
up 37% since 2017

$22.2M
Research expenditures in FY22

$19.3M
New research awards in FY22
Including $4M from industry

AWARDS & ACCOLADES

CRA Computing Community Consortium Council
David Jensen

ACM Fellows Deepak Ganesan, Shlomo Zilberstein

NSF Career Awards Jie Xiong, Hamed Zamani

INNS Fellow Hava Siegelmann

ICAR 2022 Test of Time Adam O’Neil

EuroVis 2022 Best Paper Narges Mahyar, Ali Sarvghad, Mahmood Jasim (PhD)

ACM SigSoft 2022 Distinguished Paper
Emily First (PhD), Yuriy Brun

ACM SIGCHI 2022 Honorable Mention Best Paper
Cindy Xiong, Ali Sarvghad

ACM SIGIR 2022 Best Paper Award Bruce Croft

ACM SIGIR 2022 Best Short Paper Award
Hansi Zeng (PhD), Hamed Zamani

Since 2017, CICS has hired
40 accomplished tenure-stream and teaching faculty.
Richard A. Miner School of Computer & Information Sciences

In Fall 2022, UMass Lowell launched a new school of computer science, named in honor of distinguished alumnus Rich Miner ’86, ’89, ’97, co-founder of Android; it was established with a $5 million donation from Miner and a $2 million matching contribution from the state.

Research Areas

Artificial Intelligence
Biomedical Informatics
Computational Geometry
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
Text Mining and Engineering
Theory and Algorithms

UMass Lowell CS by the Numbers

CScare.org, 2017 - 2022 ........................................ #84
Faculty members ............................................. 31
NSF CAREER awards ......................................... 6
Last 5 years in research expenditures ................... $22.9M
New research awards in FY2022 ............................ $6.9M
Undergraduate majors, Fall 2022 .......................... 949
Graduate students, Fall 2022 ............................... 374
Degrees awarded in 2021 - 2022 ........................... 178 BS
................................................................. 63 MS
................................................................. 10 PhD

Highlights


NSF SCC-IRG Award, P. Kurup, B. Liu, M.A.U. Alam, R. Nagarajan, T. Gonzales, Community Based Approach to Address Contaminants in Drinking Water using Smart Cloud-Connected Electrochemical Sensors, $2.5M

NSF/DOD Convergence Accelerator Award, S. Narain with NOVOWI, Northeastern University, and Raytheon BBN, Lightweight Scalable Secure 5G and Beyond Networks, $741K

Keynote, X. Fu: A Unified View of IoT and CPS, 19th Annual International Conference on Privacy, Security & Trust (PST)
The Computer Science Department at the University of Memphis offers bachelor’s, master’s, and doctoral degrees in computer science, as well as an accelerated bachelor’s/master’s program and two graduate certificates (cybersecurity and data science). Our 22 faculty members are highly productive researchers. With over $25 million in active research grants, the Department has been ranked 55th nationwide among CS departments in federally funded research expenditures. Our faculty include 2 IEEE Fellows, an ACM Distinguished Speaker and two state-endowed chairs of excellence professors.

**RESEARCH HIGHLIGHTS**

- A $3.8M grant from the National Science Foundation entitled "CyberCorps Scholarship for Service: Developing the Cybersecurity Workforce in West Tennessee, Mississippi, and Arkansas" will fund generous stipends for undergraduate and graduate students who are looking to enter the cybersecurity workforce. PI Kan Yang is leading the five-year project, with support from co-PIs Dipankar Dasgupta, Myounggyu Won, and Amy Cook.

- PI Myounggyu Won is leading a one-year $100K project from the National Security Agency to develop a curriculum that involves solving practical cybersecurity problems using autonomous R/C cars as a cyber-physical system platform. The project also involves contributions from faculty Dipankar Dasgupta, Kan Yang, and Kriangsiri Malasri.

- Weizi Li was awarded a $175K National Science Foundation grant for his project "Towards Effective and Efficient City-scale Traffic Reconstruction." The two-year project will explore and develop effective and efficient mechanisms to reconstruct city-scale traffic using mobile data.

- Scott Fleming received the VL/HCC 2022 Most Influential Paper Award for his paper "Modeling Programmer Navigation: A head-to-head empirical evaluation of predictive models" from VL/HCC 2011. This award is given each year by the IEEE Symposium on Visual Languages and Human-Centric Computing to one paper that was published roughly 10 years ago and that has had the most influence on VL/HCC research or commerce.

**OTHER HIGHLIGHTS**

- The University of Memphis has been designated as a National Center of Academic Excellence in Cyber Defense (CAE-CD) through the 2027 academic year. Dipankar Dasgupta, Hill Professor in Cybersecurity and director of the Center for Information Assurance, led this effort for recertification.

- A $36K gift from Intel will be applied towards several diversity initiatives, including support of the Diversity in Computer Science Scholarship for undergraduate students and the Creative Game Design Camp for high-school students. The game camp was held in person over Summer 2022 for the first time since COVID, with a record high number of participants.
RESEARCH HIGHLIGHTS

Open-source patient model has topped industry standards. Tested without needing hospitals to share data, the method for developing the model could speed further improvements in medical prediction tools.

Paxos distributed protocol automatically formally verified. Two researchers have debunked the common assumption that the famous Paxos consensus protocol is too complex to be proven safe without hours of manual labor, using an automatic prover.

More accessible augmented reality for people with visual impairments. A system of audio cues that communicate data about the user's surroundings emphasizes collaborative AR experiences and enabling blind users to interact seamlessly with their peers.

Study finds networks can easily detect and block the use of VPNs on a large scale. Researchers conclude that tracking and blocking the use of OpenVPN, even with most current obfuscation methods, is straightforward and within the reach of any ISP or network operator.

Adding a “teaspoon of computing” to non-CS classes. Teaspoon programming languages can broaden access to computing skills through incorporation in a variety of coursework, including history and mathematics classes.

Enabling automated repair in hardware designs. A framework for automated circuit design repair lets developers cut down on time spent designing bug fixes for hardware specifications, adapting techniques now used widely in software development.

NEW FACULTY

ELIZABETH BONDI-KELLY
Assistant Professor
Artificial intelligence for social impact

DAHOOV JAIN
Assistant Professor
Novel sound sensing and feedback techniques to support accessibility applications

SAQUIB RAZAK
Lecturer III

STELLA YU
Professor
Using computer vision and machine learning to automate and exceed human expertise in practical applications

RYAN HUANG
Associate Professor
Building reliable, efficient, and defensible systems

LIN MA
Assistant Professor
Using machine learning techniques to automate database administration

GEORGE TZIMPRAGOS
Assistant Professor
Cross-stack solutions that bridge circuits, computation logic, microarchitecture, and programming languages

ACADEMIC PROGRAMS
PhD, Computer Science and Engineering
MSE/MS, Computer Science and Engineering
MS, Data Science
BSE, Computer Engineering
BSE/BS, Computer Science
BSE/BS, Data Science
Minor, Computer Science

579 Graduate Students
3322 Undergraduate Students
90 Faculty
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

NEW FACULTY IN 2022

Matthew Bui
Assistant Professor
PhD, University of Southern California

Allen Flynn
Clinical Assistant Professor
PhD and PharmD, University of Michigan

Jesse Johnston
Clinical Assistant Professor
PhD, University of Michigan

Megan Threats
Assistant Professor
PhD, University of North Carolina at Chapel Hill

Chelsea Peterson-Salahuddin
Assistant Professor/Presidential Postdoctoral Fellow
PhD, Northwestern University

Michaelanne Thomas
Assistant Professor
PhD, Georgia Institute of Technology

Justine Zhang
Assistant Professor
PhD, Cornell University

Alex McLeod
Lecturer III
PhD, Queen’s University

Greg Myers
Lecturer III
MS, University of Michigan

Scott TenBrink
Lecturer III
MS, University of Michigan

HONORS & ACCOMPLISHMENTS HIGHLIGHTS

- NSF CAREER grants
  Robin Brewer, Barbara Ericson, David Jurgens

- Association for Computing Machinery Distinguished Member
  Tawana Dillahunt

- Elizabeth Crosby Research Award
  Michaelanne Thomas

- Francis Hsu Prize and Joseph Levenson Prize
  Silvia Lindtner

- AAAS Community Advisory Board Member
  Lionel Robert

- ACM CHI Conference 2022
  Two honorable mention papers

- 2022 Provost’s Teaching Innovation Prize
  Elle O’Brien

CURRENT NSF GRANT HIGHLIGHTS

- AF: Small: Promoting Social Learning Amid Interference in the Age of Social Media — $599,997

- NSF Convergence Accelerator Track F: Misinformation Judgments with Public Legitimacy — $750,000

- HCC: Medium: Designing Technologies for Marginalized Communities — $846,131

- EAGER: Adapting Economic Games to Personalize Privacy and Security Nudges — $299,997

RESEARCH HIGHLIGHTS

- Very Fine People: What Social Media Platforms Miss About White Supremacist Speech
- Dynamics of Cross-Platform Attention to Retracted Papers
- “It’s a mess sometimes”: patient perspectives on provider responses to healthcare costs, and how informatics interventions can help support cost-sensitive care decisions
- Measuring Sentence-Level and Aspect-Level (Un)certainty in Science Communications
- Emojis predict dropouts of remote workers: An empirical study of emoji usage on GitHub
- A Natural Language Processing Pipeline for Detecting Informal Data References in Academic Literature

DEGREES OFFERED AND STUDENT ENROLLMENTS

Bachelor of Science in Information: 403
Master of Science in Information: 596
Master of Health Informatics: 76
Master of Applied Data Science (online): 626
PhD in Information: 133
Total: 1,834

Enrollment estimate as of 9/30/22

#1 NATIONAL SCIENCE FOUNDATION

93% of all recent graduates are working in their field of choice
92% of all recent graduates report high levels of job satisfaction
OVERVIEW

- 20 tenured/tenure-track faculty members, including 2 NSF CAREER award recipients
- 11 full-time/part-time lecturers
- Over 1,100 students: 690+ undergraduates and 410+ graduates
- 4 B.S. programs, 5 M.S. programs, 1 Ph.D. program, and 3 undergraduate minor programs

OTHER HIGHLIGHTS

- Di Ma and her student received a best paper award at SAE WCX World Congress Experience 2022 and an honorable mention poster award at WiCys 2022
- CIS students (coached by Zheng Song) received the honorable mention - originality award for the Student Design Competition on Networked Computing on the Edge at the 2022 CPS-IoT Week
- Brahim Medjahed served as PC Co-Chair for ICSOC 2022
- Forzul Hassan, Bruce Maxim, and Khouloud Gaaloul served as Co-Chairs of tutorials, posters, and virtualization, respectively, for ASE 2022
- Qiang Zhu served as Lead Guest Editor of a special issue of DAPD Journal on scientific and statistical data management in the age of AI 2021
- Mohamed Abouelenien, Anys Bacha, and Di Ma were granted multiple US Patents
- A new undergraduate minor program in artificial intelligence was launched
- A new undergraduate minor program in game design was launched

RESEARCH HIGHLIGHTS

Research sponsors
NSF, Ford, eBay, ETS, MTRAC, NHTSA, IBM, Toyota, etc.

Selected recent grants
- Anys Bacha, “Retaining Students in STEM on a Commuter Campus with Efficient High Impact Practices” (Sr. Personnel with J. Remski (PI), et al.), NSF, $1,439,824
- Birhanu Eshete, “Towards Robust Machine Learning Models via Moving Target Defense”, Dearborn AI Research Center Grant, $10,000
- Foyzul Hassan, “Intelligent Composing, Scheduling and Monitoring of Software Containers for Cyber-Physical Systems”, Dearborn AI Research Center Grant, $10,000

Selected recent publication venues
TSE, TAC, TBD, TDSC, TII, TSC, ITR, IoT-J, TWEB, IJIRA, DAPD, JAIR, Science, ASE, ICSE, ESEM, ICDCS, CCS, CODASPY, ACSAC, SecureComm, EDBT, AAAS, etc.

NEW FACULTY HIRES

- Khouloud Gaaloul, Assistant Professor, Software Engineering, PhD’22 U of Luxembourg
- Khalid Kattan, Lecturer III, Computer & Infor. Science, PhD’19 Wayne State U
- Mahmoud About-Nasr, Lecturer III, Computer & Infor. Science, PhD’94 U of Windsor

Learn more: https://umdearborn.edu/cecs/departments/computer-and-information-science
Research

- Regents Professor Vipin Kumar was appointed the first director of the Data Science Initiative, which aims to enhance research, and establish the University of Minnesota as a mentoring hub for new scientists.

- Maria Gini, a Distinguished Professor and CRA board member, earned the ACM SIGAI Autonomous Agents Research Award, which recognises years of research and leadership in the field of robotics.

- Supported by the NSF and NASA, Vipin Kumar’s team published a global dataset of lakes and reservoirs, tracking changes over the last 30+ years to illustrate the impact of climate change.

Education

- Fortune Magazine ranked the U of M’s Data Science master’s program the third best in the nation with 90% of its students finding employment before they graduate.

- Working with the Google exploreCSR program, Professors Maria Gini and Shana Watters established a course designed to prepare students to engage in undergraduate research.

Community

- Recent graduate Anna Pedrick founded Lovelace, a workshop and business aimed at introducing girls in the Twin Cities to the world of coding, computer programming and careers in STEM.

FALL 2022 ENROLLMENT

2,547 Undergraduates
575 Graduates

30% increase Data science enrollment since 2021

2021-22 DEGREES GRANTED

531 Bachelors degrees
126 Masters degrees
27 Ph.D. degrees

FALL 2022 FACULTY

47 Tenure and tenure track
15 Teaching faculty
7 Research professionals
FIVE NEW FACULTY

Recent Faculty Awards & Honors
- Giovanna Guidoboni: Elected to European Academy of Sciences and Arts
- Kannappan Palaniappan: Named Curators’ Distinguished Professor
- Marjorie Skubic: Named Curators’ Distinguished Professor
- Dong Xu: Named Curators’ Distinguished Professor
- Chi-Ren Shyu: Faculty Alumni Award Recipient
- Jianlin Cheng: Elected to American Institute for Medical and Biological Engineering College of Fellows
- Prasad Calyam: Robin Walker Award for Graduate Student Mentoring Recipient

By the Number
- **38** TT Faculty
- **626** BS students
- **102** MS students
- **153** PhD students

Recent Patents and Inventions
- Hadi Ali-Akbarpour, Assistant Research Professor
  Startup company created
- Mahmoud Almasri, Associate Professor
  Energy-harvesting device (Patent No. 11,005,352)
  Microbolometer for better thermal camera performance (Patent No. 11,118,981)
  Fabrication method for optical fiber sensors (Patent No. 10,989,867)
- Filiz Bunyak Ersoy, Assistant Professor
  Software system to assess speech and swallowing (Patent No. 10,959,661)
  Technologies licensed by a commercial partner: A moving-object detection system that can tell the difference between an object of interest and its shadow; A moving-object recognition system that tracks objects with high accuracy and predicts future motion.
- James M. Keller, Curators’ Distinguished Professor Emeritus
  Integrated sensor network to monitor activity patterns (Patent No. 11,147,451)
- Kannappan Palaniappan, Curators’ Distinguished Professor
  Startup company created
- Chi-Ren Shyu, Paul K. and Dianne Shumaker Professor
  An efficient, top-down approach to big data mining (Patent No. 11,055,351)
- Marjorie Skubic, Curators’ Distinguished Professor
  Integrated sensor network to monitor activity patterns (Patent No. 11,147,451)
  Hydraulic bed sensor system to monitor physiological data (Patent No. 11,013,415)
- Yunxin Zhao, Professor
  Software system to assess speech and swallowing (Patent No. 10,959,661)
The University of Nebraska-Lincoln's Department of Computer Science and Engineering officially became a School of Computing in 2021. The elevation to a school will:

- Enhance core computing programs
- Create interdisciplinary opportunities
- Help meet local and national workforce needs
- Improve the research enterprise of the university
- Facilitate interactions with industry partners and community stakeholders

$2.5M annual investment into faculty and programs

200% projected enrollment increase by 2025

"Computing is now part of every aspect of our lives, including medicine, finance, agriculture, the humanities, government, and engineered systems. The School of Computing will prepare students for this new world."

Founding Director: Marilyn C. Wolf

859 undergraduate students
58 master's students
73 doctoral students

156 bachelor's degrees
25 master's degrees
12 doctoral degrees

31% in enrollment numbers
212% in female students
204% in underrepresented students

32 Tenure Track (3 new hires)
8 NSF CAREER Awardees
9 Instructional
2 IEEE Fellows
4 Endowed Chairs
1 ACM Fellow

$3.7M in expenditures
8 Average of publications per year per faculty

SOFTWARE ENGINEERING
INFORMATICS, ANALYTICS, FOUNDATIONS
SYSTEMS

BRAID Initiative Founding Member
NCWIT Aspirations in Computing
Nebraska College Preparatory Academy
STEM CONNECT with community colleges
Intercollegiate Programming Contest

STUDENTS
FACULTY
RESEARCH
OUTREACH

computing.unl.edu
DEPARTMENT OF COMPUTER SCIENCE

DEGREES & CERTIFICATES

- BS in Computer Science (ABET accredited since 2002)
  - Concentrations in Artificial Intelligence, Gaming, and Software Engineering
- BS/MS Fast Track Program
- MS/MA in Computer Science
  - Online Graduate Certificate in Machine Learning
- MS in Computer Science Teacher Education
  - Online degree option available
- PhD in Information Technology
  - Concentrations in Artificial Intelligence, Computing Systems, and Human Centered Computing

RECENT HIRE

- Jorge Fandinno
  PhD, University of Potsdam
  Artificial Intelligence, knowledge representation, automated reasoning

- Pei-Chi Huang
  PhD, UT Austin
  Cyber-Physical Systems, Robotics, with Machine Learning, Real-time Computing and Scheduling Algorithms, Wireless Communication/Networking Systems

- Spyridon Mastorakis
  Assistant Professor
  PhD, UCLA
  Computer networks and systems, security, edge computing, Internet of Things

- Kwangsung Oh
  Assistant Professor
  PhD, University of Minnesota
  Cloud computing, edge computing, data analytics systems

- Alfredo Perez
  Associate Professor
  PhD, South Florida
  Privacy, Mobile/Ubiquitous computing, CS Education

- Jose Santos
  Lecturer, PhD, UNL
  Computer Architecture, Embedded Systems, Robotics

- Xin Zhong
  Assistant Professor
  PhD, NJIT
  Image Processing and analyses, image watermarking, computer vision, deep learning, computational intelligence

DEPARTMENT HIGHLIGHTS

- Computer Science undergraduate program climbs 56 spots (now ranked 154) in US News Best Computer Science Undergraduate Program rankings.
- Online graduate certificate in Machine Learning is launched.
- Online graduate degree option available for Computer Science Teacher Education.
- New undergraduate software engineering concentration is announced.
- CS faculty hosted over 40 faculty, post-docs, research assistants, and students from South Dakota, Montana, Nebraska, for NSF EPScOR projects.

RESEARCH HIGHLIGHTS

- Spyridon Mastorakis received NIH junior investigator award for Harnessing Movement Variability to Treat and Prevent Motor Related Disorder.
- Kwangsung Oh received NSF CRII award, project for CNS: A Scalable GDA System.
- Mahadevan Subramaniam to be the UNO PI for NSF EpSCOR Track II on Data Driven Material Discovery.
- Pei-Chi Huang, Kwangsung Oh, and Mahadevan Subramaniam sweep top valued state collaboration awards for AI for micro-brains, Data convergent flood prediction, and Quantum Computing EdTech projects.
- CS Dept. continues to expand its national footprint in AI, Computer Systems, and cloud computing through a record number of top-tier conference and journal publications.
- CS department awarded block grant to develop new online programs including cloud computing.
- CS faculty Parvathi Chundi to lead the Advanced Analytics and AI areas in the SBIR program at the NSF TIP directorate.

Find out more at cs.unomaha.edu
NEW FACULTY HIGHLIGHTS

Dr. Ada-Rhodes
PhD, Oregon State University
Robotics, AI, computational cognition, design, automation, decision-making

Dr. Joel Elson
PhD, University of Nebraska at Omaha
Human-computer trust, computer-mediated influence, and psychophysiological measurement

Dr. Martina Clarke
PhD, University of Missouri, Columbia
Usability evaluations of health information technology, needs assessment, and clinical workflow analysis

Dr. Sayonhna Mandal
PhD, University of Nebraska at Omaha
Regulatory requirements, quantum cryptography, and cybersecurity curriculum advancement

SCHOOL NEWS

- $10M in currently active grants
- 18 Journal and 28 Conference Publications in 2021
- Dr. Kate Cooper and Dr. Christine Toh were awarded tenure and promoted to Associate Professor.
- Dr. Martina Clarke was awarded the American Medical Informatics Association (AMIA) Certified Health Informatics
- Cybersecurity BS and MS courses now offered in two modalities: in-person and totally online
- Articles in The Conversation: The Metaverse offers a future full of potential – for terrorists and extremists, too – Joel Elson, Austin Doctor, and Sam Hunter. Rise of precision agriculture exposes food system to new threats - George Grispos and Austin

GRANT HIGHLIGHTS

- Dr. Kate Cooper, NIH, E-PACERR: Enhancing Professionalism, Advocacy and Capacity for Excellence in Responsible Bioinformatics Research
- Dr. Matt Hale, NSA GenCyber Student Program and Curriculum Development for University of Illinois at Urbana Champaign/DHS
- Dr. Dario Ghersi, NIH, Targeting tumor architecture as a novel therapeutic strategy for pancreatic cancer with University of Texas Southwestern/NIH, and Altered T Cell Responses in Myeloid Encephalomyelitis/Chronic Fatigue Syndrome (ME/CF) with University of Massachusetts Medical School/NIH
- Dr. Joel Elson, DHS, Innovation in Targeted Violence and Terrorism Prevention: Developing and Testing an Intelligent Chatbot to Help Individuals Identify Threats and Improve Tips Reporting
- Dr. Robin Gandhi, DoD, Multilevel Analytics and Data Sharing for Operations Planning (MADSS-OPP), US Army Corps of Engineers, Engineering Research and Development Center
- Dr. Martina Clarke, NIH, Data Coordinating and Operations Center for the ECHOIDeAStates Pediatric Clinical Trials Network, University of Arkansas for Medical Sciences/NIH
- Dr. Ann Fruehling, DOT, Real-time Emergency Communication System for HazMat Incidents (REACH) project
- Dr. Bill Maloney, NSF, Scholarship for Service
- Dr. Christine Toh, NSF, CRII: CHS: Knowing and Creating: Implications of Increased Information Availability During the Design Process

DEGREE PROGRAMS

- BS and MS in Cybersecurity
  - Cyber Operations Track, Graduate Certificate
  - NSA CAE Cyber Defense (CD) and Cyber Operation (CO) designations
  - BS and MS in IT Innovation
  - BS in Bioinformatics
  - MS and PhD in Biomedical Informatics

ACADEMIC/RESEARCH CENTER AFFILIATIONS

- Nebraska University Center for Cybersecurity (NebraskaCyBER)
- Center for Collaboration Science (CCS)
- Center for Biomedical Informatics Research and Innovation (CBIRI)
- National Counterterrorism Innovation, Technology, and Education Center (NCITE)

Find out more at si2.unomaha.edu
OUR FACULTY

GRADUATE DEGREES & CERTIFICATES

- MS Management Information Systems (MIS)
- MS MIS/Master of Business Administration dual degree
- MS MIS/Master of Public Administration dual degree
- MS Data Science (interdisciplinary degree between College of IS&T, Business, Department of Mathematics)
- Graduate Certificates in Data Analytics, Data Management, Information Assurance, Systems Analysis and Design

UNDERGRADUATE DEGREES

- BS Management Information Systems (ABET accredited since 2002)
- Undergraduate certificates in Data Management, IT Administration, Systems Development

RESEARCH AREAS

- Open Source Community Health
- Citizen Science
- Data Analytics/Data Science/Modeling
- IT for Development
- IT & Law Enforcement
- Disaster Recovery/Emergency Management
- Cybersecurity/Information Assurance
- Fair, trustworthy, transparent AI

RESEARCH FUNDING

- NSF
- Ford Foundation
- Alfred P. Sloan Foundation
- Mozilla
- Department of Education
- Chan Zuckerberg Initiative
- NU Collaboration Initiative

Find out more at isqa.unomaha.edu
New Hires  The Department of Computer Science at UNLV welcomes our four new assistant professors.

Junggab Son  Cryptography, artificial intelligence, and cybersecurity.

Paul La Plante  Data science and scientific computing

John Businge  Computing Science focusing on Software Engineering to develop empirically validated recommendation tools that support collaborative software development on the social coding platforms.

Shaikh Arifuzzaman  Algorithmic foundations of large-scale computing for artificial intelligence and machine learning using high-performance computing resources

Department News

The department is the recipient of the following three new research awards:

Tessler and Modekurthy are recipients of a new NSF grant titled Parallel and Real-Time Multicore Scheduling for an Efficiently Used Cache (PARSEC). Paul La Plante is the recipient of the NSF grant titled Exploring Reionization and the Cosmic Dawn through Cross-Correlations. Beiyu Lin is one of the co-PIs on the new MRI grant from NSF.

Professors Bein and Larmore are pursuing transformative research in Online Algorithms:

In online computation, an algorithm must make decisions without knowledge of future inputs. Online algorithms are analyzed in terms of competitiveness, a measure of performance that compares the solution obtained online with the optimal offline solution for the same problem, where the lowest possible competitiveness is best. This work has implications both in terms of fundamental research as well as applications. There are two directions: One is to use the online competitive model for the resilient integration of renewable energy into the electrical grid and sustainability of transportation. The second is to settle several fundamental questions in the area of online server problems.

T-theory is a branch of discrete mathematics dealing with the analysis of finite metric spaces. Using an approach where an algorithm’s move is guided by T-theory decomposition, Bein and Larmore have recently constructed a randomized online algorithm for the 2-server problem on a tree metric space which settles in the affirmative a question which had been open for decades, namely whether there exists a better than 2-competitive algorithm for this problem.

Nine New Faculty and Seven NSF Grants in Two Years

We start the fall of 2022 with the highest enrollment in the department history. The department has hired nine new faculty to expand its course offerings and research activities to support our undergraduate and graduate students.

NV Empower: COVID-19 Wastewater Surveillance

Assistant Professor Jorge Fonseca collaborates with SNHD, SNWA, DRI, & School of Medicine on the Nevada Enabling the Management of Public health Outcomes through Wastewater Resources (EMPOWER) Program to provide real-time data to track community transmission of SARS-CoV-2 in Southern Nevada via a public web portal. The risk data is made available to help monitor the emergence and evolution of SARS-CoV-2 variants, antimicrobial resistance alleles, and drugs of abuse guiding the deployment of public health resources and keeping the public informed.
WE ARE LEADING WITH IMPACT

“Computer Science now makes up a third of the School of Engineering’s enrollment, so it’s an exciting time to lead. We may be small in total numbers, but we are big in impact. I am excited to lead UNM Computer Science in this period of unprecedented growth and possibility.”

— Lydia Tapia, professor and chair

Joined as assistant professor in 2011. Recipient of the National Science Foundation CAREER Award in 2016.

WE ARE DIVERSE

45% of our faculty are female

62% of our undergraduates are from underrepresented groups

Did you KNOW?

UNM is one of the country’s few Hispanic-Serving Institutions that also holds an R1 designation.

WE ARE RESEARCH-INTENSIVE

As New Mexico’s flagship institution, UNM is the only R1 (Carnegie Classification - Very High Research Activity) university in the state and has strong partnerships with nearby national labs Sandia and Los Alamos, in addition to AFRL and Santa Fe Institute. This provides our faculty and students with unique research possibilities that few other computer science departments can match.

WE ARE ACCOMPLISHED

Associate Professor Abdullah Mueen received the ACM SIGKDD Test of Time Award, which honors work that has had the most influence since its publication.

Professor Emeritus Ed Angel received the ACM SIGGRAPH Distinguished Educator Award.

Associate Professor Trilce Estrada received the 2022 Women in Technology Award from the New Mexico Technology Council.

WE ARE LIKE NO OTHER

From Swarmies to drones that fly into a volcano plume in the Canary Islands to a lab dedicated to incorporating technology into art, the work that we do is impacting people’s lives every day.
Our Department

Founded in 1964 by Turing Award winner Frederick P. Brooks, Jr., 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 AI, security, robotics, bioinformatics, computer vision, natural language processing, networking, machine learning, and more.

2022 Updates

Stanley Ahalt was appointed inaugural dean of the UNC School of Data Science and Society, which launched this year and will graduate its first class in Spring 2026.

Tanya Amert received the 2022 ACM SIGBED Paul Caspi Memorial Dissertation Award, becoming the first woman to win the award (established in 2013).

New Department Chair Samarjit Chakraborty was elevated to IEEE Fellow for his contributions to system-level timing analysis of cyber-physical systems.

A team led by Natalie Stanley and Junier Oliva earned Best Paper at ACM BCB for an interdisciplinary machine learning collaboration to predict a biological sample's expressed phenotypes.

Colin Raffel received an NSF CAREER Award to enable community-developed machine learning models and extend access and education to underrepresented identities in ML.

New Faculty for Fall 2022

Benjamin Berg
Performance Modeling

Sayeed Ghani
Machine Learning & AI

Soumyadip Sengupta
Computer Vision & Graphics

Pioneering Graphics Research

The IEEE Visualization and Graphics Technical Community announced the establishment of the Virtual Reality Academy at IEEE VR 2022. Induction into the Academy is a recognition of lifetime achievements contributing to virtual reality. The inaugural class of 49 inductees includes 11 who are UNC CS alumni and/or current or former faculty or staff, demonstrating the many contributions our department has made to graphics and virtual reality over more than five decades.
The UNC School of Information and Library Science (SILS) educates innovative and responsible thinkers who will lead the information professions; discovers principles and impacts of information; creates systems, techniques, and policies to advance information processes and services; and advances information creation, access, use, management, and stewardship to improve the quality of life for diverse local, national, and global communities.

New Center on Technology Policy

The Center on Technology Policy (CTP), housed in SILS, launched on April 21, 2022 and aims to offer public policy solutions that can inform lawmakers in developing tech policy. As a result, emerging technologies can be regulated to minimize user risks and maximize benefits.

Our Student Body

In six degree programs, SILS enrolled 545 students in Fall 2022.*

*Excluding minors and pre-declared students

Our Student Body Graph:
- PhD
- PSM
- MSLS
- CHIP
- BSIS
- MSIS

Programs Offered

- Bachelor of Science in Information Science (BSIS)
- Master of Science in Information Science (MSIS)
- Master of Science in Library Science (MSLS)
- Master's in Digital Curation & Management (PSM)
- Doctor of Philosophy in Information and Library Science
- Certificate in Applied Data Science (CADS)
- Carolina Health Informatics Program (CHIP)

Recent Research Updates

- SILS Assistant Professor Francesca Tripodi published research on the role of search engines in political elections in her book *The Propagandists Playbook.*

- SILS Assistant Professor Maggie Melo began research on her NSF Career Award project, titled "Equity in the Making: Investigating Spatial Arrangements of Makerspaces and Their Impact on Diverse User Populations," using **VR technology.**

- SILS McColl Term Professor David Gotz received a $1.2 million NSF grant to conduct research on improving inferences that people make from **data visualization.**
UNC Charlotte's College of Computing and Informatics (CCI) is the FASTEST-GROWING College in the UNC System.

4,119 ENROLLMENT
UNDERGRAD 2,868
1,115 MS 136 PHD

36% Pell Grant Eligible
and 75% Graduate in 4 Years

PRODUCER IN N.C.
• CS Graduates
• African-American CS Graduates
• Female CS Graduates
• Hispanic CS Graduates

cci.charlotte.edu

'22 RESEARCH SNAPSHOT

Dr. Dale-Marie Wilson
Teaching Associate Professor
Software and Information Systems
$770K National Science Foundation Racial Equity in STEM Education program
Black Research Support Network: Studying Change By, With, and For Black Undergraduate Computer Science Faculty & Students at Three Institutions

Dr. Liyue Fan
Assistant Professor
Computer Science
$575K National Science Foundation (CAREER Award)
A Utility Aware Framework for Privately Sharing Individual Level Data
"I hope that one day consumers will be able to choose what information they are willing to share, what information of theirs should be protected with mathematical rigor, and the utility they will receive for the data is maximized." - Fan

Dr. Anthony Fodor
Professor
Bioinformatics and Genomics
$26M National Science Foundation Engineering Research Center (ERC) Program
"Our charge is not only to build a highly efficient data center, but one that delivers reproducible results, which will be crucial to the success of PreMiEr.” - Fodor

Dr. Laurel Yohe
Assistant Professor
Bioinformatics and Genomics
National Institutes of Health Loan Repayment Program
"Student loans can be debilitating and prevent early career researchers from establishing themselves at their host institutions..." - Yohe
**Degree Programs**

B.S. in Computer Science*
M.S. in Computer Science
Ph.D. in Computer Science

* ABET-accredited

**Concentrations**

Data Science (B.S.)
Data Science (M.S.)
Healthcare AI (M.S.)

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**Student Enrollment**

<table>
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<tr>
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<td>2022</td>
<td></td>
<td>2022</td>
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</tr>
</tbody>
</table>

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**Recent Hires**

Yingcheng Sun (Assistant Professor)
*Ph.D., Case Western Reserve University*
Information Retrieval, Natural Language Processing, Biomedical Informatics, Machine Learning

Chunjiang Zhu (Assistant Professor)
*Ph.D., City University of Hong Kong*
Data Analytics, AI for Drug Discovery, Algorithms and Data Structures

Allen McBride (Visiting Assistant Professor)
*Ph.D., University of Tennessee, Knoxville*
Artificial Morphogenesis, Swarm Robotics, Amorphous Computing, Bio-inspired Computing

Jeronimo Grandi (Visiting Assistant Professor)
*Ph.D., Federal University of Rio Grande do Sul*
Extended Reality Interfaces, Virtual Reality, Augmented Reality, Human-Centered Design/Interaction

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**Research Sponsors**

**Federal Agencies**
NSF, NIH, DoD, NIST, NEH

**State Agencies**
NC Biotech Center

**Private Companies**
Microsoft, Google, Cone Health

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**Research Labs**

- Advanced Research Image Analysis (ARIA) Lab
- Clinical NLP Lab
- Graph Computing Lab (GraphLab)
- Interactive Realities (IR) Lab
- Network Information Lab (NIL)
- Security, Privacy, and Networking (SPAN) Lab
New Hires

Lotfi Ben Othmane - Clinical Associate Professor
Curtis Chambers - Lecturer
Yunhe Feng - Assistant Professor
Beilie Jiang - Clinical Assistant Professor
Amar Maharjan - Lecturer
Beddu Murali - Clinical Associate Professor

Diana Rabah - Lecturer
Weishi Shi - Assistant Professor
Tong Shu - Assistant Professor
Pavlo Tymoshchuk - Clinical Associate Professor
Jing Yuan - Assistant Professor
Ali Zarafshani - Clinical Assistant Professor

Research Highlights

The Carnegie Classification of Institutions of Higher Education™ reaffirmed UNT’s standing as a Tier One Research University in its 2021 report, released Feb. 2. Only 141 universities nationwide are classified as “Doctoral Universities: Very High Research Activity,” which places UNT among the nation’s most elite, top-tier research institutions.

Dr. Sanjukta Bhowmick received a collaborative $2.5 million grant from the National Science Foundation – $450,000 of which goes to UNT – that pulls expertise from UNT Engineering, Missouri S&T and the University of Oregon to develop a novel software that will allow users to analyze and change dynamic network graphs.

The cybersecurity faculty within the department, received a $750,000 grant from the National Security Agency to help solve cybersecurity threats against private companies and government entities.

Enrollment

I,275 B.S. Students  I,421 M.S. Students  116 Ph.D. Students

http://computerscience.engineering.unt.edu/
COMPUTER SCIENCE and ENGINEERING at Notre Dame

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

RESEARCH AND GRADUATE STUDY HIGHLIGHTS
» 169 graduate students enrolled
» 26 Ph.D. graduates in 2022
» 75 new research awards ($17.1 million), $11.1 million expended

UNDERGRADUATE STUDY HIGHLIGHTS
» 161 B.S. graduates in 2022
» 502 majors (sophomore through senior year)

NEW FACULTY 2022
Karla Badillo-Urquiola
Human-computer interaction, social computing, online safety

Aaron Dingler
Computer architecture, emerging devices and circuits

Chandrika Satyavolu
Wireless and mobile networks, RFID anti-collision protocols

RECENT NEWS
» Jane Cleland-Huang appointed chair of Computer Science and Engineering
» Prof. Meng Jiang receives NSF CAREER award for new computational framework for mental health
» Prof. Xiaobo Sharon Hu named fellow of the Association for Computing Machinery (ACM)
» CSE student team wins NASA research award for drone scoop-and-grab technology
» Prof. Fanny Ye combats online opioid trafficking with advanced AI technologies
» Prof. Siddharth Joshi and team co-design new energy-efficient neuromorphic computer-in-memory chip

Golnaz Habibi
Assistant Professor
Golnaz Habibi’s research interests are autonomous driving, computer vision, robotics, autonomous control and navigation systems, machine learning, and reinforcement learning.

Sina Khanmohammadi
Assistant Professor
Sina Khanmohammadi’s research interests are neural data science, network neuroscience, neural dynamics, machine learning, and signal processing.

As of 2022,
The School of Computer Science at
The University of Oklahoma
welcomed 5 new faculty members!

Ji Hwan Park
Assistant Professor
Ji Hwan Park’s research interests are data visualization, visual analytics, VR/AR, human-computer interaction, data science, and machine/deep learning.

Richard Veras
Assistant Professor
Richard Veras’s research interests are high performance computing (HPC) including code synthesis for performance, parallel algorithm design, computational linear algebra, graph analytics, and computer architecture.

Shangqing Zhao
Assistant Professor
Shangqing Zhao’s research interests are novel mobile system design, mobile & network security, network science, IoT design, and network security applications.

Computer Science is a rapidly evolving profession.
Our goal is to prepare you to grow with it during your education and beyond.

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.
### Major Faculty Awards

- Lei Jiao: NSF CNS Award
- Ram Durairajan: CAREER & NSF CNS
- Reza Rajaie: NSF CNS Med. Award
- Boyana Norris: NSF & NIH Awards
- Thien Nguyen: IARPA Award

### Department Highlights (2021 - 2022)

#### Student Statistics
- UG CIS & MACS Major enrolment: 600
- CIT Minor enrollment: 140
- UG Female students: 22%
- MS enrolment: 29
- PhD enrollment: 52
- PhD Graduates: 8
- MS Graduates: 9

#### Student Honors
- CRA Outstanding Undergraduate Researcher Award - Honorable Mention (Andy Nguyen)
- Presidential Undergraduate Research Scholars (Gabriel Peery and Estelle Trieu)
- Adobe Research Fellowship (Viet Lai)
- UO Doctoral Dissertation Research Fellowship (Matthew Hall)

#### Faculty Statistics
- Tenured/Tenure-Track: 20
- Instructors: 5
- Research/Industry: 3

#### Faculty Highlight
*Faculty recognized for various awards:*
- AI 2000 Most Influential Scholar Honorable Mention in Natural Language Processing (2022) for outstanding and vibrant contributions to this field between 2012 and 2021 by AMiner (Thien Nguyen)
- Ripple's University Blockchain Research Initiative (UBRI) Educator Award (Y. Li)
- Best Paper Award, IEEE DSC (Y. Li)

#### Academic services & leadership (chairs & editorship):
- Area Chairs: NAACL, ACL, COLING, AAAI (Thien Nguyen); CVPR, ECCV, ICCV(Shi)

#### Research Highlight
- Research Expenditure in AY2021-2022: $4.6M

#### Major Research Funding Received ($6.2 million+)
- NSF CNS Medium (Rejaie & Durairajan), NSF CAREER (Durairajan), NSF CNS (Jiao), IARPA (Thien Nguyen), NIH, DOE (Norris), Intel (Choi), IARPA (Shi), NSF (Aniola), USC (Erickson)

#### Research Centers and Institutes
- NSF IUCRC Center for Big Learning
- Center for Cyber Security and Privacy, University of Oregon (CCSP)
- OACISS: Oregon Advanced Computing Institute for Science and Society
- The Neuroinformatics Center
- Center for Digital Mental Health

#### 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.

WWW.CS.UOREGON.EDU
Penn is the birthplace of the ENIAC, the world’s first digital computer, now 76 years old, and has been an innovator ever since!

Located in the center of a vibrant Ivy League campus, the Computer & Information Science Department has strong collaborations with Penn’s Wharton School of Business, Perelman School of Medicine, Annenberg School of Communication, Carey School of Law, Graduate School of Education, and School of Arts and Sciences.

**Faculty:**
- 47 tenured and tenure-track (by Fall 2023)
- 9 full-time teaching-track
- 4 research-track

**Students:**
- 180 PhD
- 800 on-campus Master’s (5 degree programs)
- 2000 online Master’s (2 degree programs)
- 1100 undergraduates (6 degree programs)

**Exciting Growth and New Initiatives!**
Computer science and data science are strategic areas of investment for Penn; we have hired **23 new faculty** in the past 5 years, including **8 new tenure-track hires this past year** (joining over the next 12 months). **Amy Gutmann Hall**, a new home for data science, opens in 2024, adding 120,000 square feet of collaborative lab and teaching space. New initiatives are connecting Computer and Information Science to many fields across campus including medicine. Departmental strengths include programming languages, natural language processing, robotics and vision, databases, networks and distributed systems, machine learning and data science, human-computer interaction, cryptography, and computational social science.

**New Faculty Members Joining 2022-23**

- **Gushu Li**, Assistant Professor. *PhD 2022, University of California, Santa Barbara.* Quantum Computing Systems.
- **Lingjie Liu**, Assistant Professor. *PhD 2019, University of Hong Kong.* Neural scene representation and rendering, computer graphics.

**Selected Faculty Recognition**
- **Rajeev Alur** was named director of the AI Systems: Safe, Explainable, & Trustworthy (ASSET) Center.
- **Anindya De** was promoted to Associate Professor with tenure.
- **Jacob Gardner** received an NSF CAREER Award.
- **James Gee** was named director of Penn’s new online MSE in Data Science program.
- **Zachary Ives** was named an ACM Fellow.
- **Boon Thau Loo** won the University’s Lindback Award for Distinguished Teaching.
- **Tal Rabin** was elected Chair of the ACM SIG on Algorithms and Computation Theory.
- **Ruzena Bajcsy**, **Susan Davidson**, & **Duncan Watts** were named AAAS Fellows.

**Student and Alumni Highlights**
Penn PhD graduates on this year’s job market have taken positions at CMU, U Toronto, UC Davis, Brown, Portland State U, Amazon Web Services, Google, and more.
Department of Computer Science (CS)

Our CS degree programs give students a deep understanding of computational thinking and the necessary research for future applications. Additionally, our faculty explore computer science research in a variety of areas, from AI (artificial intelligence) and ML (machine learning), to algorithms and theory, to security and privacy, and everything in between and beyond. CS admits students in Spring and Fall into two graduate (MS and PhD) degrees in Computer Science, as well as four undergraduate degrees in Computer Science, Computational Biology, Physics and Quantum Computing, and Digital Narrative and Interactive Design.

CS at the University of Pittsburgh's newest School of Computing and Information (SCI) is an urban campus, surrounded by exciting internship possibilities in high tech and startups, and home to numerous student organizations that improve the diversity, equity, technical, and non-technical skills of all students. Our K-12 Outreach programs aim to expand the computing pipeline by instilling a passion for computer science in younger generations to prepare them for future careers in computing and technical disciplines.

New Faculty starting Fall 2022

Assistant Professor Longfei Shangguan was a senior researcher at Microsoft Cloud&AI, Redmond. His research interests are all in aspects of IoT systems: from building novel IoT applications and solving security issues all the way down to optimizing the network stack and designing low-power IoT hardware. His work has been published at system and networking conferences such as SIGCOMM, NSDI, MobiCom, MobiSys, SenSys, etc. He regularly serves on program committees in the IoT, mobile system, and networking field such as MobiCom, SenSys, and Infocom. Prior to joining SCI, Dr. Shangguan received his PhD from the Hong Kong University of Science and Technology in 2015, and was a post-doc at Princeton, and researcher at Microsoft.

Research Highlights

Assistant Professor Xiaowei Jia was awarded one of four best dissertation awards from the University of Minnesota for his dissertation titled "Integrating Physics into Machine Learning for Monitoring Scientific Systems". His dissertation and research introduced a new generation of machine learning approaches, including a physics-guided framework which explored a deep coupling of machine learning methods with scientific knowledge. His lab is quickly expanding, and some of his many works have received best paper awards and have been funded extensively by several agencies.

Assistant Professor Xulong Tang's most recent research on training Deep Neural Networks (DNNs) received a grant from the National Science Foundation (NSF). His lab's work includes uncovering and addressing architectural bottlenecks of DNN executions, working on GPUs, and other computer architecture features. The outcome of this research is expected to achieve scalable DNN executions on multi-GPU infrastructures.

Professor Diane Litman and collaborators in Pitt's Learning Research & Development Center were awarded an NSF grant to design a system that will improve students' implementation of the feedback on text-based argument writing, leading to more successful revision and ultimately better writing. Dr. Litman has decades of experience in both natural language processing and educational research.

Associate Professor Erin Walker is principal investigator on an NSF grant to study the use of robots in middle school math classrooms. In this project, among others, Walker and colleagues are investigating the use of robots to support collaborative learning. The main goal of the project is to gain a better understanding of how robots can be integrated effectively into various learning environments.
Our Mission: to innovate in education and research at the junction of information, networks, and human behavior towards discovering and modeling of new social and technical phenomena.

Offering Undergraduate and Graduate Degree Programs in Information Science, Computational Social Science, and Telecommunications

Research Highlights:

Prof. Peter Brusilovsky leads a $2 Million NSF collaborative grant with CMU, North Carolina State and Virginia Tech universities on supporting the Computer Science Education Hub social and technical infrastructure to accelerate research on teaching and learning of computing disciplines.

Prof. Konstantinos Pelechrinis is part of a $1.1 Million NSF grant to build a sustainable national network for developing and disseminating Sports Content for Outreach, Research, and Education in data science.

Prof. Ahmed Ibrahim and Balaji Palanisamy received an award from the NSA and the NS to host the first GenCyber Program in the Pittsburgh region.

Prof. Vladimir Zadorozhny will collaborate with Pitt and CMU researchers to optimize recovery prediction after cardiac arrest. Zadorozhny’s team for this NIH-funded project will develop methods for continuous accumulation, storage, aggregation, and interpretation of large-scale medical data.

Prof. Morgan Frank received a grant from the Heinz Foundation to study barriers that fossil fuel workers may face in entering green industry jobs.

Prof. Kaushik Seshadreesan is awarded an NSF CCF grant for realizing joint detection receivers for quantum-enhanced optical communications using photonic NISQ-era quantum processors.

Meet Our New Faculty:

Dr. Stewart, Assistant Professor, most recently served as a Postdoctoral Fellow in the Human-Computer Interaction Institute at Carnegie Mellon University. She earned her PhD in Computer Science at the University of Colorado Boulder. Her research is at the intersection of education, human-computer interaction, and artificial intelligence with specific interest in education technology for justice and equity, cognition and social dynamics in learning spaces, and artificial intelligence in education.

Pengfei Zhou, Assistant Professor, previously served as a Research Scientist in the Advanced Digital Sciences Center, Illinois at Singapore. He has also been a Research Fellow in the Alibaba-NTU Joint Research Institute, Singapore, and a Technical Advisor with Alibaba Group. Dr. Zhou earned his PhD in Computer Science and Engineering from Nanyang Technological University. His research interests include mobile and intelligent systems, Artificial Intelligence of Things, Autonomous Cyber Physical Systems, and 5G Networking and Applications.
Faculty Highlights

2022
- Jiebo Luo is elected a member of Academia Europaea.
- Jiebo Luo is named the Albert Arendt Hopeman Professor of Engineering.
- Sree Pai receives an NSF CAREER award.
- Michael Scott is elected a Fellow a of the AAAS.
- Yuhao Zhu and UR alum Sifan Ye (BS'20) and Ting Wu (MS'20) win the Kostas Pantazos Memorial Award for Outstanding Paper in Visualization and Data Analysis.
- Test of Time Award at HPCA 2022 awarded to work by Greg Sementaro, Grigoris Magklis, and Rajeev Balasubramonian, with advisors David H. Albonesi, Sandhya Dwarkadas, and Michael Scott.
- Department faculty secure over $5M in new external grants.

2021
- Chenliang Xu is awarded a James P. Wilmot Distinguished Assistant Professorship.
- James Allen is named a Fellow of the American Association for the Advancement of Science.
- Yuhao Zhu receives an NSF CAREER award.
- Ehsan Hoque and Zhen Bai are awarded a Google CSR grant for innovative work with undergraduates from historically underrepresented groups.
- Jiebo Luo receives national coverage for a series of papers on using social media data to study the COVID-19 pandemic.
- Rochester is ranked 8th in the US in Computer Vision in the 2020 CSRankings.

Undergraduate and Graduate Highlights

2022
- Vladimir Maksimovskiy, Thanh Bao, and Loc Bui Dung Le, coached by Professor Daniel Stefankovic, advance to the North American Championship of the International Collegiate Programming Competition.
- Mandar Juvekar receives Honorable Mention in the CRA Outstanding Undergraduate Researcher competition.
- PhD alumnus Maged Michael shares the 2022 Edsger W. Dijkstra Prize in Distributed Computing.
- PhD alumnus Bob Wisniewski is named an Intel Fellow.
- PhD Alumnus Mohhammad Zaki is named an ACM Fellow.

2021
- Songyang Zhang and coauthors received the Best Long Paper award at NAACL.
- Jie Zhou is awarded Silver in the ACM Student Research Competition at PLDI.
- Ben Kane receives Honorable Mention in the NSF Graduate Research Fellowship Program competition.
- Rizwan Baten is featured as an inspiring researcher on ResearchGate.
- Boyu Zhang is selected as a finalist in the CRA Outstanding Undergraduate Researcher competition, and Yipeng Zhang and Ashely Tenesaca receive Honorable Mention.
- Computer Science Undergraduate Council receives Rochester’s Excellence in Programming Student Life Award.
- Neil Yeung and Jonathan Lai present their work in a Data Skeptic podcast.
- PhD alumna Amanda Stent is appointed Director of the new Davis Center for Artificial Intelligence at Colby College.
- PhD alumnus Rajeev Balasubramonian is named an IEEE Fellow.
- James Spaan, with advisor Ehsan Hoque, wins Best Paper award at the 2021 ACM Spatial User Interaction (SUI) conference.
**DEGREES AWARDED AY 2021-2022**

- BS in Computer Science (181)
- BS in Computer Engineering (52)
- BS in Cybersecurity (72)
- BS in Information Technology (78)
- MS in Computer Science (41)
- MS in Computer Engineering (8)
- MS in Information Technology (10)
- PhD in Computer Science and Engineering (13)

**RESEARCH BENCHMARKS**

- Academic Analytics AAD 2020
  - Comparison group: US Public
  - Overall: top 15%

**KEY FACTS AND RANKINGS**

- CSE faculty members lead USF Institute for Artificial Intelligence (AI+X), USF Center for Cryptographic Research, and USF Quantum Initiative.
- Faculty members are currently executing $12 million in active external research grants from NSF, DoD, NIH, NIST, industry, and state sources. As reported to ASEE, the annual research expenditure for 2020-21 was $4.5 million.
- CSE has an active Computing Partners Program with CAE, Johnson & Johnson, JPMorgan Chase & Co., Nielsen, and Raymond James.
- USF CSE has a major initiative to broaden participation in computing through a three-year grant from NU Center for Inclusive Computing.
- According to Academic Analytics Scholarly Research Index (using default weights for grants, articles, conferences, awards, and citations) (AAD 2020):
  - USF CSE is top 15% among 177 Computer Science departments in public universities.
  - USF CSE is among the top 35% of Computer Science departments in highly prestigious AAU Public Institutions.
  - USF CSE is a top 10 USF department based on discipline-based ranks.

**FACULTY RESEARCH AREAS**

- Computer Vision and Pattern Recognition, Artificial Intelligence and Machine Learning, Robotics, Brain-Computer Interfaces, Computational Neuroscience, Affective Computing
- Computer Architecture, VLSI, Ubiquitous Sensing Networks, Distributed Computing, Parallel Processing, and Biomedical Devices
- Biomedical Imaging, Machine Learning, Databases, Visualization, Social Networks, Efficient Computing Platforms, and Human-Centered Computing
FACULTY STATISTICS

- 91 total
- 23 NSF Early Career Awards
- 60 Society Fellows
- 9 National Academy Members
- 41 Tenure-Track Faculty
- 25 Tenure/Tenure-Track Faculty Hires in 5 Years

STUDENT STATISTICS

- PhD 328
- Master's 3225
- 35.5% female students
- 5040 total
- Undergraduate 1487

NEW FACULTY

- Swabha Swayamdipta
  PhD Carnegie Mellon University
  Natural language processing/machine learning
- Dani Yogatama
  PhD Carnegie Mellon University
  Natural language processing/machine learning/AI
- Weihang Wang
  PhD Purdue University
  Software engineering
- Souti Chattopadhyay
  PhD Oregon State University
  HCI/software engineering
- Harsha V. Madhyastha
  Assistant Professor, University of Michigan
  Distributed systems, networking
- Lars Lindemann
  PhD KTH Royal Institute of Technology
  Systems and control theory/formal methods
- Oded Stein
  PhD Columbia University
  Geometry processing/computer graphics

NEW LEADERSHIP

- An internationally recognized leader in software engineering, Nene Medvidović has been appointed as the new chair of the Department of Computer Science.

FACULTY RESEARCH HIGHLIGHTS

- Cyrus Shahabi is leading a $1.2 million effort to simplify how medical professionals analyze wearable data.
- Barath Raghavan is exploring ways to effectively manage green energy by precomputing data when clean power is plentiful, and storing it for later use.
- Laurent Itti is investigating how synthetic neurophysiological data could speed up the training of brain-computer interfaces for people with disabilities.
- Bistra Dilkina is working with researchers from the USC Suzanne Dworak-Peck School of Social Work to identify individualized PTSD interventions for veterans.

A NEW HOME

- Ginsburg Hall, the future home of computer science at USC, will be the first LEED Platinum-certified building on campus.

MAKING AN IMPACT SINCE 1976

- Leonard Adleman, who coined the term “computer virus,” invented DNA computing.
- Michael Arbib led the development of Neural Simulation Language (NSL) to model behavior and thought.
- Barry Boehm created the “constructive cost model” for software cost estimation.
- George Bekey co-created the world’s first five-fingered robot.
- Maja Matarić pioneered the field of socially assistive robotics to help people overcome challenges.
- The Center for AI in Society (CAiS) is one of the first “AI for Good” centers in the country.
The School of Computing Sciences and Computer Engineering at The University of Southern Mississippi is comprised of undergraduate programs in Computer Science, Computer Engineering, Information Technology, and Cybersecurity, and graduate programs in Computer Science and Computational Science. We offer undergraduate certificates in Cybersecurity, Networking and Software Engineering.

We are committed to providing a student-centered learning environment with a focus on inclusion, and 25% of our undergraduates identify with a racial minority group that is historically underrepresented in computing.

Our faculty are active in funded research in artificial intelligence, machine learning, virtual/augmented reality, bioinformatics, cybersecurity, and broadening participation in computing.

New Faculty in Fall 2022

Aleise McGowan  
PhD  
University of South Alabama

Jose Martinez  
PhD  
Louisiana State University

Uju Mbachu  
MS  
National Open  
University of Nigeria

Dara Jaiyeola-Ajayi  
PhD  
Mississippi State University
# Highlighting New Faculty Members

Since 2006, current and former faculty members have received:

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<th>NSF Career</th>
<th>IEEE Fellow</th>
<th>AFOSR YIP</th>
<th>ACM Fellow</th>
<th>NSF CRII Awards</th>
<th>AIMBE Fellow Awards</th>
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## Research Highlights

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<tbody>
<tr>
<td>$400k</td>
<td>NSF, Utilizing Conducted Electromagnetic Interference (EMI) for Low-Cost Server-Level Power Monitoring in Data Centers</td>
<td>Mohammad Atiqul Islam and VP Nguyen</td>
<td></td>
</tr>
<tr>
<td>$218k</td>
<td>NSF, DARE: A Personalized Assistive Robotic System that assesses Cognitive Fatigue in Persons with Paralysis</td>
<td>Fillia Makedon</td>
<td></td>
</tr>
<tr>
<td>$2.4m</td>
<td>NSF, Enabling Smart Cities in Coastal Regions of Environmental and Industrial Change: Building Adaptive Capacity through Sociotechnical Networks on the Texas Gulf Coast</td>
<td>Yonghe Liu (Co-Pi)</td>
<td></td>
</tr>
<tr>
<td>$298k</td>
<td>NSF, Justice in Data: An intensive, mentored online bootcamp developing FAIR data competencies in undergraduate researchers in the water and energy sectors</td>
<td>Sharma Chakravorty (Co-Pi)</td>
<td></td>
</tr>
<tr>
<td>$1.7m</td>
<td>NIH, Developing an Individualized Deep Connectome Framework for ADRD Analysis</td>
<td>Dajiang Zhu</td>
<td></td>
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<tr>
<td>$489k</td>
<td>NSF, INCA: Incremental Analysis of Software Specification for Evolving Systems</td>
<td>Allison Sullivan</td>
<td></td>
</tr>
<tr>
<td>$410k</td>
<td>U.S. Department of Health and Human Services, Improve Public Health Information Technology and COVID-19 Data Gathering</td>
<td>Chengkai Li (Co-I)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Funding</th>
<th>Title</th>
<th>Investigators</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>$40k</td>
<td>Comcast Research Award, Using Social Media as a Novel Source for Identifying Active Phishing Threats</td>
<td>Shirin Nilizadeh</td>
<td></td>
</tr>
<tr>
<td>$405k</td>
<td>NSF REU Site: Assistive Technologies for People with Disabilities</td>
<td>Ishfaq Ahmad</td>
<td></td>
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<tr>
<td>$402k</td>
<td>NSF REU Site: Hybrid Design and Fabrication</td>
<td>Cesar Torres</td>
<td></td>
</tr>
<tr>
<td>$2.7m</td>
<td>NIH, Mapping Trajectories of Alzheimer’s Progression via Personalized Brain Anchor-nodes</td>
<td>Dajiang Zhu</td>
<td></td>
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<tr>
<td>$100k</td>
<td>Cisco Research Grant Funding, Security Hardening of IoT Devices via Binary Deobfuscating</td>
<td>Jiang Ming</td>
<td></td>
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<tr>
<td>$95K</td>
<td>NSF, BPC-AE: An Extended CASSI Alliance to Broaden Participation in Graduate Studies, Carter Tierman and Chengkai Li</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$2m</td>
<td>CPRIT First-Time Faculty Award, Leveraging Distributed Deep Learning to Accelerate Petabyte Scale Cancer Imaging Search and Downstream Drug Discovery</td>
<td>Jacob Luber</td>
<td></td>
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</tbody>
</table>

## Achievement Corner

<table>
<thead>
<tr>
<th>Institution</th>
<th>Notes</th>
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<tbody>
<tr>
<td>R-1 University</td>
<td>Carnegie Classification of Institutions of Higher Education</td>
</tr>
<tr>
<td>Texas Tier One University</td>
<td>#1 in Texas for First Generation Students</td>
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<tr>
<td>#1 in Texas for Degrees to African American Students</td>
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<table>
<thead>
<tr>
<th>CSRankings.org</th>
<th>Papers 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 AAAI, 2 ICML, 1 WWW, 1 ASPLOS, 1 VLDB, 2 ICDE, 1 HPDC, 3 EuroSys, 1 CHI, 1 Ubicomp, 1 USRNK ATC, 2 MobiCom</td>
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<table>
<thead>
<tr>
<th>CSRankings.org (2017-2022, all avenues)</th>
<th>#60 Overall</th>
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<tbody>
<tr>
<td>#18 Operating Systems</td>
<td></td>
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<tr>
<td>#16 High Performance Computing</td>
<td></td>
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<tr>
<td>#32 Mobile Computing</td>
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<table>
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<tr>
<th>Hispanic Serving Institution</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4 “Best for Vets” (2022 U.S. Military Times)</td>
<td></td>
</tr>
<tr>
<td>#5 for Ethnic Diversity (U.S. News &amp; World Report)</td>
<td></td>
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<tr>
<td>#5 for Transfers (U.S. News &amp; World Report)</td>
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## Students, Enrollment, and Community

Association of Computing Machinery (ACM) Fellow 2022, Gautam Das

The American Institute for Medical and Biological Engineering (AIMBE) Fellow 2022, Jiao Gao

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 29 – July 1, 2022.

2022 ACM SIGMETRICS Test of Time Award Professor Jiang Song and his colleagues win the 2022 ACM SIGMETRICS Test of Time Award for their paper “Workload analysis of a large-scale key-value store” published in SIGMETRICS/Performance 2012

Senior Design industry sponsorship program

50+ sponsored projects and over $262,300 in pledged funding since Spring 2016. An additional $35,000 pledged for Fall 2022.

Grants for broadening participation in computing

The CSE Department hosted the 3rd OurCS@DFW (annual regional research workshops for undergraduate and high-school students) and the 3rd SCRF (Student Computing Research Festival) in February 2022.

2022 ACM Student Research Competition Grand Finalists: Second Place

Haotian Zhang (Ph.D. student, advisor: Dr. Jiang Ming)

Best Paper Award at AutoSec’22@NDSS

Paul Agbaje, Afia Anjum and Arkayioti Mitra (Ph.D. students, advisor: Dr. Habeeb Oluwole)

Best Technical Poster Award at NDSS 2022

Mohit Sanghal and Nihal Kumaraswamy (Ph.D. student and MS student, advisor: Dr. Shirin Nilizadeh)

Best Paper Award at eCrime 2021

Sayak Saha Roy (Ph.D. student, advisor: Dr. Shirin Nilizadeh)
The Computer Science Department at UT Dallas is one of the largest in the US with approximately 5,800 students and a distinguished faculty that has won numerous awards.

Research Highlights

- Broad areas of research: AI, ML, Data Science, Software Engineering, Cyber Security, Networks, Systems, Theory.
- Over $45 Million total external funding over the last 5 years.
- 17 NSF CAREER Award Winners, with 2022 awardees: Wei Yang and Shuang Hao.
- CS Faculty direct 4 research institutes, 8 research centers, and one education/outreach center.
- CS Dept. ranked #8 in NLP, #5 in Software Engineering, and #7 in Embedded and Real-Time Systems in CSrankings.org (10-'20 period).
- Prof. Murat Kantarcıoglu and Latifur Khan named IEEE Fellows.
- Prof. Zygmunt Haas named ACM Fellow.
- Prof. Shiyi Wei received Distinguished Paper Award at USENIX 2022.
- Prof. B. Prabhakaran’s named Editor in Chief of IEEE MultiMedia journal.
- Prof. Bhavani Thuraisingham Honored with a Special Recognition Award at IEEE Cyber Security Cloud Conference For Her Work on Diversity, Equity, and Inclusion in Cyber Security, Cloud and Data Science.
- Center for Applied AI and Machine Learning (CAIML) Assists InfoVision To Develop Drone-Inventory System.
- UT Dallas CS Researchers Apply Power of AI To Forecast Energy Supply, Demand.
- Members of UT Dallas’s Machine Learning Center, directed by Professor Sriraam Natarajan and the Cyber Security Research and Education Institute, directed by Professor Kevin Hamlen, published seven papers at AAAI 2021.

Student Numbers/Growth/Education Highlights

- Approximately 5,800 total students (4,400 Undergraduates, 1,200 Master’s Students, 120 PhDs).
- Awarded approximately 800 Bachelors, 300 Masters, and 40 PhDs degrees in 2021-2022.
- Nearly 100 teams completed industry-sponsored senior-design, capstone projects.
- Platinum sponsor of Grace Hopper Conference.
- 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, Cyber Security Group.
- Center for CS Outreach runs one of the largest university-based K-12 outreach program.
- NSA Center of Excellence in Cyber Security Education, Research and Cyber Operations.
- Data Science BS degree offered jointly with the School of Natural Sciences and Mathematics.
- 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.
- 2022 U.S. News & World Report Best Colleges rankings place CS at No. 63 for its graduate program. UniversityHQ ranks UTD CS in the Top 50 Best Computer Science Schools and Colleges in the US.

Organizational News

- Multiple new positions to be filled in Computational Biology, Quantum Computing, Computational Neuroscience, Robotics, Computer Vision, Cyber Security, Artificial Intelligence, Machine Learning, and Human Computing Interaction (HCI).
- Center for Research in Machine Learning recently founded by Drs. Gogate, Ruozzi, and Natarajan.
- Center for Applied Artificial Intelligence and Machine learning, directed by Dr. Doug DeGroot and Dr. Gopal Gupta, attracted multi-millions in industry funding.
DEPARTMENT HIGHLIGHTS

Professor Eyal de Lara was appointed to a five-year term as chair of the Department of Computer Science, effective July 1, 2022. As a cloud and mobile computing researcher, de Lara has contributed novel algorithms for system virtualization, edge computing, application scaling, indoor localization, mobile security and continuous mobile sensing.

In response to the war in Ukraine, the Department of Computer Science quickly developed a summer research program for students at Ukrainian universities, enabling 26 students to spend the summer in Toronto conducting research. Many of them remain in Toronto for the academic year.

The New York Times highlighted Toronto’s status as a “quietly booming tech town,” citing key contributions from Department of Computer Science faculty and alumni in establishing the city as North America’s third-largest tech hub.

Cohere, an AI startup founded by U of T computer science alumni that uses natural language processing to improve human-machine interactions, raised US$125 million in its latest fundraising round.

The Department of Computer Science launched a set of micro-credential offerings in machine learning for technology professionals with a background in computer science. The Technology UpSkilling Program welcomes its first cohort of learners in fall 2022.

BY THE NUMBERS

<table>
<thead>
<tr>
<th>UNDERGRADUATE</th>
<th>FACULTY</th>
<th>GRADUATE</th>
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<tbody>
<tr>
<td>3,862 CS1</td>
<td>96</td>
<td></td>
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<tr>
<td>1,846 CS Major/Specialist (incl. Data Science)</td>
<td></td>
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<tr>
<td>20,000 Course Enrolments</td>
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<td>82 MSc</td>
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<tr>
<td></td>
<td></td>
<td>181 MSc Applied Computing</td>
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<td>291 PhD</td>
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</table>

FACULTY AWARDS & HONOURS

- Professor Raquel Urtasun — Mark Everingham Prize, IEEE International Conference on Computer Vision (October 2021)
- Professor Marsha Chechik — Fellow of Automated Software Engineering, IEEE/ACM International Conferences on Automated Software Engineering (December 2021)
- Associate Professors David Duvenaud and Alec Jacobson — Sloan Research Fellowships (February 2022)
- Assistant Professor Sushant Sachdeva — Ontario Early Researcher Award (April 2022)
- Assistant Professor Ashton Anderson — Outstanding Early Career Computer Science Researcher Prize, CS-Can/Info-Can (April 2022)
- Professor Fahiem Bacchus — Lifetime Achievement Award, Canadian Artificial Intelligence Association (May 2022)
- University Professor Emeritus Geoffrey Hinton — Princess of Asturias Award for Technical & Scientific Research, Princess of Asturias Foundation (July 2022)
- University Professor Emeritus Geoffrey Hinton — Royal Medal, Royal Society (August 2022)
SoC by the numbers

2022 NSF Career Award Recipients

Bei Wang-Phillips
Associate Professor
CAREER: A Measure Theoretic Framework for Topology-Based Visualization

Jason Wiese
Assistant Professor
CAREER: Making Smart Hospital Rooms Useful

Summer Bridge Program for Incoming Freshman

A new program was established to help ready incoming students for the challenges of our program. Exposure to course tools, student resources, and getting to know the campus will set these freshmen up for a successful first year.

New Faculty

Daniel Brown
Assistant Professor
Robotics

Anton Burtsev
Assistant Professor
Operating Systems

Shireen Elhabian
Associate Professor
Image Analysis

Kate Isaacs
Associate Professor
Data Visualization

Nabil Makarem
Assistant Professor, Lecturer
Internet of Things

Ana Marasovic
Assistant Professor
Natural Language Processing

Stefan Nagy
Assistant Professor
Computer Security & Systems

Prashant Pandey
Assistant Professor
Data Structure & Algorithms

Paul Rosen
Associate Professor
Visualization

Haitao Wang
Associate Professor
Computational Geometry

Yin Yang
Associate Professor
Computer Graphics

Jun Xu
Assistant Professor
Software & System Security

Our faculty will continue to grow in 2023-2024. We are searching for additional new faculty members. www.cs.utah.edu/faculty-hiring/
HIGHLIGHTS

UVA CS is the lead institution on a $5 million National Science Foundation grant to co-design software, hardware and algorithms to enable extreme-scale machine learning systems.

UVA CS received $1.12 million of a $1.6 million NSF grant to build a platform through which research communities can collaborate to advance core NSF computer and information science and engineering areas.

BP America Professor John A. (Jack) Stankovic is the 2022 recipient of the IEEE Technical Committee on Cyber-physical Systems Technical Achievement Award, his third IEEE technical achievement award.

Matthew B. Dwyer, Robert Thomson Distinguished Professor, received the IEEE Computer Society’s 2022 Harlan D. Mills Award, a technical award “for contributions to the specification and analysis of software.”

Ph.D. candidate Jing Ma won a best research paper award as first author at KDD ’22, a premier scientific conference in knowledge discovery and data mining.

Former Ph.D. student Tamjid Al Rahat earned a $5,000 reward through Google’s bug bounty program for discovering a high-severity security flaw.

Five faculty were named NSF Career Award winners.

CENTER AND INITIATIVES

LINK LAB
A multidisciplinary center for research in cyber-physical systems, with more than 250 faculty and graduate students conducting pioneering work in autonomous vehicles and robotics, smart and connected health, and smart cities.

UVA BIOCOMPLEXITY INSTITUTE
Uses the power of computation and the combined expertise of transdisciplinary teams to address the most complex challenges affecting human health, society and the environment.

CENTER FOR RESEARCH IN INTELLIGENT STORAGE AND PROCESSING IN MEMORY
A national research center based at UVA dedicated to overcoming the “memory wall” limiting processing speeds of conventional computer systems.

CYBER INNOVATION AND SOCIETY INITIATIVE
A multidisciplinary research and education initiative focusing on the technical, social and policy challenges posed by emerging cyber innovations.

CENTER FOR INNOVATION IN COMPUTING EDUCATION AND OUTREACH
A center committed to being leaders in computing educational research and practice to improve the experiences and outcomes of all students of computing at UVA and beyond.

NEW TENURE-TRACK FACULTY 2022-2023

Sandhya Dwarkadas
New Department Chair and the Walter N. Munster Professor of Computer Science
Ph.D., Rice University
Computer architecture, experimental systems, parallel and distributed systems

Wajih U1 Hassan
Assistant Professor
Ph.D., University of Illinois Urbana-Champaign
System security, data provenance, threat detection, forensic analysis

Advait Jog
Associate Professor
Ph.D., Pennsylvania State University
Computer architecture and systems; performance, reliability, security of GPUs and accelerators

Shangtong Zhang
Assistant Professor
Ph.D., University of Oxford
Reinforcement learning

RESEARCH STRENGTHS

- CYBER-PHYSICAL SYSTEMS
- HUMAN-COMPUTER INTERACTION
- THEORY
- COMPUTER SCIENCE EDUCATION
- CYBERSECURITY
- SOFTWARE ENGINEERING
- ARTIFICIAL INTELLIGENCE
- COMPUTER SYSTEMS
2022 HIGHLIGHTS

WELCOMING RECENT FACULTY HIRES

Gilbert Bernstein / Graphics+Programming Languages
Andrea Coladangelo / Quantum+Cryptography
Elba Garza / Teaching
Matthew Golub / Computational Neuroscience
Scott Ichikawa / Teaching
Natasha Jacques / AI+Machine Learning
Baris Kasikci / Architecture+Systems+Security
Pang Wei Koh / Machine Learning
James Wilcox / Teaching

SUPPORTING A DIVERSE COMMUNITY

Last fall, the Allen School launched our 5-year strategic plan for DEIA to coalesce our various efforts aimed at increasing diversity, equity, inclusion and access into a unified framework. Our plan encompasses programmatic support for students from underrepresented backgrounds, mentoring and professional development for faculty and staff, facilities and budgeting, and communications and outreach, with built-in metrics for accountability.

FORGING NEW COLLABORATIONS

The UW+Amazon Science Hub supports researchers tackling open problems in robotics and AI and their real-world applications
CS 4 the Environment supports cross-disciplinary research that applies computing to pressing environmental challenges

CULTIVATING STUDENT EXCELLENCE

Goldwater Scholarship / Alex Mallen
Google/CMD-IT LEAP Dissertation Fellowships / Saadia Gabriel, Dhruv Jain
NSF GRFP Recipients / Jon Hayase, Alisa Liu (graduate); Jerry Cao, Lucy Jiang, Joey Schafer (undergraduate)
CRA Outstanding Undergraduate Researcher Awards / Jerry Cao, Mike He, Yu Xin (honorable mentions)

ADVANCING COMPUTER SCIENCE FOR GOOD

Cost-aware predictive AI to assist first responders and clinicians in rapidly assessing patient risk factors (Su-In Lee)
Novel NLP techniques for understanding large-scale social movements and countering bias online (Yulia Tsvetkov)
Biodegradable circuits to support environmentally sustainable computing and enable new sensing applications (Vikram Iyer)

CELEBRATING FACULTY ACCOLADES

National Academy of Engineering
Anna Karlin / Theory
Joshua Smith / Wireless+Robotics
ACM SIGMOD Edgar F. Codd Innovations Award
Dan Suciu / Databases
CRA-WP Anita Borg Early Career Award
Maya Cakmak / Robotics
Association for Computational Linguistics Fellow
Luke Zettlemoyer / NLP
ACM SIGCHI Social Impact Award
Jennifer Manoff / HCI+Accessibility
Sloan Research Fellowship
Yulia Tsvetkov / NLP
Simons Investigator Award
Shayan Oveis Gharan / Theory
IEEE TCDE Rising Star Award
Leilani Battle / Data Visualization
DARPA Young Faculty Award
Byron Boots / Robotics
NSF CAREER Awards
Tim Althoff / Data Science
Leilani Battle / Data Visualization
Simon Du / Machine Learning
Kevin Jamieson / Machine Learning
Chris Thachuk / Molecular Computing
Yulia Tsvetkov / NLP

NSF GRFP Recipients / Jon Hayase, Alisa Liu (graduate); Jerry Cao, Lucy Jiang, Joey Schafer (undergraduate)
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CRA Outstanding Undergraduate Researcher Awards / Jerry Cao, Mike He, Yu Xin (honorable mentions)
EXECUTIVE LEADERSHIP IN ACADEMIC TECHNOLOGY, ENGINEERING, AND SCIENCE

Julie Kientz, Professor and Chair of the Department of Human Centered Design & Engineering is selected to Drexel University’s Executive Leadership in Academic Technology, Engineering, and Science (ELATES) fellowship program. ELATES is a national leadership development program designed to promote women in academic STEM fields, and faculty allies of all genders, into institutional leadership roles.

GOOGLE PHD FELLOWSHIP

Meena Muralikumar, a PhD candidate in Human Centered Design & Engineering, is awarded the 2022 Google PhD Fellowship in the category of Human Computer Interaction. Muralikumar’s fellowship will support her investigations into supporting UX Practitioners to design with Artificial Intelligence and Machine Learning.

HCDE Students and Faculty Prioritize Equity and Empathy in the Construction of the Future. We Connect Complex Methodologies, Systems, and Technologies to Critical Needs in Everyday Life.

HCDE Students

219 Bachelor of Science
275 Master of Science
60 Doctor of Philosophy
33 Certificate in User-Centered Design

65% Women students
46% BIPOC students
8% First-generation college students

HCDE Faculty

18 Tenure/tenure-track
61% women
8 Career teaching professors
63% women

NEW FACULTY 2021-2022

Dr. Sayamindu Dasgupta
Assistant Professor
Professor Dasgupta's research focuses on how young people can learn with and about data, especially in contexts of the communities that they live, learn, and play in.

2021-2022 News Highlights

EXE C UTIVE LEADERSHIP IN ACADEMIC TECHNOLOGY, ENGINEERING, AND SCIENCE

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CENTER FOR AN INFORMED PUBLIC

The University of Washington’s Center for an Informed Public, directed by HCDE Associate Professor Kate Starbird, received a $1 million gift from Craig Newmark Philanthropies to support the center’s rapid-response research of election-related misinformation and disinformation. The Center aims to translate research about misinformation and disinformation into policy, technology design, curriculum development, and public engagement.

GOOGLE PHD FELLOWSHIP

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ACCOLADES

Dean Anind K. Dey and Professors Batya Friedman and Jacob O. Wobbrock were recognized as ACM Fellows by the Association for Computing Machinery. The ACM Fellows program recognizes the top 1% of members for their outstanding accomplishments in computing and information technology and/or outstanding service to ACM and the larger computing community.

Professor Amy J. Ko was inducted into the CHI Academy, the top honor in human-computer interaction research. She joins Dey, Friedman and Wobbrock as UW iSchool faculty who have received this recognition.

The Association for Information Science & Technology (ASIS&T) announced that Harry Bruce, UW iSchool dean emeritus, is the 2022 recipient of its highest honor, the ASIS&T Award of Merit. The award recognizes an individual who has made particularly noteworthy and sustained contributions to the information science field.

The UW recognized nine iSchool students in the 2022 Husky 100, awarded to students who demonstrate leadership and commitment throughout their time at the UW.

NEWS & IMPACT

A research team led by the Information School’s Center for an Informed Public curated an expansive collection of tweets to assist researchers in examining the broad scope of misinformation circulated about the 2020 U.S. elections, including Twitter accounts that repeatedly spread election-related misinformation. The dataset points to 456 distinct misinformation stories from the elections.

Assistant Teaching Professor Heather Whiteman received a Fulbright Scholar Award to design, deliver and stand up a master’s level specialization program in People Analytics (the first in Latin America) at Universidad Francisco Marroquin in Guatemala City.

Ph.D. candidate Shruti Phadke was the lead author and Assistant Professor Tanu Mitra the senior author on the ICWSM 2022 Best Paper Award recipient, Pathways through Conspiracy: The Evolution of Conspiracy Radicalization through Engagement in Online Conspiracy Discussions.

Assistant Professor Mike Teodorescu was the lead author on both the Best Paper recipient and the Best Paper Runner-Up at the Academy of Management’s Technology Innovation Management Conference. The winning paper analyzed interventions meant to improve low-resource inventors’ ability to secure patents.

Professor Chirag Shah and postdoctoral scholar Yunhe Feng co-authored a paper at AAAI 2022 titled Has CEO Gender Bias Really Been Fixed? Adversarial Attacking and Improving Gender Fairness in Image Search. The paper showed that such biases persist across four major search engines, including Google.

LEADING-EDGE RESEARCH

$7,783,516 in research funding for fiscal 2021-22.

DIVERSITY IN TECH

62% of domestic students in the iSchool’s Master of Science in Information Management (MSIM) program are Black, Indigenous, people of color. Meanwhile, 51% of students across the program are women.

47% of Informatics students are women, helping to close the gender gap in STEM fields.
Our highlights

- Algorithms and complexity
- Artificial intelligence and machine learning
- Bioinformatics
- Computer algebra and symbolic computation
- Computer graphics
- Cryptography, security, and privacy
- Data systems
- Formal methods
- Health informatics
- Human-computer interaction
- Programming languages
- Quantum computing
- Scientific computation
- Software engineering
- Systems and networking
- Theoretical neuroscience

Our new faculty members

Mina Tahmasbi Arashloo
Networked systems, software-defined networking, programmable data planes

Hongyang Zhang
Machine learning, AI security and privacy, trustworthy machine learning

Our CS research Areas

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, and more than 4,000 undergraduate students and 400 graduate students.

Cheriton School of Computer Science, top-ranked CS program in Canada for second year in a row
Maclean’s 2022 University Rankings

Cheriton School of Computer Science, ranked 25th CS program internationally 2022 Quacquarelli Symonds World University Subject Rankings

Jo Atlee
2022 ACM SIGSOFT Distinguished Service Award

Ihab Ilyas
2021 Fellow of the Institute of Electrical and Electronics Engineers

Ming Li
2022 Fellow of the Canadian Academy of Engineering

Shane McIntosh
2022 Ontario Early Researcher Award

Former CS student Vitalik Buterin
Named 30 under 30 by Forbes

Universal blockchain interoperability network
Axelar, co-founded by Sergey Gorbunov
Raises $35 million USD Series B funding, joins ranks of unicorns

Float, co-founded by Cheriton School of Computer Science alumni Griffin Keglevich and Ruslan Nikolaev
Secures $37 million CAD in new investments

Chengnian Sun and colleagues
Most Influential Paper Award, SANER 2022

Anil Pacaci, M. Tamer Özsu, and colleague
Angela Bonifati
Best Paper Award, ICDE 2022

David Radke, Tim Brecht, and colleague
Daniel Radke
Best Research Paper Award, LINHAC 2022

Shihab Chowdhury
Best Dissertation Award, NOMS 2022

Soheil Johari with Nashid Shahriar, Massimo Tornatore, Raouf Boutaba and Aladdin Saleh
Best Student Paper Award, NOMS 2022

Muhammad Sulaiman, Arash Moayyedi, Mohammad A. Salahuddin, Raouf Boutaba and Aladdin Saleh
Best Paper Award, NOMS 2022

Ryan Goldade
2021 Alain Fournier Doctoral Dissertation Award

Nicholas Vadivelu, runner-up
Kelvin Jiang, finalist
Sourav Biswas and Vikram Subramanian, honourable mentions
2022 CRA Outstanding Undergraduate Researcher Awards

Chris Trevisan, Wen Yuen Pang, Marian Dietz
Second in east division, fourth overall, 2022 ICPC North America Championship
MAKING A DIFFERENCE IN THE WORLD OF COMPUTING.

DEGREE PROGRAMS OFFERED

**Undergraduate Programs**
- BS in Computer Science (ABET accredited)
- BS in Cybersecurity (ABET accredited; CAE designated)
- BS in Software Design and Development
- Interdisciplinary BS

**Graduate Programs**
- MS in Computer Science
- MS in Cybersecurity

**Certificate Programs**
- Cybersecurity
- Database Systems

SELECTED FACULTY GRANTS
- Anthony Pinto: NSA GenCyber ($200,000 combined total over 3 years)
- Anthony Pinto: NSA CAE Regional Hub and Consortium ($290,000)
- Ashok Srinivasan: A data analytics framework for the application of pedestrian dynamics to public health (NH/NIH $394,525)
- Ashok Srinivasan: Collaborative: RAPID: Leveraging New Data Sources to Analyze the Risk of COVID-19 in Crowded Locations (NSF: $200,000)
- Ashok Srinivasan: Cyberinfrastructure for Pedestrian Dynamics-Based Analysis of Infection Propagation Through Air Travel (NSF: $600,000)
- Ezhi Kalaimannan and Caroline Sangeetha John: NSF CyberCorps: Scholarship for Service grant program “Argo Cyber Emerging Scholars (ACES): Developing a Cybersecurity Community of Practice” (NSF: $2.3 million)
- Sikha Bagui: Center for Inclusive Computing ($600,000)
- Sikha Bagui, Brian Eddy, Amitabh Mishra: Computer Science For All (NSF: $320,000)
- Sikha Bagui: Robust Automated Risk Detection and Mitigation System for Network Intrusion Detection Systems (NSA: $375,000)
- Tirthankar Ghosh: Building a Sustainable Pathway for Future Cybersecurity Workforce Through Industry Collaboration, Apprenticeships, and Articulation (Cyber Florida/Florida Department of Education: $489,437)
- Tirthankar Ghosh: Connected Vehicle Security Metrics and Threat Intelligence (Florida Department of Transportation: $278,503)

STUDENT HIGHLIGHTS
- Undergraduate and graduate students are co-authors on peer-reviewed conference and journal publications.
- Undergraduate and graduate students present at regional/national/international conferences.
- Students regularly place in competitions:
  - Southeast Collegiate Cyber Defense Competition – Top 5 of 30 Teams
  - Southeast Collegiate Penetration Testing Competition – 2nd place
  - International Collegiate Programming Contest - Southeast Region – 3rd place, Division II

OUTREACH
- National Center for Women & Information Technology (NCWIT)

STUDENT ORGANIZATIONS
- Association for Computing Machinery (ACM)
- Cybersecurity Club
- Women in Cybersecurity (WiCys)
- AI and Data Analytics (AIDA)
Research Initiatives and Faculty Awards

Miron Livny and the team at the Center for Throughput Computing/Open Science Grid were instrumental in the recent Event Horizon Telescope Project photos of a black hole, by executing more than five million computational tasks that consumed more than 20 million core hours.

Bilge Mutlu’s project Integrating Robots into the Future of Work was awarded a 2022 NSF Research Traineeships (NRT) award, the goal of which is to train graduate students to build robots while considering societal issues, addressing the significant technical and human-centric challenges at the individual, organizational, and societal scales.

Suman Banerjee: IEEE Fellow for development of tools to improve performance and usability of wireless systems

Jin-Yi Cai: Fulkerson Prize in Discrete Mathematics in recognition of his article “Complexity of Counting CSP with Complex Weights”

Rahul Chatterjee and Yuhang Zhao: Facebook Research Award for accessible multi-factor authentication in augmented reality glasses

Mark Hill: Lifetime AAAS Fellow for distinguished contributions to advanced computer architecture, particularly for memory system design

Somesh Jha: Lifetime AAAS Fellow for distinguished contributions to the fields of formal methods and information security, particularly adapting techniques from formal methods to devise rigorous approaches to information security

Sharon Li: Facebook Research Award for Galaxy: a library for safeguarding deep neural networks against unknowns

Jignesh Patel: Lifetime AAAS Fellow for distinguished contributions to the field of database systems, particularly for high performance and scalable data processing methods

Education: New Computer Sciences Degrees

Master’s Degree in Data Science: Joint program with the Statistics Department, fastest growing major on campus

Master’s Degree in Data Engineering: Professional program that prepares students for careers

Plus One Program: Allows undergraduates to complete a Professional Master’s Degree with one more year of courses

Meet our newest faculty:

Rishab Goyal
Cryptography and computer security

Kirthevasan Kandasamy
Machine learning

Patrick McDaniel
Cybersecurity and systems

Ranked in the top ten by CSRankings.org for:

- Computer Architecture
- Databases
- Logic and Verification
- Machine Learning and Data Mining
- Operating Systems
- Programming Languages
- Visualization

Visit: www.cs.wisc.edu
BUILDING PARTNERSHIPS TO ACHIEVE DIVERSITY, EQUITY AND INCLUSION GOALS

UWM receives support from equity innovators, including BRAID (Building, Recruiting, and Inclusion for Diversity) and NCWIT (National Center for Women & Information Technology) to offer Girls Who Code, take students to national conferences, provide research experiences and enhanced services, and offer regionally targeted scholarships.

PROGRAMS:

- Bachelor of Arts in Computer Science
- Bachelor of Science in Computer Science
- Bachelor of Science in Applied Computing
- Bachelor of Science in Applied Mathematics & Computer Science
- Bachelor of Science in Computer Engineering
- Master of Science in Computer Science (thesis option)
- Master of Science in Computer Science (professional, non-thesis option; online and in person)
- 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
  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
  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.

HIGHLIGHTS

- **UWM is an R1 Research 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.**
  - Launched in partnership with the Medical College of Wisconsin.
  - Interdisciplinary program combines medical science with information technology to advance patient care, public health, life sciences research and health professional education.
  - 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.

- **$500,000 National Science Foundation Award: Philip Chang, physics, Mahsa Dabagh, biomedical engineering, and Susan McRoy, computer science, received NSF funding to support a three-week summer school to train graduate students in how to apply and integrate machine learning, computational methods, high-performance computing, and cyberinfrastructure for a variety of research problems. The school will feature lectures, lab exercises and homework from participating faculty from UWM, Marquette and UW-Parkside, beginning Summer 2023.**

- **UWM is a Founding Partner** in Moonshot for Equity, with EAB, a leading educational consulting firm, and launched the Fund for Diversity in Tech Education with support from Microsoft CEO and Computer Science alum Satya Nadella and his wife Anu. Their first cohort of Nadella Scholars, undergraduate students from Milwaukee high schools who received full-ride scholarships, enrolled at UWM in Fall 2022.

- **ABET Accreditation**: UWM’s Bachelor of Science Programs in Computer Science and Computer Engineering are accredited by ABET.

- **Student Connections:**
  - **BRAID (Building, Recruiting, and Inclusion for Diversity)**: UWM is one of 15 universities across the nation selected to join in 2014.
  - **Girls Who Code**: Now in its sixth 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.
  - **UAIC National Hub for Technology**: Launches new multi-year initiative to connect institutions of higher education and companies.
  - **CSI Launches**: First cohort of Nadella Scholars, undergraduate students from Milwaukee high schools who received full-ride scholarships, enrolled at UWM in Fall 2022.

DISTINGUISHED ALUMNI:

- Microsoft CEO Satya Nadella chose UWM for his Master of Science in Computer Science degree.
- Katia Sycara, Research Professor, Carnegie Mellon University.
- AnHai Doan, Vilas Distinguished Achievement Professor, Gurindar S. Sohi Professor, Department of Computer Sciences, University of Wisconsin.
- Philip Chang, physics, Mahsa Dabagh, biomedical engineering, and Susan McRoy, computer science, received NSF funding to support a three-week summer school to train graduate students in how to apply and integrate machine learning, computational methods, high-performance computing, and cyberinfrastructure for a variety of research problems. The school will feature lectures, lab exercises and homework from participating faculty from UWM, Marquette and UW-Parkside, beginning Summer 2023.

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DEPARTMENT NEWS

AI researchers win ‘social good’ award
A team of Vanderbilt computer scientists, working in collaboration with Google Research and a global aid organization, HelpMum, received top honors in the “social good” category for a paper describing a new tool designed to optimize childhood health and wellness in Nigeria at the 2022 International Joint Conferences on Artificial Intelligence (IJCAI).

NSF grant aims to make cars smarter
Professor Jonathan Sprinkle is among seven principal investigators using a $6 million grant from the National Science Foundation to explore a new way to engineer cyber-physical systems (CPS). Sprinkle’s role will be to find ways to enhance the capabilities of existing sensors and on-board computers currently installed in many vehicles.

Game theory informs DNA data privacy
Computer scientist Zhiyu Wan, PhD’20, computer science professor Bradley Malin, and colleagues at Vanderbilt University Medical Center demonstrate a game theoretic method for protecting de-identified genomic data against privacy attacks in which an adversary gathers information from different public sources to triangulate a target’s identity.

HIGHLIGHTS

#1 Online CS Master’s
Vanderbilt’s online master’s program in Computer Science was ranked No. 1 by Fortune magazine in July.

Medal of Science Committee
Vice Provost for Research and Professor of Computer Science, Padma Raghavan, was appointed to the President’s Committee on the National Medal of Science.

CS SIAM Fellow
Assistant Professor of Computer Science David Hyde is one of five new 2022 SIAM Science Policy Fellowship Program recipients, designed for early career professionals.

Coding for kids
Graduate Student Devin Cruz Jean was recognized by the IEEE for developing NetsBlox, a programming language that introduces coding to young learners.

COMPUTER SCIENCE LEADERSHIP

Vanderbilt Computer Science
615-322-2796
engineering.vanderbilt.edu/cs
CYBERSECURITY
• DoD Cyber Crime Center (DC3) Education Partnership Agreement between DoD and VCU for excellence in digital forensics
• 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

Graduate
• M.S. in Computer Science (with concentrations in data science and cybersecurity)
• Ph.D. in Computer Science
• Dual Ph.D. in Engineering with a Concentration in Computer Science with University of Cordoba, Spain (graduates receive doctorates from both institutions)
• Post-Baccalaureate Certificate in Cybersecurity
• Post-Baccalaureate Certificate in Data Science

Computing for All
• Fundamentals of Computing online certificate for students with no STEM background. Students earn Digital Generalist credential after completing 3 courses from the selection of programming, data science, cybersecurity and software engineering fundamentals. Current enrollment: 529.

STUDENT DIVERSITY
• 172% increase in female undergraduate students in last 5 years (Hispanic/Latinx: 900%; African/American: 650%)
• #1 Virginia engineering school for percentage of Hispanic graduates

STUDENT SUCCESS
• Female undergraduate student from Fundamentals in Computing program co-founds, leads nonprofit to give U.S. voters easier access to info on local candidates’ campaign finances
• Underrepresented undergraduate creates app to help caregivers of children with Down syndrome keep track of medical records, appointments and more.

FELLOWS AND MEMBERSHIP IN ACADEMICS
• Two IEEE Fellows, three AIMBE Fellows, and one member of the European Academy of Sciences

STATISTICS
• 713 undergraduate and 76 graduate students
• 20 tenure/tenure-track faculty; 6 term/teaching faculty

EVENTS
• Annual events attracting hundreds of students:
  – RamHacks, one of the top ranked and largest hackathons in the U.S.
  – NSA funded GenCyber Bootcamp in cybersecurity
  – Cyber4n6: industry-focused experiential learning program in digital forensics partnering with Virginia State Police
  – Programming competition for high school teams from across Virginia, D.C. and Maryland

More information about VCU Computer Science Department can be found at egr.vcu.edu/departments/computer
Fact Sheet • Fall 2022

Students and Degree Programs

The Computer Science Department offers Bachelor of Science (BS), Master of Science (MS), Master of Engineering (MEng), and Doctoral (Ph.D.) degrees in Computer Science. The Department also offers an accelerated BS/MS degree in Computer Science and contributes to several additional degree programs at Virginia Tech, including...

- minors in CS, Cybersecurity, and Human-Computer Interaction (HCI).
- the BS in Computational Modeling & Data Analytics (CMDA).
- the PhD in Genetics, Bioinformatics & Computational Biology (GBCB).
- the online Masters of Information Technology (MIT).

Faculty and Staff

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 total</td>
<td>9 research scientists and post-docs</td>
</tr>
<tr>
<td>60 tenured/tenure-track (26 full, 12 assoc, 22 asst)</td>
<td>19 courtesy/affiliate faculty</td>
</tr>
<tr>
<td>4 chaired professors</td>
<td>17 administrative and support staff</td>
</tr>
<tr>
<td>9 collegiate faculty</td>
<td>14 administrative professional faculty</td>
</tr>
<tr>
<td>2 professors of practice</td>
<td></td>
</tr>
<tr>
<td>4 instructors</td>
<td></td>
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</tbody>
</table>

Research Strengths and Impacts

The Computer Science Department supports highly productive faculty with a strong tradition of interdisciplinary research. Here are some research centers:

- Center for Human-Computer Interaction (CHCI)
- Sanghani Center for AI & Data Analytics (SCAIDA)
- STACK@VT (systems research)
- Center for Synergistic Environments for Experimental Computing (SEEC)

The Computer Science Department at Virginia Tech...

- offers graduate programming in the Metro D.C. area with campuses in Falls Church and Arlington that house 11 faculty, 6 staff, and 156 graduate students.
- enjoys a strong industrial partnership program with more than 90 companies. Benefits of this partnership include: fall & spring career fairs exclusively for CS undergraduate and graduate students; student engagement with experiential learning opportunities; and sponsorships for capstone learning projects.

Leadership

- is the leading participant in Virginia Tech's new Innovation Campus, under construction in Alexandria, VA.
- is committed to diversity and inclusion and seeks to recruit and retain the most qualified individuals in the field. Since 2007, the percentage of undergraduate students identifying as female rose from 4% to 18%, and the number of female faculty has more than doubled.

Learn more about the Virginia Tech Department of Computer Science at cs.vt.edu
ABOUT CSE AT WASHU

Research in the Department of Computer Science & Engineering targets domains that are relevant to the future of society and leverages other strengths across the university. The rise of autonomous systems and artificial intelligence drives our research. And we leverage collaborations with the School of Medicine and other schools to advance many of our efforts ranging from imaging science to using data to improve health care and society.

CS continues to grow at the undergraduate level and is one of the largest majors at Washington university with over 1,200 students — 18% of the population — studying computer science.

QUICK FACTS

Graduate programs:
- PhD in Computer Science or Computer Engineering
- MS in Computer Engineering
- MS in Cybersecurity Engineering
- MEng in Computer Science & Engineering
- MS in Computer Science
- Graduate Certificate in Cybersecurity Engineering
- Graduate Certificate in Data Mining & Machine Learning

Interdisciplinary programs:
- PhD in Computational and Data Science
- PhD in Imaging Science

Undergraduate programs:
- BS in Business + Computer Science
- BS in Computer Engineering
- BS in Computer Science
- BS in Computer Science + Economics
- BS in Computer Science + Math
- BS in Data Science

Enrollments (Fall 2022):
- Undergraduate: 1,024 (majors)
- Master’s: 253
- Doctoral: 80
- 26% of CSE students are women

NEW FACULTY (2021-22)

Ian Bogost
Professor
Award-winning game designer

Nathan Jacobs
Professor
Develops computer vision algorithms

Cynthia Ma
Lecturer
Teaches data mining

Chenguang Wang
Assistant Professor
Machine learning for language processing

RESEARCH NEWS

- Alvitta Ottley receives Young Researcher, Best Paper awards at EuroVis 2022
- Chenyang Lu wins award for most influential paper in real-time systems at CPS-IoT Week
- Roman Garnett, Alvitta Ottley join $15M Institute for Data-Driven Dynamical Design
- Ulugbek Kamilov’s research on machine learning generating 3D model from 2D pictures published Sept. 16 in the journal Nature Machine Intelligence.
- Alvitta Ottley to study visualization with $528,223 NSF CAREER Award

NEW BUILDING

McKelvey Hall is the new home for CSE and opened in January 2021. The open concept that permeates the design fosters greater interactions and collaborations and broaden the impact of computing.
Prashant Khanduri was a postdoctoral research associate jointly hosted by the University of Minnesota and Ohio State University. He received his Ph.D. from Syracuse University, where his research was awarded for superior achievement in completed dissertations. He won the best student paper award in the 20th IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) in 2019. His research interests include optimization for machine learning, federated learning, robust optimization, statistical learning and statistical signal processing.

The GEM initiative (Global Epicenter of Mobility) was awarded $52 million focusing on mobility, which is part of President Biden’s Build Back Better Regional Challenge Award program. Wayne State contributed heavily to the development of this proposal, and will be an important part of this initiative.

Three former Ph.D. graduates received NSF CAREER awards in the last decade: Lena Mashayekhy (2022), Sonia Haiduc (2019) and Denys Poshyvank (2013).

The Wayne State Robotics Club scored fourth prize out of 22 teams, including the University of Michigan, on the design competition of the 29th Intelligent Ground Vehicle Competition (IGVC).
Wellesley College Computer Science

The Wellesley College Computer Science department is made up of faculty with a range of research interests and a dedication to giving undergraduate students a multifaceted liberal arts education. Our goal is to prepare students to engage with and lead in a world shaped by computation and data. As a historically women’s college, we aim to provide students with theoretical, technical, and ethical foundations so that they can collaborate effectively to design and build applications and tools that make a positive impact for individuals, communities, and society. The educational and research missions of the department are tightly coupled.

Research:
Research is integral to the CS community at Wellesley. The educational and research missions of the department are tightly coupled. CS faculty regularly integrate their research into their courses at Wellesley and involve undergraduate students in their research projects. Computer science faculty at Wellesley lead vibrant programs of research in a broad range of fields including: Algorithms, programming languages, machine learning, artificial intelligence, computational linguistics, distributed computing, computational biology, data science, human-computer interaction, social computing, and playable media.

Inclusive Excellence:
Our department aspires to be a leader in broadening participation in computing. We value diversity, equity and inclusion in our department and more broadly in the field of computing. Believing that equitable access to education is morally imperative, we understand that to live up to that value, we need to continuously and actively engage in inclusive practices that build a community where all feel welcome and empowered to learn and thrive. Our community value statement is available here.

Research & Teaching Facilities:
- Human-Computer Interaction Lab
- Mixed Reality Lab
- Computer Architecture & Systems Lab
- Media Arts Lab

External Funding:
- NSF
- NIH
- HHMI

Assistant Professor Carolyn Anderson explores the semantics of natural languages and programming languages using techniques drawn from cognitive modeling, deep learning, and formal semantics. Her recent work has appeared at Sinn und Bedeutung 26, BlackboxNLP at EMNLP 2021, and OOPSLA 2021.

Assistant Professor Brian Brubach applies algorithmic fairness to intractable problems in machine learning, optimization under uncertainty, and the implementation of democratic systems. His work has recently appeared at top conferences including ACM FAccT 2022, KDD 2022, and NeurIPS 2021.

Assistant Professor Christine Basem was awarded an NSF CRII grant titled “Mobility Coordination of the Crowds in Mobile Crowd Sensing Platforms”. She has served as co-advisor for the Communications of the ACM regional special section, and as a member of the inaugural ACM Future of Computing Academy.

Assistant Professor Catherine Delcourt conducts research in social computing and human-computer interaction. Her research on prototyping for social wellbeing with diverse early social media users was recently published in ACM CHI 2021 and 2022.

Associate Professor Eni Mustafaraj recently received an NSF E82 award, titled “Pathways to Ethics of Technology in the Liberal Arts Curriculum”, with a co-PI in the Wellesley Philosophy department, Julie Walsh. This new project complements the research funded by her NSF CAREER grant titled “Signals for evaluating the credibility of web sources and advancing web literacy”.

Professor and Department Chair Oris Shaer published a new book “Weaving Fire into Form: Aspirations for Tangible and Embodied Interaction” (ACM Books 2022). She recently received an NSF grant titled “US-German Research on Human-Automation Interaction for the Future of Work”. She is a co-founder of CHIWork - a new conference on human-computer interaction for the future of work.
Faculty

2022 New Faculty Hires

Dr. Nima Karimian
Research Areas: Security analysis of deep learning, applied ML in cybersecurity, applied ML in healthcare, biometrics enabled hardware security and biometrics in implantable medical device

Dr. Sara Tehranipoor
Research Areas: Hardware security including IoT, applied machine learning in hardware security and cybersecurity education

Dr. Amr El-Wakeel
Research Areas: Signal processing, sensor fusion, and artificial intelligence for connected autonomous and secure vehicles and systems, the internet of things, and healthcare informatics

Dr. Piotr Wojcichowski
Research Areas: Theory of computing, big data and applied math for cybersecurity

Faculty Research Highlights

Dr. Donald Adjeroh led “Bridges in Digital Health,” NRT a $3 million project from the National Science Foundation, to address the combination of rising healthcare costs, the expansion of the nation’s elderly population and health disparities, particularly in rural communities, through advances in digital health and artificial intelligence, and training the next generation of professionals to develop and deploy such advances.

Prof. Nasser Nasrabadi received nearly $1.1 million in funding from Intelligence Advanced Research Projects Activity for research that could improve counterterrorism, protection of critical infrastructure and transportation facilities, military force protection and border security using biometrics algorithms.

Dr. Jeremy Dawson received $750,000 project from Intelligence Advanced Research Projects Activity to collect biometric data that will be used to develop software algorithm-based systems capable of performing whole-body biometric identification at distances as far as 300 meters or more.


Faculty and student recognitions

28 Software engineering MS program ranking in U.S. News and World Report

1st CTeR site established at WVU NSF I/UCRC Center for Identification Technology Research was established at WVU in 2001

69 students named to the Dean’s List (3.5 gpa)

6th WVU finishes 6th in EcoCAR Mobility Challenge

75 students named to the President’s List (4.0 gpa)

Center for Cybersecurity Education
Cybersecurity program was redesignated as National Center of Academic Excellence in Cyber Defense Education by Department of Homeland Security and National Security Agency

15 Top 15 team in Operation Locked Shields, an international cyber defense exercise run by NATO Cooperative Cyber Defense Center of Excellence

Unique Programs
One of the few schools that offer both cybersecurity and biometrics systems engineering programs
Computer Science

Computer science enables students to ask new questions and seek new answers in a wide range of fields, such as art, literature, biology, economics, and sociology. Students at Whitman benefit from small classes, which give opportunities to work closely with faculty, learn and create with other students, practice explaining technical ideas, and consider the role of computing in society. Our curriculum provides a rigorous introduction to the foundations of computer science as well as contemporary applications. Senior year culminates with a team capstone project for a client and an oral exam of core computing concepts and their application in each team’s capstone.

Course Highlights

- Introduction to Data Science
- Intelligent User Interfaces
- Human-Computer Interaction
- Computer Systems Programming
- Theory of Computation
- Databases with Web Apps
- Simulation Methods
- Software Design
- Capstone Project I and II

Student Highlights

- Claire Weissman ‘22 – Best Scientific Visualization Research Poster, IEEE Vis 2020
- Nick Hager ‘23 - Developed Web-based visual game programming tool for young learners
- Diego Quispe ‘23 & Grant Didway ‘24 - Developing machine learning techniques driving robotic chemistry to create silver nanocrystals with specific spectral properties
- Recent graduates are employed by Microsoft, Google, Amazon, Juniper, Oracle, Boeing, Chase, ...

Department Highlights

- Immersive Stories Lab – visualize data and tell stories on a motion-tracked projection stage
- WINcubator – launch your idea for a new business and collaborate with student entrepreneurs

Growth

Since its founding in 2014, the CS Department has grown from its first two majors graduated in 2018, to 13 majors graduated in 2019, 16 in 2020, and at least 20 in 2021. Advertisement of new tenure-track position(s) forthcoming, research area open.

https://www.whitman.edu/academics/majors-and-minors/computer-science
 highlights

• Eight undergraduate students and three faculty attended the Grace Hopper Celebration of Women in Computing and the ACM Tapia Celebration of Diversity in Computing in 2021.
• Professor Andrea Danyluk was awarded the 2022 A. Nico Habermann Award for her myriad contributions to supporting and expanding the Computer Science research community.
• During the summer of 2022, 23 undergraduate research assistants were supervised by eight members of the CS faculty.
• Over the last five years the number of Williams students majoring in Computer Science has more than tripled. The department plans to hire again in 2022-23.
Newly Tenured and Promoted Faculty, New Tenure-Track Faculty Hires

Erin Solovey  
Associate Prof.

Jacob Whitehill  
Associate Prof.

Wilson Wong  
Associate Teaching Prof.

Craig Shue  
Department Head

Fabricio Murai  
Associate Prof.

Department Highlights

- Prof. Craig Shue was appointed to be the next Department Head of Computer Science at WPI after a nationwide search. Craig was chosen from a competitive group of excellent candidates.
- Several CS faculty were appointed to other significant roles. Prof. Carolina Ruiz was appointed as the Associate Dean of the School of Arts & Sciences and Prof. Gillian Smith was appointed as the Director of the Interactive Media & Game Development program.
- The department hired two new full-time teaching faculty: Prof. Matthew Ahrens (Assistant Teaching Professor) and Prof. Jennifer Mortensen (Assistant Teaching Professor).
- Prof. Dmitry Korkin received the Trustees’ Award for Outstanding Research & Creative Scholarship, while Prof. George Heineman received the Trustees’ Award for Outstanding Teaching.
- WPI ranked top 5% in the nation by College Factual, with the WPI Computer Science program being in the top 30 programs nationwide.

Department Facts and Figures

- As the hub of WPI Interdisciplinary Programs, CS department faculty work with faculty in nine 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, and Systems Engineering.
- The department has 29 tenured/tenure-track dual-mission (research and teaching) faculty with 7 additional full-time teaching-mission faculty.
- The department has 1,061 undergraduate majors. Between Computer Science, IMGD, BCB and DS there are over 1,223 (roughly 28% of WPI) undergraduates pursuing computing-related degrees. The department has roughly 230 Computer Science graduate students and there are 438 graduate students pursuing computing-related degrees.

Institutional News

- WPI’s newest academic building, Unity Hall, opened in January 2022. Department faculty with significant roles in the Data Science, Learning Sciences & Technologies, and Bioinformatics & Computational Biology programs relocated to Unity Hall. Research labs for these faculty also moved to Unity Hall. This movement allowed IMGD faculty to consolidate on the basement level of Fuller Labs and Computer Science faculty to consolidate on the first and second floors of the building.
Current Research Grants

1. Automated Declassification Review; $6,036,131
2. Developing Cybersecurity Labs Using Interactive Programming; $15,000
3. AI-Driven Intelligent Firmware Analysis; $115,995
4. Assured Digital Microelectronics Education & Training Ecosystem (ADMETE); $4,943,000
5. SCH: INT: Collaborative Research: Development and Analysis of Integrative Models for Chronic Pain; $81,565
6. Reduction of Entropy for Probabilistic Organization (REPO); $150,000
7. Assessing Humans as a Complex Model System through Multi-Omic Data Analysis over Diverse Timescales to Predict and Enhance Human Performance; $52,260
8. Utilization of Advanced Analytical Techniques and Development of Novel Methodologies for Assessment of Human Performance Datasets; $265,000
9. Resource Description Framework (RDF) Data Modeling and Management by Using Database Technologies; $44,130
10. Reduction of Entropy for Probabilistic Organization (REPO); $74,999

Total Grant Funding $11,780,080
Yale School of Engineering & Applied Science

10 New Tenure-Track Faculty Hires

Arman Cohan (Jan. 2023)
Assistant Professor
Natural Language Processing; Machine Learning

Ben Fisch
Assistant Professor
Applied Cryptography; Security & Privacy; Blockchain

Tasca Fitzgerald
Assistant Professor
Robotics & HRI; Interactive Robot Learning

Smita Krishnaswamy
Associate Professor
Computational Biology; Deep Learning

Daniel Rakita
Assistant Professor
Robotics; Motion Planning & Optimization

Katerina Sotiraki (July 2023)
Assistant Professor
Post-Quantum Cryptography

Alex Wong
Assistant Professor
Computer Vision (3D); Sensor Fusion & Deep Learning

Rex Ying
Assistant Professor
Machine Learning, Graph Neural Networks

Manolis Zampetakis (July 2023)
Assistant Professor
Foundations of Machine Learning & Artificial Intelligence

Fan Zhang
Assistant Professor
Blockchains; Computer Security

Department of Computer Science
www.cs.yale.edu

Future Growth and Expansion

In February, Yale University announced bold new investments into faculty and facilities for science and engineering as well as a structural change to establish a School of Engineering & Applied Science faculty distinct from the Faculty of Arts and Sciences. The investment includes the addition of 30 faculty positions in SEAS as well as new construction and renovation projects to take place over the next ten years.

Recent Highlights at Yale CS

With a grant from the Algorand Foundation, Yale researchers Charalampos Papamanthou, Joan Feigenbaum, Ben Fisch, and Zhong Shao are leading a cross-disciplinary team of experts working to advance blockchain systems, while exploring their connections to economics and law.

Theodore Kim received a $1 million gift from the Bungie Foundation to support anti-racist graphics research at Yale which will develop new tools and algorithms to bring inclusivity to the digital screen.

Daniel Spielman won the 2023 Breakthrough Prize in Mathematics for contributions to theoretical computer science including spectral graph theory, the Kadison-Singer problem, numerical linear algebra, optimization, and coding theory. The prestigious prize comes with a $3 million award.

Four new teaching-track lecturers, Ozan Erat, Dylan McKay, Sohee Park, and Alan Weide, were hired to meet student demand and expand the department’s curriculum.

Yang Cai won the 2022 FOCS Test of Time Award (for his paper on “Optimal Multi-dimensional Mechanism Design: Reducing Revenue to Welfare Maximization” with Costis Daskalakis and Matt Weinberg).

Lin Zhong and Richard Yang won the SIGMOBILE Test of Time Award for their paper on “Argos: Practical many-antenna base stations.”

In April, Yale SEAS announced $5 million Roberts Innovation Fund to provide grant funding, mentoring, and business training to assist in the commercialization of faculty discoveries that solve real-world problems.
With research and programs that cover the entire range of electronic and computing technologies, we address Canada’s technological future. Our strengths include medical assistive technologies, artificial intelligence, cyber security, computer vision, networks, big data, and human-computer interaction and many others.

The Department of Electrical Engineering and Computer Science at the Lassonde School of Engineering at York University has a clear mission, to offer students exceptional programs and learning experiences to make a positive impact on the world and promote scholarship and discovery in a research-oriented environment.

**Recent News:**

**Professor Marcus Brubaker receives CFI JELF award**

Professor Marcus Brubaker will develop novel artificial intelligence (AI) methods focused on applications where labelled training data is limited or unavailable. The goal of this research is to enable learning from minimal amounts of data to dramatically reduce the amount of labelled data required for modern AI methods and thereby democratizing access to the technology. [Learn more.](#)

**Professor Ali Sadeghi-Naini, receives Early Researcher Award funding**

Professor Sadeghi-Naini was awarded funding through the ERA program for a project entitled “Smart quantitative imaging biomarkers for personalized breast cancer care”. The goal of this research is to develop multi-modal quantitative imaging technologies that can predict and evaluate the response of individual breast cancer patients to chemotherapy before or after treatment initiation. [Learn more.](#)

**The Question of Privacy in Virtual Classrooms**

The world has been moving online and education is no exception. The COVID-19 pandemic greatly accelerated the need for, and adaptation of, online learning technologies, with virtual classrooms becoming the new norm. Professor Yan Shvartzshnaider has been investigating the privacy and security risks that have accompanied the adoption of virtual classrooms. [Learn more.](#)

**Lassonde Computer Science PhD graduate receives the CIPPRS John Barron Doctoral Dissertation Award**

Dr. Amir Rasouli, a recent PhD graduate from Professor John K. Tsotsos’ research group at the Lassonde School of Engineering, was awarded the 2020 Canadian Image Processing and Pattern Recognition Society (CIPPRS) John Barron Doctoral Dissertation Award. His winning thesis was entitled “The Role of Context in Understanding and Predicting Pedestrian Behavior in Urban Traffic Scenes”. [Learn more.](#)

**Professor Zhen Ming (Jack) Jiang awarded the CS-Can|Info-Can Outstanding Early Career Computer Science Researcher Prize**

Professor Zhen Ming (Jack) Jiang, has been awarded the CS-Can|Info-Can Outstanding Early Career Computer Science Researcher Prize. Dr. Jiang’s prolific research in software engineering encompasses work done at York University’s Lassonde School of Engineering as well as accomplishments while at BlackBerry (RIM). [Learn more.](#)