



Computing Research Association

Academic Member Highlight Book

Fall 2019

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



CRA

Computing Research
Association

Table of Contents

Yale	
Computer Science.....	7
Worcester Polytechnic Institute	
Computer Science.....	8
Williams College	
Computer Science.....	9
Whitman College	
Computer Science.....	10
Wayne State University	
Computer Science.....	11
Washington University in St. Louis	
Computer Science and Engineering.....	12
Wake Forest University	
Computer Science.....	13
Virginia Tech	
Computer Science.....	14
Virginia Commonwealth University	
Computer Science.....	15
Vanderbilt University	
Electrical Engineering and Computer Science.....	16
University of Wisconsin, Madison	
Computer Science.....	17
University of Washington	
Paul G. Allen School of Computer Science and Engineering.....	18
Information School.....	19
Human Centered Design and Engineering.....	20
University of Virginia	
Computer Science.....	21
University of Vermont	
Computer Science.....	22
University of Utah	
School of Computing.....	23
University of Texas at Arlington	
Computer Science and Engineering.....	24
University of Texas at Dallas	
Computer Science and Engineering.....	25
University of Southern California	
Department of Computer Science.....	26
University of South Florida	
Computer Science and Engineering.....	27
University of South Carolina	
Computer Science and Engineering.....	28
University of Rochester	
Department of Computer Science.....	29

University of Pittsburgh	
School of Computing and Information.....	30
University of Pennsylvania	
Computer and Information Science.....	31
University of Oklahoma	
School of Computer Science.....	32
University of Notre Dame	
Computer Science and Engineering.....	33
University of North Texas	
Computer Science and Engineering.....	34
University of North Carolina, Charlotte	
College of Computing and Informatics.....	35
University of North Carolina, Chapel Hill	
School of Information and Library Science.....	36
University of New Mexico	
Computer Science.....	37
University of New Hampshire	
Computer Science.....	38
University of Nebraska, Lincoln	
Computer Science and Engineering.....	39
University of Michigan, Dearborn	
Computer and Information Science.....	40
University of Michigan	
School of Information.....	41
Computer Science and Engineering.....	42
University of Memphis	
Department of Computer Science.....	43
University of Massachusetts, Lowell	
Computer Science.....	44
University of Massachusetts, Amherst	
College of Information and Computer Sciences.....	45
University of Maryland, Baltimore County	
Computer Science and Electrical Engineering.....	46
University of Maryland	
Computer Science.....	47
University of Illinois, Urbana-Champaign	
Electrical and Computer Engineering.....	48
Computer Science.....	49
University of Georgia	
Computer Science.....	50
University of Florida	
Computer and Information Science and Engineering.....	51
University of Colorado, Boulder	
Computer Science.....	52
University of Cincinnati	
School of Information Technology.....	53
University of Chicago	
Computer Science.....	54

University of Central Florida	
Computer Science.....	55
University of California, San Diego	
Computer Science and Engineering.....	56
University of California, Merced	
Computer Science and Engineering.....	57
University of California, Riverside	
Computer Science and Engineering.....	58
University of Arkansas	
Computer Science and Computer Engineering.....	59
University of Arizona	
Computer Science.....	60
University of Alberta	
Computing Science.....	61
University at Buffalo	
Computer Science and Engineering.....	62
Tufts University	
Computer Science.....	63
Toyota Technological Institute at Chicago	
Computer Science.....	64
The Ohio State University	
Computer Science and Engineering.....	65
Texas Tech University	
Computer Science.....	66
Texas State University	
Computer Science.....	67
Texas A&M University, Corpus Christi	
Computing Science.....	68
Texas A&M University	
Computer Science and Engineering.....	69
Syracuse University	
Electrical Engineering and Computer Science.....	70
Stony Brook University	
Computer Science.....	71
Stevens Institute of Technology	
Computer Science.....	72
Simon Fraser University	
School of Computing Science.....	73
Simmons University	
College of Organizational, Computational, and Information Sciences.....	74
Saint Louis University	
Computer Science.....	75
Purdue University	
Computer Science.....	76
Pennsylvania State University	
Computer Science and Engineering.....	77
College of Information Sciences and Technology.....	78

Oregon State University	
Electrical Engineering and Computer Science.....	79
Oklahoma State University	
Computer Science.....	80
New York University Tandon School of Engineering	
Computer Science and Engineering.....	81
New York University Courant	
Computer Science.....	82
Northwestern University	
Computer Science.....	83
Northern Kentucky University	
Computer Science.....	84
Northeastern University	
Khoury College of Computer Sciences.....	85
North Carolina State University	
Computer Science.....	86
Naval Postgraduate School	
Computer Science.....	87
National University of Singapore	
Department of Computer Science.....	88
Mount Holyoke College	
Computer Science.....	89
Montana State University	
Gianforte School of Computing.....	90
Massachusetts Institute of Technology	
Department of Electrical Engineering and Computer Science.....	91
Loyola University Chicago	
Computer Science.....	92
Kean University	
School of Computer Science and Technology.....	93
Kansas State University	
Computer Science.....	94
Iowa State University	
Computer Science.....	95
Illinois Institute of Technology	
Computer Science.....	96
Harvard University	
Computer Science.....	97
Georgia Institute of Technology	
School of Interactive Computing.....	98
School of Computational Science and Engineering.....	99
School of Computer Science.....	100
Georgetown University	
Computer Science.....	101
George Mason University	
Computer Science.....	102
Emory University	
Computer Science.....	103

Embry-Riddle Aeronautical University – Daytona Beach Campus	
Electrical, Computer, Software, and Systems Engineering.....	104
DePaul University	
School of Computing.....	105
Cornell University	
Computer Science.....	106
Columbia University	
Computer Science.....	107
Colorado School of Mines	
Computer Science.....	108
Colgate University	
Computer Science.....	109
Clemson University	
School of Computing.....	110
Case Western Reserve University	
Department of Computer and Data Sciences.....	111
Carnegie Mellon University	
Electrical and Computer Engineering.....	112
Carleton College	
Computer Science.....	113
Bradley University	
Computer Science and Information Systems.....	114
Bowling Green State University	
Computer Science.....	115
Boston University	
Electrical and Computer Engineering.....	116
Computer Science.....	117
Binghamton University	
Computer Science.....	118
Barnard College	
Computer Science.....	119

DEPARTMENT OF COMPUTER SCIENCE

YALE UNIVERSITY

<http://www.cs.yale.edu>

AY 2019-2020

YALE UNIVERSITY



COMPUTER SCIENCE

New Faculty Hires:

Tenured



Nisheeth Vishnoi
Professor of
Computer Science



Lin Zhong
Professor of
Computer
Science Jan. 2020



**Abhishek
Bhattacharjee**
Associate Professor
of Computer Science



Theodore Kim
Associate Professor
of Computer Science

Tenure Track



Marynel Vázquez
Assistant Professor
of Computer Science



Yang Cai
Assistant Professor of
Computer Science
and Economics



Anurag Khandelwal
Assistant Professor
of Computer Science
Jan. 2020



Robert Soulé
Assistant Professor
of Computer Science

Research Highlights:

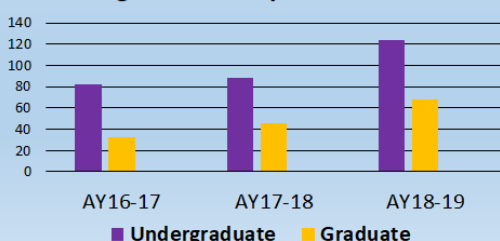
- A paper by Profs. Nisheeth Vishnoi and Elisa Celis on “Controlling Polarization in Personalization: An Algorithmic Framework” was selected for the Best Technical Paper Award at FAT* 2019 (ACM Conf. on Fairness, Accountability, & Transparency).
- Prof. Abhishek Bhattacharjee directs the Systems Architecture Group. His research builds architectures and systems for data centers and systems that are inspired by, interface with, and improve our understanding of the brain. His group’s work on coalesced TLBs had been integrated in AMD’s chips (starting with the Zen architecture) and his work on superpages has been integrated in the Linux operating system.
- Prof. Theodore Kim of the Graphics Groups published two papers in 2019 in ACM Transactions on Graphics that were used in Toy Story 4 to help animate the characters of Woody, Gabby Gabby, and Benson. The elasticity model from his 2018 paper in the same journal was also used to animate the muscles of Mr. Incredible in Incredibles 2.
- Prof. Marynel Vázquez is the PI on a new NSF NRI project on advancing spatial behavior modeling and understanding for human-robot interaction. She and her colleagues at Stanford University published a method to enable mobile robots to predict close collisions. The method was published in IROS’18 and was nominated for the Best Paper Award on Safety Security and Rescue Robotics in memory of Motohiro Kiso.
- Prof. Yang Cai was awarded 2019 Sloan Research Fellowship. His research lies at the interface between Computer Science and Economics. He focuses on developing algorithmic and mathematical tools to understand how strategic agents interact in complex environments such as auctions and online markets.
- Prof. Robert Soulé received Best Paper Award at NSDI’18 for “NetChain: Scale-Free Sub-RTT Coordination” which demonstrated how to build a coordination service with incredibly low latency and high throughput.
- Prof. Joan Feigenbaum and PhD student Lihi Idan showed how to predict the voting behavior of Facebook users based on a Bayesian-network model that combines demographic, behavioral, and social features. Their method, which yields accurate predictions in the case of the 2016 US Presidential election, was published at the 2019 IEEE/ACM Conf. on Advances in Social Networks Analysis and Mining (ASONAM).
- The LILY lab, led by Prof. Dragomir Radev, published ten papers in ACL, NAACL, EMNLP, and AAAI in 2018. They are on semantic parsing, natural language access to databases, crosslingual information retrieval, and text summarization. More than ten Yale undergraduate students were co-authors on these papers.
- Two recent papers by Yale faculty members are featured as Research Highlights in Communications of the ACM (ACM’s flagship magazine): “Building Certified Concurrent OS Kernels” by Prof. Zhong Shao and his students (October 2019) and “How to Implement Any Concurrent Data Structure” by Prof. Mahesh Balakrishnan and his colleagues at VMware and Microsoft Research (December 2018).

Other Highlights:

- In April 2019, Yale held its first workshop on AI, Ethics, and Society with 130 attendees from 35 departments/programs and 5 schools. The goal of this workshop was to identify and discuss challenges that arise as AI systems are increasingly deployed to control various aspects of modern society and to initiate a Yale-wide effort towards an interdisciplinary approach to problems arising at the interface of AI, ethics, and society.
- Michihiro Yasunaga (YC’19), advised by Prof. Dragomir Radev and Prof. John Lafferty, received the CRA 2019 Outstanding Undergraduate Researcher Award.
- Valerie Chen (YC’20) selected as 2019 Snap Research Scholar.
- Anton Xue (YC’19) wins the 2019 NSF Graduate Research Fellowship.
- U.S. high schoolers, coached by Prof. Dragomir Radev, won the 2018 International Linguistics Olympiad in Prague, Czech Republic.
- The Association for Computational Linguistics (ACL) Nominating Committee selected five new ACL fellows for 2018, including Prof. Dragomir Radev.
- Ruzica Piskac received the 2019 Ackerman Award for teaching and Mentoring; named the Dubinsky Associate Professor of Computer Science.
- Prof. Avi Silberschatz’s VLDB 2009 paper won the 2019 VLDB Test of Time Award.
- Daniel Spielman was named Sterling Professor of Computer Science, the highest honor bestowed on Yale faculty.

Student Numbers and Growth:

Degrees in Computer Science



Computer Science Department Worcester Polytechnic Institute

<http://www.cs.wpi.edu/>

New Tenure-Track Faculty Hires (and Previous Position)



Daniel Reichman
Post-Doc Princeton



Ali Yousefi
Researcher Harvard

Department Highlights

- The department celebrated its 50th anniversary in March 2019 with over 200 attendees. The highlight of the event was a panel of five alumni panelists from across the five decades of the department sharing the past and looking at the future of the department.
- New faculty funding awards were close to double the previous record high for the department. 100% of department tenured/tenure-track faculty had, sought or obtained funding during the fiscal year.
- Department faculty contributed to the creation of a new MS degree in Neuroscience and a new BS degree in Data Science.
- Hired additional full-time teaching faculty: Michael Engling (Asst Teaching Prof) and Jonathan Weinstock (Asst Teaching Prof).
- WPI was ranked as the second-best Computer Science program by College Factual in 2018.

Department Facts and Figures

- As the Hub of WPI Interdisciplinary Programs, department faculty work with faculty in eight other departments to offer eight computing-related degree programs in Bioinformatics & Computational Biology (BCB), Cybersecurity, Data Science, Interactive Media & Game Development (IMGD), Learning Sciences & Technologies, Neuroscience, Robotics Engineering (RBE) and Systems Engineering.
- The department has 31 tenured/tenure-track faculty (74% currently have external funding) with an additional 7 full-time teaching faculty.
- The department has over 800 undergraduate majors. Between Computer Science, IMGD, RBE and BCB there are over 1200 (over 25% of WPI) undergraduates pursuing computing-related degrees. The department has roughly 120 Computer Science graduate students and there are over 500 graduate students pursuing computing-related degrees.
- Female students represented more than 30% of first-year Computer Science majors.

Institutional News

- WPI has announced plans for the construction of a new, state-of-the-art facility, focused on the smart world, which will advance our ability to achieve interdisciplinary, translational research breakthroughs by enabling collaborative research and teaching among the computational sciences.
- For the third consecutive year, WPI has over 40% of female students in the first-year class.

Williams

Williams College Department of Computer Science

<http://csci.williams.edu>

Recent Hires (Tenure-Track)



Daniel Barowy (Fall 2017)
Ph.D. UMass Amherst
End-user programming, crowdsourcing, program synthesis, debugging techniques



Iris Howley (Fall 2017)
Ph.D. Carnegie Mellon
Human-Computer Interaction, technology enhanced learning environments, computer-supported collaborative learning



William Jannen (Fall 2016)
Ph.D. Stony Brook University
Design and analysis of file systems, media-specific optimizations for storage, data structures, write optimization



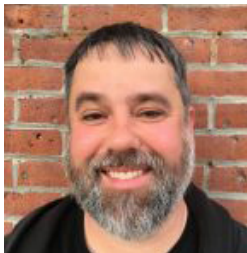
Samuel McCauley (Fall 2019)
Ph.D. Stony Brook University
Algorithms and data structures, hashing and randomization, similarity search, I/O-efficient algorithms, scheduling



Kelly Shaw (Fall 2019)
Ph.D. Stanford University
Parallel architecture, Internet of Things, memory systems, workload characterization of emerging systems



Shikha Singh (Fall 2019)
Ph.D. Stony Brook University
Algorithmic game theory, algorithms and data structures, combinatorial optimization, complexity theory



Aaron Williams (Fall 2019)
Ph.D. University of Victoria
Algorithms, combinatorics, computational complexity, puzzles and games, history of video games

Highlights

- Twelve undergraduate students and three faculty will attend the Grace Hopper Celebration of Women in Computing and the ACM Tapia Celebration of Diversity in Computing in 2019.
- Over the last four years the number of Williams students majoring in Computer Science has more than tripled. The department plans to hire again in 2020.
- The department sponsored a turbo hackathon in February, which was ambitiously organized and led by a group of majors.
- During the summer of 2019, 15 undergraduate research assistants were supervised by seven members of the CS faculty.

Whitman College

Department of Computer Science

Founded in 1882, Whitman College is a highly selective private, residential undergraduate college located in Walla Walla, Washington. The college brings together approximately 1,500 talented and creative students from diverse backgrounds, providing them a rigorous liberal arts experience within a highly supportive and collaborative community.

Computer science courses have been offered at Whitman since the 1970s. In 2014, thanks to a major gift from Microsoft and other sources, the college was able to offer additional courses in the field. In the summer of 2015, Whitman hired Janet Davis as the first Microsoft Chair of Computer Science. A computer science minor was added shortly thereafter and the new major was officially approved in fall 2016. In the 2017-18 academic year, computer science became the college's 46th major.

We are now a department!

- Computer Science separated from the department of Mathematics & Statistics as of Fall 2018.
- Find our web site at <https://www.whitman.edu/academics/departments-and-programs/computer-science>

We are growing!

- We had 15 computer science majors in our second graduating class (2019), 19 majors in our current capstone class (2020), and 27 declared majors intending to graduate in 2021.
- Courses at all levels are filled to near or above capacity.
- We are conducting a search this year for our first new tenure track faculty member since the major was approved.

We have impact!

- During the 2018-2019 year, our capstone teams completed technological solutions to local nonprofits and community organizations, including one awarded a Non-Profit FOSS Institute grant. This year's capstone teams are striving for similar impact.
- Our graduates are taking positions applying their liberal arts background in startups and leading tech companies, and applying their technical skills in nonprofit sectors



Assistant Professor Abusayeed Saifullah received an **NSF CAREER award** for a technology called SNOW, a scalable LPWAN (low-power, wide-area network) over TV white spaces to support rural IoT connectivity.



Assistant Professor Zichun Zhong received an **NSF CAREER award** for innovation in 3D/4D anisotropy with parallel computation for applications in additive manufacturing and other processes.

Ph.D. student Tayebah Bahreini won the **2019 National Center for Women & Information Technology (NCWIT) Collegiate Award** for her edge computing research. The prize includes a \$10,000 cash award and travel expenses for the annual NCWIT Summit on Women and IT.

The Department of Computer Science recently received full **ABET accreditation** through the Computing Accreditation Commission for its Bachelor of Science in Computer Science program.

Wayne State and the Michigan Mobility Institute are establishing the **Center for Advanced Mobility** in order to create a holistic curriculum focused on autonomous driving and other mobility concepts.

NEWS



- B.S./M.S./Ph.D. in Computer Science
- M.S. in Data Science and Business Analytics
- Graduate Certificate in Cyber-physical Systems
- B.S. in Information Technology (Fall 2020)
- M.S. in Mobility (Fall 2020)

DEGREE PROGRAMS



SSE: Development of a High-Performance Parallel Gibbs Ensemble Monte Carlo Simulation Engine

PIs: Jeffrey Potoff, Loren Schwiebert

NSF: \$499,886

S&AS:INT: Autonomous Battery Operating System (ABOS): An Adaptive and Comprehensive Approach to Efficient, Safe and Secure Battery System Management

PIs: Nathan Fisher, Daniel Grosu

NSF: \$1,249,998

The next generation of vascular imaging using contrast-enhanced MICRO MRI

PIs: Mark Haacke, Jing Hua

NIH: \$728,405

CICI:RSARC:Infrastructure Support for Securing Large-Scale Scientific Workflows

PIs: Shiyong Lu, Fengwei Zhang

SUNY NY: \$499,786

Development of "Deep Patients" for Radiation Oncology

PI: Ming Dong

Henry Ford Health: \$49,427

Real Time Nursing Home Quality Control

PIs: Allen Goodman, Weisong Shi

MHEF: \$97,534

ONGOING RESEARCH



793

UNDERGRADUATE STUDENTS INCLUDING 195 NEW CS MAJORS



7.7% UNDERGRADUATE COURSE ENROLLMENT FROM 2018 TO 2019

121

87 B.S.
27 M.S.
7 PH.D.

DEGREES AWARDED IN 2018

23

FULL-TIME FACULTY

BETWEEN \$2-3M

IN ANNUAL R&D EXPENDITURES

23% FEMALE

9%

BLACK OR AFRICAN-AMERICAN

3.9%

HISPANIC OR LATINO

19

INBOUND EXCHANGE STUDENTS FROM 6 INTERNATIONAL UNIVERSITIES SINCE 2016

FACTS AND FIGURES



Zheng Dong develops real-time scheduling algorithms and timing validation techniques to enhance the computing capability of cyber-physical systems in data analytics, IoT, wireless sensor networks and mobile edge computing. He received his Ph.D. in 2019 from the University of Texas at Dallas.

NEW FACULTY

New Faculty in 2019



Hila Ben Abraham

Lecturer
PhD, WashU, CSE, 2019
BS Bar Ilan University
Expertise in networking
and cybersecurity



Brian Garnett

Lecturer
PhD, Rutgers, Math, 2016
BS WashU Math
Expertise in cryptography,
probability, graph theory



Netanel Raviv

Assistant Professor
PhD, Technion, CS, 2017
Postdoc, Caltech, EE
Expertise in application of
coding to computation,
privacy and storage

CSE by the numbers

- **39 faculty (14 professors, 5 associate professors, 11 assistant professors, 9 teaching professors)**
- **19 new T/TT faculty and 8 new teaching faculty since 2013**
- **103 PhD students, 190 MS students, 722 BS students (majors), 255 minors**
- **Close to 50% of all course units taught in the engineering school**
- **Close to 100% growth in enrollments over the past 5 years**
- **Our cohorts grow by a factor of about 5 between their first and fourth years**
- **Over 26% of CSE students are female and close to 14% are URM**

Research Highlights

- Roman Garnett member of team awarded \$1.8M by NSF for “Accelerating the Discovery of Electronic Materials through Human-Computer Active Search” as part of NSF program on Harnessing the Data Revolution (HDR): Institutes for Data-Intensive Research in Science and Engineering - Ideas Labs.
- Ayan Chakrabarti and Tao Ju members of awarded collaborative NSF proposal with the Danforth Plant Science Center as part of NSF's Big Ideas / Emerging Frontiers program on “Understanding Rules of Life.”
- Sanmay Das and Patrick Fowler (Brown School) receive two NSF grants, one of them from the “AI and Society” competition, to continue their work studying algorithmic allocation techniques in the context of social services provision.
- Angelina Lee receives NSF grant to study “Provably Efficient Dynamic Analysis Tools for Task Parallel Computations.”
- Roch Guerin receives Google Faculty Research Award to work on “Minimum Capacity Inter-Data Center Networks with Service Guarantees.”

Other Highlights

- Haoran Li (PhD student) and Chenyang Lu among co-authors of the paper “Holistic Resource Allocation for Multicore Real-Time Systems” selected as Best Paper at RTAS’19.
- PhD student Anthony Cabrera receives “Best Presentation” award at the OpenCL meeting for the paper “Exploring Portability and Performance of OpenCL FPGA Kernels on Intel HARPv2.”
- Sanmay Das elected chair of ACM SIGAI for a three-year term starting on July 1st, 2019.
- McKelvey Hall, the new home of the CSE department, scheduled to open early 2021.



Department of Computer Science

<https://cs.wfu.edu>

Meet our three NEW FACULTY MEMBERS



SARRA ALQAHTANI



MINGHAN CHEN



NATALIA KHURI



Academic Highlights

- MS, BS, BA and Joint BS/MS (5 year program) degree programs
- Over 100 majors and 45 minors (juniors and seniors)
- Small class sizes
- Honors programs, study abroad, and independent study opportunities
- Opportunities for summer internships and employment

Research and Scholarship Highlights

Students at all levels regularly engage in research with faculty. Research topics include:

- Development of parallel and HPC algorithms that translate to more efficient software
- Data mining with applications in bioinformatics, biomedicine, and drug discovery; Data valuation for machine learning
- Design and development of algorithms using Bayesian inference and evolutionary search techniques
- Computer network management and computer and network security
- K-mer based algorithms for protein family classification
- Methods and algorithms for recognition and classification of human activities in fragile environments

<http://users.wfu.edu/ballard/>

<http://www.nataliakhuri.com/>

<https://sites.google.com/a/wfu.edu/david-john/>

<http://csweb.cs.wfu.edu/~fulp/>

<http://csweb.cs.wfu.edu/~turketwh/>

<http://csweb.cs.wfu.edu/~pauca/>



Student Highlights

Support for conference attendance

- Grace Hopper
- WeCode
- ACM ICPC Programming and Super Computing Cluster Competitions

Student groups

- WFU Chapter of ACM - <https://sites.google.com/wfu.edu/wfu-acm/home>
- Women in Computer Science (WiCS) - <https://wics.cs.wfu.edu/>
- Student Cluster Competition Team - <http://csweb.cs.wfu.edu/scc/index.html>
- Programming Competition Team - <https://cs.wfu.edu/student-life/>
- WakeHacks - <https://sites.google.com/wfu.edu/wfu-acm/home>
- UPE - <https://cs.wfu.edu/student-experience/upe/>

Department of Computer Science

Virginia Tech

www.cs.vt.edu

New Initiatives

- **Amazon HQ2 decision** spurred \$1.1B statewide investment in higher education focused on computer science and related disciplines. Virginia Tech's share includes funding for major new infrastructure and significant faculty growth both in Blacksburg (doubling the size of the faculty, graduate and undergraduate programs in ten years) and the Washington, D.C., metro area (new \$1B innovation campus in Alexandria, VA, graduating 500+ CS MS students and 25 CS PhD students per year in ten years).
- New \$25M/annual statewide initiative, led by Virginia Tech, will support **cybersecurity** research and education.
- Partnership with block.one has catalyzed an initiative in **blockchain** research, education, and outreach.
- Searching to fill at least ten **new faculty positions** this year

Faculty, Staff, and Students

- 52 faculty: 46 tenure-track, 3 professors of practice, 2 senior instructors, 1 collegiate faculty member
- 6 research faculty, 11 affiliate faculty from other VT departments
- 16 administrative and support staff, 8 administrative and professional faculty
- New tenure-track faculty members joining in Fall 2019:
 - Dimitrios Nikolopoulos, John W. Hancock Professor of Engineering and Professor, PhD U. Patris (2000), systems
 - Hoda Eldardiry, Associate Professor, PhD Purdue (2012), ML
- Undergraduate program: 1005 majors (sophomore, junior, senior), 19% women, 303 BS degrees awarded in 18/19
- Graduate programs: 115 MS and 187 PhD students, 30% women, 55 MS and 29 PhD degrees awarded in 18/19

Research and Professional Service Highlights

- \$12M in research expenditures in FY19
- NSF CAREER award: Na Meng
- DARPA Young Faculty Award: Matthew Hicks
- Best paper recognitions at CCS, FSE, INFOCOMP, IUI, SIGCSE
- Major conference leadership roles at ACSAC, HPDC, DIS, HCOMP



COLLEGE OF ENGINEERING
COMPUTER SCIENCE
VIRGINIA TECH



College of Engineering

Computer Science

Programs

“Computing Fundamentals” – sequence of four online courses open to all non-CS students, without any prerequisites; students earn “Digital Tech Credential: GENERALIST” badge after completion of three courses.

Undergraduate

- BS in Computer Science – the first ABET-accredited CS program in Virginia (1986)
- Accelerated BS/MS program in Computer Science
- Post-Baccalaureate Certificate in Computer Science

Undergraduate students can specialize in Cybersecurity and in Data Science (based on 3 technical elective courses each).

Graduate

- MS in Computer Science
- Ph.D. in Engineering – Computer Science track
- Dual Ph.D. program with University of Cordoba, Spain

Graduate students can specialize in Cybersecurity or in Data Science (based on 5 graduate courses each).

- Post- Baccalaureate Graduate Certificate in Cybersecurity (based on 4 courses)
- Post- Baccalaureate Graduate Certificate in Data Science (based on 4 courses)

Key information

- 450 undergraduate students
- 64 graduate students: 33 Ph.D., 27 MS and four in Graduate Certificate programs; one doctoral NSF Graduate Research Fellow
- 19 regular and 5 teaching faculty, including one endowed chair Professor; teaching load for regular faculty is 3 courses per year
- Establishing and leading the VCU Cybersecurity Center

Research

Focus is on data science and cybersecurity, including artificial intelligence, bioinformatics, biomedical informatics, blockchain, cloud computing, computer vision, computer and network security, cryptography, cyber-physical systems, digital forensics, high-performance computing, human-machine interfaces, machine learning and quantum machine learning, mobile computing, natural language processing, robotics, network systems, data privacy and software engineering. Faculty members are funded by grants from NSF (majority; including CAREER award), NIH, DARPA, DOE, US Army and industry: Google, Microsoft, Battelle, and Hamilton Beach.

Annual events

The Department organizes three large annual events: RamHacks and Computer Science Day (each fall) and a High School Programming Contest (each spring).

Recognition

- Two Fellows of the American Institute of Medical and Biological Engineering
- One member of the European and Polish academies of sciences and arts

Start-ups

- Two faculty members co-founded a blockchain company: FRACTAL

More information about the Department can be found at <https://egr.vcu.edu/departments/computer/>

ELECTRICAL ENGINEERING AND COMPUTER SCIENCE



VANDERBILT
UNIVERSITY

7 NEW FACULTY MEMBERS



CATIE CHANG
Functional
neuroimaging



IPEK OGUZ
Medical image
analysis, machine
learning



JACK NOBLE
Medical image
processing



JUSTUS NDUKAIFE
Nanophotonics,
novel bio-inspired
soft actuators



SANDEEP NEEMA
Embedded systems,
design-space
exploration



YUANKAI HUO
Medical image
processing, machine
deep learning



MATTHEW BERGER
Data visualization,
machine learning,
computer vision

RESEARCH HIGHLIGHTS

VANDERBILT TEAM WINS \$750K WITH AI TO MANAGE RF SPECTRUM

Vanderbilt team MarmotE cleared Phase 2 of the U.S. Defense Advanced Research Projects Agency's Spectrum Collaboration Challenge held in December. MarmotE was one of six teams each awarded a \$750,000 prize. The Vanderbilt team, which led 10 teams in Phase 1 competition in December 2017, came in second.

IPHONE PLUS NANOSCALE POROUS SILICON EQUALS CHEAP, SIMPLE HOME DIAGNOSTICS

The simplest home medical tests might look like a deck of various silicon chips coated in special film that could detect drugs in the blood, proteins in the urine indicating infection, and bacteria in water. Add the bodily fluid you want to test, take a picture with your smart phone, and a special app lets you know if there's a problem or not.

VANDERBILT ENGINEERS TO TRAIN NEURAL NETWORKS AND ENHANCE CHATTANOOGA TRANSIT SYSTEM

Chattanooga is the test city for a new Department of Energy-funded project that leverages the expertise of Vanderbilt engineers and widespread availability of 1-gigabyte internet connection to revolutionize energy efficiency of transit providers. Advancements in data sensors, data collection and machine learning will fuel the project, which aims to optimize schedules of bus routes, decrease stop-and-go bus driving and reduce energy consumption at a system-wide level.

FUNDING



Five-year average T/K faculty funding in the EECS department is above \$800,000 per year. All junior faculty members hired during the past 15 years have received prestigious young investigator awards, such as NSF CAREER and DARPA CSSG.

FACULTY HIGHLIGHTS

MALIN ELECTED TO NATIONAL ACADEMY OF MEDICINE

Bradley Malin, professor of biomedical informatics, biostatistics and computer science, is among 85 newly elected members of the National Academy of Medicine (NAM). Drawing on methodologies from computer science, biomedical science and public policy, Malin's research is focused on building technologies to enable data analytics and patient data privacy.

CHANG RECEIVES EARLY CAREER AWARD FOR ADVANCING FMRI DATA ANALYSIS

Catie Chang, assistant professor of computer science, electrical engineering and computer engineering, has received the 2019 Early Career Achievement Award from a society of the Institute of Electrical and Electronics Engineers. The award cites her "innovative contributions to human functional neuroimaging research that have advanced the interpretation and analysis of fMRI data."

ORGANIZATIONAL NEWS

WISE CELEBRATES NEW HOME AND SHOWCASES TECH TO IMPROVE PATIENT CARE

The Vanderbilt Institute for Surgery and Engineering celebrated its opening of dedicated space in Medical Center North with a technology showcase of more than two dozen cross-disciplinary collaborations advancing health care techniques from the lab to patients.

ONLINE PLATFORM ASSURES CYBER-PHYSICAL SYSTEMS RESEARCH IS LEGIT, RESULTS DON'T DISAPPEAR

Vanderbilt University's Institute for Software Integrated Systems is unveiling the latest version of this virtual repository—called the Cyber-Physical Systems Virtual Organization Portal. The National Science Foundation funded the effort with a \$5.6 million, five-year grant to create a virtual home for the large cyber-physical systems research community and for research artifacts such as software, data and tools they create in their projects.

STUDENT NUMBERS AND GROWTH

	2017	2018	2019
Ph.D.	141	153	161
Master's	44	57	61
Bachelor's	466	535	590
Total Students	651	745	812

AVERAGE ANNUAL ENROLLMENT GROWTH OVER 3 YEARS



10%



15%



16%



Department of Computer Sciences

UNIVERSITY OF WISCONSIN-MADISON

The new School for Computer, Information & Data Sciences (CDIS) launched in September 2019. Computer Sciences, Statistics, and the Information School came together to form CDIS with several goals in mind: to create more interdisciplinary research opportunities, to expand course offerings, and to lead the computing revolution across the state of Wisconsin and beyond. Learn more at <http://ls.wisc.edu/areas-of-study/cdis>.

Highlights of Research Initiatives

- *Somesh Jha* is on a team of computer scientists from UW-Madison and seven other universities to make up the Center for Trustworthy Machine Learning (CTML), which will work to understand the risks inherent to machine learning and develop tools, metrics, and methods to manage and mitigate these risks.
- UW-Madison's Center for High Throughput Computing, part of the Dept. of Computer Sciences, was awarded a grant to develop software to process data from the High-Luminosity Large Hadron Collider.
- *Bilge Mutlu*, *Michael Gleicher*, and other partners from UW-Madison, in collaboration with The Boeing Company, were awarded a grant from NASA Aeronautics to design robots that can collaborate with humans to improve manufacturing processes that piece together a Boeing airliner.

Meet Our Newest Faculty

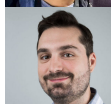
Rahul Chatterjee

Security



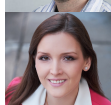
Ilias Diakonikolas

Theory



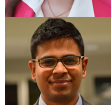
Jelena Diakonikolas

Optimization



Earlence Fernandes

Security



Xiangyao Yu

Database Systems



Faculty Award Highlights

- *Mark Hill* honored with Eckert-Mauchly Award
- *Mary Vernon* awarded ACM SIGMETRICS Achievement Award
- *Paul Barford & Stephen Wright* received IEEE INFOCOM Test of Time Paper Award
- *Suman Banerjee* recognized by ACM for Outstanding Scientific Contribution to Computing and named Distinguished Member of ACM
- *Andrea Arpaci-Dusseau & Remzi Arpaci-Dusseau* earned ACM SIGOPS Mark Weiser Award

Teaching

- CS is the largest major on the UW-Madison campus (counting both undergraduate and graduate students).
- The Computer Sciences Learning Center is served by trained students who have completed CS 502, "Theory and Practice in Computer Science Education."

Rankings (from CSrankings.com)

#1 in Logic and Verification, #4 in Computer Architecture, #4 in Databases, #4 in Operating Systems, #5 in Programming Languages, #5 in Measurement & Performance Analysis, #8 in Computer Networks, #9 in Mobile Computing, #12 in Machine Learning & Data Mining, #21 Human-Computer Interaction, #22 Computer Graphics

Web: cs.wisc.edu

Facebook & Twitter:
@WisconsinCS



PAUL G. ALLEN SCHOOL OF COMPUTER SCIENCE & ENGINEERING

EXPANDING EXPERTISE

5 outstanding new faculty hires this year:



Byron Boots

Robotics & Machine Learning



Kevin Lin

Computer Science Education



Jamie Morgenstern

Machine Learning



Alex Ratner

Machine Learning & Data Science



Amy Zhang

Human-Computer Interaction

EXPANDING RECOGNITION

ACM Prize in Computing:

Shwetak Patel

Harrold & Notkin Research & Graduate Mentoring Award:

Richard Ladner

IJCAI John McCarthy Award:

Pedro Domingos

NSF Graduate Research Fellowships:

Christine Chen: Privacy & Security

Benjamin Lee: Artificial Intelligence

Nelson Liu: Natural Language Processing

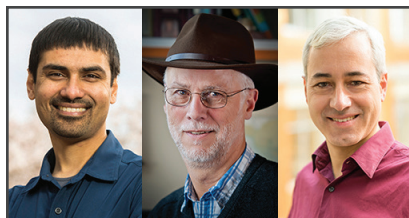
Sherdil Nyaz: Robotics

Nicholas Nuechterlein: Machine Learning

Ewin Tang: Theoretical Computer Science

Matthew Whitehill: Ubiquitous Computing

Erin Wilson: Computational Biology



EXPANDING REACH

Graduating Ph.D.s who accepted faculty positions:

James Bornholt: University of Texas at Austin

Tianqi Chen: Carnegie Mellon University

Eunsol Choi: University of Texas at Austin

Jialin Li: National University of Singapore

Dominik Moritz: Carnegie Mellon University

Rajalakshmi Nandakumar: Cornell University

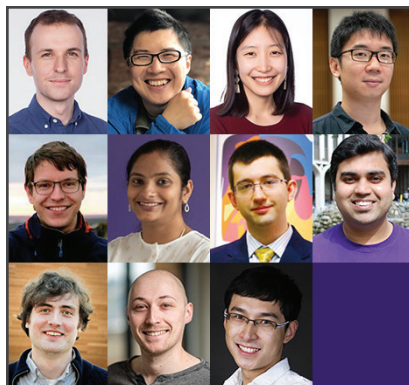
Pavel Panchekha: University of Utah

Aditya Vashistha: Cornell University

Doug Woos: Brown University

Mark Yatskar: University of Pennsylvania

Danyang Zhuo: Duke University



EXPANDING IMPACT

Fighting fake news in the age of AI

A team of researchers at the Allen School and the Allen Institute for Artificial Intelligence developed Grover, a model for detecting machine-generated fake news with 92% accuracy, as featured in The New York Times.

An app that detects opioid overdose

Partnering with UW Medicine, Allen School researchers developed SecondChance, a contactless mobile app that detects signs of overdose to enable early intervention and save lives, as seen in Science Translational Medicine.

An autonomous robotic feeding system

Researchers in the Allen School's Personal Robotics Lab developed the Assistive Dextrous Arm (ADA) robot-assisted feeding system for people with mobility impairments, which earned the Best Demo Award at NeurIPS 2018.

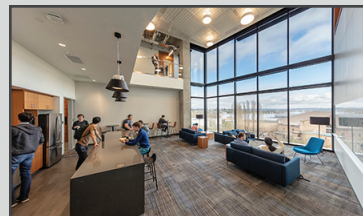


Magdalena Balazinska appointed Director of the Allen School



Balazinska, co-leader of the school's Databases and Data Science groups, will succeed Hank Levy in January 2020.

Bill & Melinda Gates Center for Computer Science & Engineering doubles our space



Did you know...?

The Paul G. Allen School recently awarded our 5,000th bachelor's degree.

We granted over 1/4 of those degrees in the last 5 years.

www.cs.washington.edu



ACCOLADES



Anind K. Dey



Batya Friedman



Jacob O. Wobbrock

iSchool Dean **Anind Dey** was honored with a 20-year Impact Award at ISWC 2019 for his work on wearable technologies.

Professors **Batya Friedman** and **Jacob O. Wobbrock** were inducted into the CHI Academy, the top honor in human-computer interaction research. They join Dr. Dey as UW iSchool faculty who have received this prestigious award.

Jacob O. Wobbrock earned the SIGACCESS ASSETS Lasting Impact Award as co-author of *Slide Rule: Making mobile touch screens accessible to blind people using multi-touch interaction techniques*.

Assistant Professor **Alexis Hiniker** earned a Best Paper Award at CHI 2019 for her work

describing a method to improve data-gathering from audio recordings. Overall, iSchool faculty and students were lead authors on 17 papers accepted to the leading conference on human-computer interaction.

Professor **Wanda Pratt** and alumnus **Pedja Klasnja** were honored in the 50th anniversary issue of the *Journal of Biomedical and Health Informatics*, which listed papers that have had a particularly important role in advancing the field of biomedical informatics.

9 iSchool students were named among the 2019 Husky 100, which honors those who are making the most of their UW experience, making an impact inside and outside the classroom.

NEWS & IMPACT

iSchool data-science research, led by Lecturer **Ott Toomet** and Associate Professor **Bill Howe**, was widely credited for a change in Washington state eviction law, giving tenants more time to respond to notices. The law will help prevent homelessness.

Associate Professor **Hala Annabi** released the *Autism @ Work Playbook*, a product of research into how to make workplaces in the tech sector more inclusive.



Hala Annabi

The **Technology & Social Change** research group released its second *Development and Access to Information* report. The report updates the United Nations on progress toward U.N. Sustainability Goals.

Associate Professor **Amy J. Ko** worked with policymakers to shape a bill in the state Legislature mandating access to computer education in high schools. The bill was signed into law in April 2019.

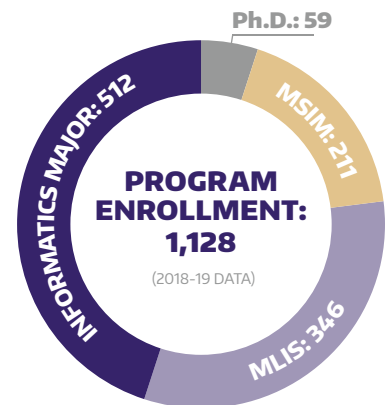
Assistant Professor **Alexis Hiniker's** research on smartphone use was covered by numerous major news outlets. Hiniker looked into the triggers for compulsive phone use and how to eliminate their causes.



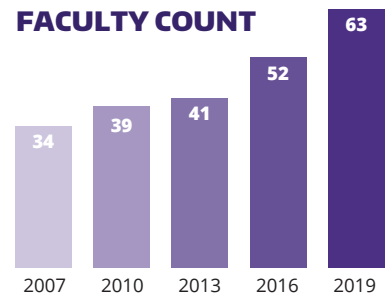
Alexis Hiniker

Associate Professor **Jevin West's** website WhichFactsReal.com went viral and earned widespread media attention. The website educates users about the effectiveness of "deepfakes" and methods to spot them.

BY THE NUMBERS



FACULTY COUNT



LEADING-EDGE RESEARCH

\$4,356,893

in research funding
for fiscal 2019.

\$5,600,000

in initial funding has been pledged from the Knight Foundation and Hewlett Foundation to launch the **Center for an Informed Public**, an interdisciplinary research unit that seeks to understand and defend against misinformation.

DIVERSITY IN TECH

39%

of Informatics students identify as female, helping to close the gender gap in STEM fields.

HUMAN CENTERED DESIGN & ENGINEERING



Putting people first, we research, design, and engineer interactions between humans and technology.

WHO WE ARE

Students and faculty in Human Centered Design & Engineering (HCDE) at the University of Washington design solutions to global challenges by tailoring technology to human needs and interests. By employing research methods rooted in a broad range of disciplines, we investigate the interaction of people with technology and technical development.

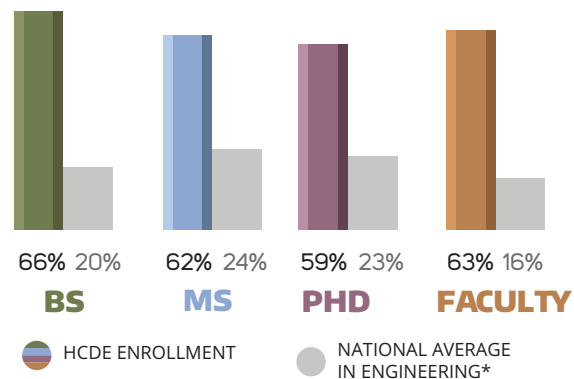
STUDENT ENROLLMENT

Undergraduate: 171 Certificate: 32
Master's: 289 PhD: 52

CORE FACULTY

Professors: 8 Assistant Professors: 1
Associate Professors: 7 Career Lecturers: 7

WOMEN IN HCDE



* Source: National Science Foundation, National Center for Science and Engineering Statistics. Women, Minorities, and Persons with Disabilities in Science and Engineering: 2017.

RESEARCH AWARDS FY 2019

Awards Funded: 20 Total Awarded Amount: \$2.6M+

2019 FACULTY & STUDENT HIGHLIGHTS

In September, HCDE Professor **Julie Kientz** assumed the role of Interim Department Chair, succeeding Dr. David McDonald, who completed his 5-year term as Chair and returned to the faculty as a Professor.



HCDE Associate Professor **Kate Starbird** is a founding Principal Investigator on the new Center for an Informed Public, a cross-campus initiative aimed at fighting the spread of misinformation and disinformation in online systems.



HCDE PhD student **John Porter** was named to the MIT Technology Review 35 Innovators Under 35, for his work on investigating accessibility in video game design.



HCDE Professor **Cecilia Aragon** co-authored "Writers in the Secret Garden," a new book that explores how young people support and learn from each other through participation in online fanfiction communities.



Lecturers **Brock Craft** and **Tyler Fox** led a London Study Abroad program for undergraduate and graduate students focused on exploring urban resilience and sustainable design in the context of a large-scale urban environment.



HCDE PhD student **Os Keyes** was named to the inaugural Ada Lovelace Fellowship program from Microsoft Research, to support Keyes' research aimed at combatting bias in facial recognition systems.



HCDE's K-12 outreach program, directed by Lecturer **Andrew Davidson**, continues to expand, reaching hundreds of middle- and high school students throughout the state of Washington annually.



HCDE PhD student **Wendy Roldan** received the prestigious NSF Graduate Research Fellowship Program award to support her research on improving makerspaces for women.



HCDE Professor **Mark Haselkorn** is leading a group of six agencies to design and implement a regional strategy for enhancing mobility when a major incident drastically reduces capacity along the Seattle I-5 corridor.



UNIVERSITY OF VIRGINIA COMPUTER SCIENCE GROWTH AND TRANSFORMATION

UVA COMPUTER SCIENCE CONTINUES TO MAKE SIGNIFICANT INVESTMENTS IN RESEARCH AND EDUCATION. BUILDING ON OUR EXISTING STRENGTHS, WE ARE INTENSIFYING OUR RESEARCH IN CROSS-CUTTING TOPICS SUCH AS SOFTWARE ENGINEERING AND TRUST IN AREAS SUCH AS CYBER-PHYSICAL SYSTEMS AND INTELLIGENT SYSTEMS.

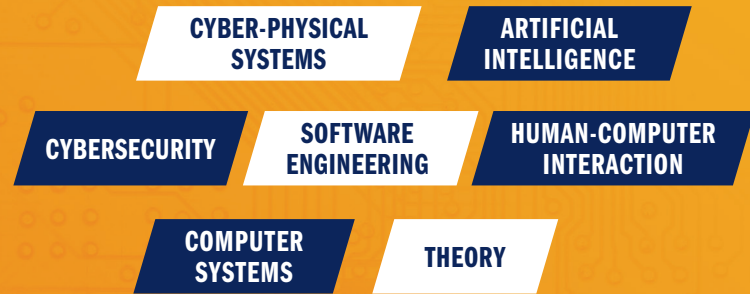
25
NEW TENURED OR TENURE-TRACK
FACULTY SINCE 2012-2013

INCREASE IN UNDERGRADUATE
DEGREES AWARDED, 2014-2019:
108%
GRADUATE PROGRAM
GROWTH, 2014-2019:
261%

119%
GROWTH IN
RESEARCH
EXPENDITURES
FY 2014-FY2019



RESEARCH FOCUS AREAS:



TENURED OR TENURE-TRACK FACULTY SINCE 2012-2013:



MICHAEL ALBERT
ASSISTANT PROFESSOR
Ph.D.: Duke University
Market Design with
Machine Learning



MADHUR BEHL
ASSISTANT PROFESSOR
Ph.D.: University of Pennsylvania
Cyber-Physical Systems



BRAD CAMPBELL
ASSISTANT PROFESSOR
Ph.D.: University of Michigan
Networked Embedded Systems



MATTHEW DWYER
PROFESSOR
Ph.D.: University of Massachusetts
at Amherst
Verification and Validation
of Autonomous Systems



SEBASTIAN ELBAUM
PROFESSOR
Ph.D.: University of Idaho
Software Engineering
and Robotics



FARZAD FARNOUD
ASSISTANT PROFESSOR
Ph.D.: University of Illinois,
Urbana-Champaign
Information and Coding Theory



LU FENG
ASSISTANT PROFESSOR
Ph.D.: University of Oxford
Cyber-Physical Systems



TOM FLETCHER
ASSOCIATE PROFESSOR
Ph.D.: University of North
Carolina, Chapel Hill
Image Analysis
and Machine Learning



SEONGKOOK HEO
ASSISTANT PROFESSOR
Ph.D.: Korea Advanced Institute of
Science and Technology
Human-Computer Interaction
and Novel Sensing Techniques



YANGFENG JI
ASSISTANT PROFESSOR
Ph.D.: Georgia Institute of
Technology
Natural Language Processing,
Machine Learning



SAMIRA KHAN
ASSISTANT PROFESSOR
Ph.D.: University of Texas,
San Antonio
Computer Architecture



YONGHUI KWON
ASSISTANT PROFESSOR
Ph.D.: Purdue University
Systems Security



JUNDONG LI
ASSISTANT PROFESSOR
Ph.D.: Arizona State University
Machine Learning, Data Mining,
and Social Computing



**MOHAMMAD
MAHMOODY**
ASSOCIATE PROFESSOR
Ph.D.: Princeton University
Cryptography and
Computational Complexity



VICENTE ORDÓÑEZ
ASSISTANT PROFESSOR
Ph.D.: University of North
Carolina, Chapel Hill
Computer Vision



YANJUN QI
ASSOCIATE PROFESSOR
Ph.D.: Carnegie Mellon
University
Machine Learning



HAIFYING SHEN
ASSOCIATE PROFESSOR
Ph.D.: Wayne State University
Parallel and Distributed
Computer Systems
and Networks



YIXIN SUN
ASSISTANT PROFESSOR
Ph.D.: Princeton University
Network Security and Privacy



YUAN TIAN
ASSISTANT PROFESSOR
Ph.D.: Carnegie Mellon University
Security and Privacy for
Cyber-Physical Systems



ASHISH VENKAT
ASSISTANT PROFESSOR
Ph.D.: University of California,
San Diego
Computer Architecture
and Compilers



HONGNING WANG
ASSISTANT PROFESSOR
Ph.D.: University of Illinois,
Urbana-Champaign
Machine Learning, Data Mining
and Information Retrieval



DAVID WU
ASSISTANT PROFESSOR
Ph.D.: Stanford University
Cryptography and
Computer Security



HAIFENG XU
ASSISTANT PROFESSOR
Ph.D.: University of Southern
California
Computational Game Theory



MIAOMIAO ZHANG
ASSISTANT PROFESSOR
Ph.D.: University of Utah
Statistical Shape Analysis and
Machine Learning



AIDONG ZHANG
PROFESSOR
Ph.D.: Purdue University
Data Mining, Bioinformatics,
Health Informatics

ENGINEERING.VIRGINIA.EDU/CS



UNIVERSITY
of VIRGINIA

SCHOOL of ENGINEERING
& APPLIED SCIENCE
Department of Computer Science



The University of Vermont

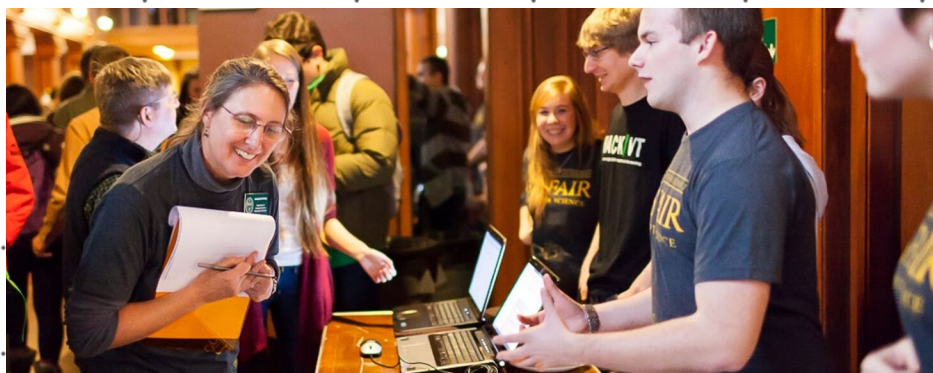
Department of Computer Science

Our strategic growth is firmly grounded in expanding transdisciplinary research, utilizing enhanced active learning classrooms, and advancing faculty excellence.

2019 Highlights

Recent significant grants through the Computer Security and Privacy Interdisciplinary Research Group:

- NSF grant "SHF: Medium: Collaborative Research: Synthesizing Verified Analyzers for Critical Software"
- IARPA HECTOR grant "The PANTHEON Platform for Secure Computation"



Implementation of a groundbreaking research opportunity through The Threat Stack Cybersecurity Fellowship, which will allow scholars to apply cutting-edge research expertise to real-world problems in partnership with a fast-growing cloud cybersecurity company.

Host of the NetSci 2019 conference, uniting leading researchers and practitioners and encouraging collaboration across computer and information sciences, physics, mathematics, statistics, the life sciences, neuroscience, environmental sciences, social sciences, finance, and business, arts and design.

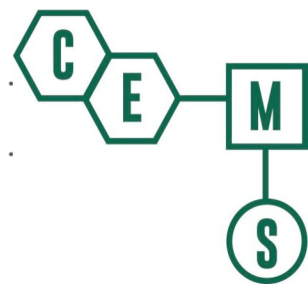
Learn more about our incredibly diverse and richly talented faculty, undergraduate, and graduate student cohorts at uvm.edu/cems/cs.



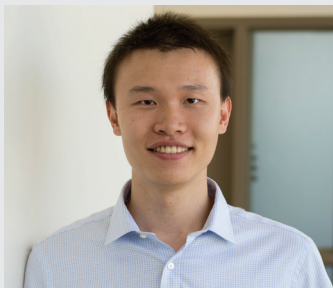
Successful internships with industry leaders like Tesla, Amazon Web Services, and more.



Active, perennial participant in the annual Grace Hopper Celebration, the world's largest gathering of women in computing.



New Faculty



Qingyao Ai
Assistant Professor
Informational retrieval,
machine learning



Swaroop Joshi
Assistant Professor, Lecturer
Programming languages and
computing education



Marina Kogan
Assistant Professor
Crisis informatics, social
computing, network science



Alan Kuntz
Assistant Professor
Robotics



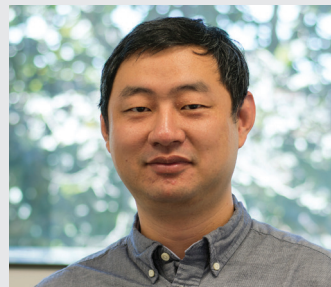
Pavel Panchekha
Assistant Professor
Programming languages



P. (Saday) Sadayappan
Professor
Compiler optimization;
High-performance computing



Blair Sullivan
Associate Professor
Data-driven graph algorithms;
parameterized complexity



Mu Zhang
Assistant Professor
Computer security

www.cs.utah.edu/soc-newfaculty

Highlights

The School of Computing celebrated the 50th anniversary of the University of Utah's involvement in the birth of the internet. In 1969 the University of Utah became the **4th node of the ARPANET**. www.cs.utah.edu/arpamet50

School of Computing establishes **Women in Computing (WIC)**, a student-led organization to create an environment that will increase community and pathways to success for female students.

Weerahannadige Milinda Shayamal Fernando, a PhD student received the 2019 ACM/IEEE-CS George Michael Memorial HPC Fellowship.

In Fall 2019 the School of Computing launched a **new undergraduate BS degree in Data Science**, one of the first and most comprehensive in the Mountain West. This program prepares individuals in core computer science and software engineering, and trains them in fundamentals of data analysis and processing to effectively, efficiently, and ethically make decisions based on the information from various data sources. Graduates will fill a growing demand for data scientists nationally, and particularly in the growing tech center in the greater Salt Lake valley.



Faculty

33 tenure-track, 19 teaching faculty members

Since 2006, current and former faculty members received: **7 NSF CAREER**, **1 AFOSR YIP**, and **2 NSF CRII** awards. **3** faculty members are **IEEE fellows**.

1 Assistant Professor
hired in 2019



Cesar Torres
Ph.D.: University of California, Berkeley
Human computer interaction, computer vision and multimedia, machine learning and data mining

Achievements & Research Highlights

Over \$6M research expenditure in 2019

up from \$5.4M in 2018
and \$4.7M in 2017

Selected grants since Sept. 1, 2018



2019 ACM
SIGMOD
Research

Highlight Award,
Gautam Das and team

\$1.2M

DoED GAANN, increasing doctoral fellowships for designing assistive technologies, *Ishfaq Ahmad*

\$1M

NSF, creating a credible open

knowledge network for fact-checking, *Chengkai Li*

\$175K

NSF CRII Award, fighting

malware via computer hardware, *Jiang Ming*

\$585K

NIST, security testing of blockchains

and IoT systems, *Jeff Lei*
(in collaboration with SBA Research inc.)

\$250K

NSF, improving key aspects

of network performance within commodity operating systems, *Jia Rao*

\$498K

NSF CAREER Award, redesigning

abstractions in virtualized systems to improve efficiency, *Jia Rao*

\$250K

NSF, fuzzing cyber-physical system

development tool chains with deep learning (DeepFuzz-CPS), *Christoph Csallner*



NSF Program Director of Bioinformatics and Computational Biology appointment, *Jean Gao*



CSRankings.org Papers 2019:
3 AAI, EuroSys, 2 HPDC, 3 ICML, SIGMOD, 3 WWW, ICS, MobiSys, FAST

R-1 University
Carnegie Classification of Institutions of Higher Education

Hispanic Serving Institution

#6 in Undergraduate Diversity

U.S. News & World Report

#1 four-year College in Texas for Veterans

Military Times' 2019 Best for Vets list

#3 Lowest Average Student Debt among Universities in Texas

U.S. News & World Report

Ranked by CSRankings.org:

#55 Overall

#46 AI

#32 Databases

#17 High-Performance Computing

#53 Computer Vision

#48 Machine Learning & Data Mining

#38 Software Engineering

Students & Enrollment

Fall 2019

2626 STUDENTS

1647 Bachelor's

835 Master's

144 Ph.D.

16.7% increase from Fall 2018

Ph.D. graduates who secured tenure-track positions in 2019

Abolfazl Asudeh
University of Illinois at Chicago

Naeemul Hassan
University of Maryland, College Park

Senior Design industry sponsorship program

30+ sponsored projects and over \$130,000 in pledged funding since Spring 2016. An additional \$15,000 pledged for Spring 2020.

Grants support efforts to encourage women in computing

Drs. Chengkai Li, Ming Li, Shirin Nilizadeh, and Carter Tiernan will be hosting the Student Computing Research Festival (funded by NCWIT and Microsoft Research) and OurCS@DFW, a computing research weekend (funded by Google) for women students in February 2020.



The Computer Science Department at UT Dallas is one of the largest in the US with approximately 4,600 students and a distinguished faculty that has won numerous awards.

Research Highlights

- Six broad areas of research: AI, Cyber Security, Networks, Systems, Theory, Software Engineering.
- Approximately over \$45 Million total external funding over the last 5 years.
- Faculty includes 13 NSF CAREER Award Winners.
- CS Faculty direct 4 research institutes, 6 research centers, and one education/outreach center.
- Prof. Tien Nguyen won his 4th ACM SIGSOFT Distinguished Paper award in Software Engineering.
- Prof. Andi Marcus won his 4th Most Influential Paper award in the area of Software Engineering.
- Prof. Murat Kantarcioglu received the Technical Achievement Award in Intelligence & Security Informatics (ISI) from the Institute of Electrical and Electronics Engineers (IEEE).
- Prof. B. Prabhakaran's NSF funded project on 3D Immersive Tele-Rehabilitation was chosen by the NSF as one of eight to showcase to US Congressmen & Senators at Capitol Hill.
- Prof. Zygmunt Haas' paper among the top 10 most cited papers in networks on Google Scholar.
- Prof. Gopal Gupta won the 10-year Test of Time Award for his work on coinduction in logic.
- Prof. Hal Sudborough's Paper from 1980 given WG Conference the Test of Time Award.
- Prof. Murat Kantarcioglu's Paper from 2009 given the ACM SACMAT Test of Time Award.
- Prof. Latifur Khan Awarded the IEEE Big Data Security Senior Research Award.
- Prof. Bhavani Thuraisingham named a fellow of the Association for Computing Machinery (ACM) and the National Academy of Inventors (NAI).
- CS Dept. ranked #8 in NLP, and #6 in Software Engineering at CSrankings.org ('09-'19 period).

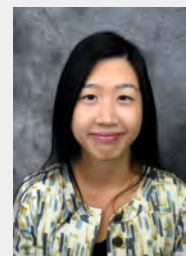
Student Numbers/Growth/Education Highlights

- Approximately 4,600 total students (3,315 Undergraduates, 1,110 Master's Students, 165 PhDs).
- Awarded approximately 390 Bachelors, 450 Masters, and 23 PhDs degrees in 2017-18.
- 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.
- Ranked #21 in 2014 LinkedIn's ranking of "Best Universities for Software Developers."
- Nearly 80 teams completed industry-sponsored senior-design, capstone projects.
- Platinum sponsor of Grace Hopper Conference; sent 30 Students to GHC 2018.
- 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.
- New major in Data Science offered jointly with the School of Natural Sciences and Mathematics.

Organizational News

- Multiple new positions to be filled in Graphics, Virtual Reality, Vision, Data Science, Software Engineering, Cyber Security, Artificial Intelligence, and Human Computing Interaction (HCI).
- Center for Research in Machine Learning recently founded by Drs. Gogate, Ruoizzi, and Natarajan.
- Center for Applied Artificial Intelligence and Machine learning founded by Dr. Doug DeGroot and Dr. Gopal Gupta.
- Center for Women in Cyber Security recently founded by Dr. Bhavani Thuraisingham.

New Tenure-Track Faculty



Dr. Jessica Ouyang
Natural Language
Processing,
Automatic
Summarization
PhD Columbia
University



Dr. Kangook Jee
AI/Machine
Learning, System
& Network
Security
PhD Columbia
University



Dr. Feng Chen
AI/Machine
Learning, Big
Data Analytics
PhD VA Tech



Dr. Rishabh Iyer
AI/Machine
Learning
PhD University of
Washington



Dr. Kyle Fox
Comp. Geometry
PhD UIUC,
Postdoc Duke

BY THE NUMBERS

USC DEPARTMENT OF COMPUTER SCIENCE 2019

FACULTY

89 faculty members
38 tenure-track
32 research faculty
19 teaching faculty

STUDENTS

4,075 students
321 PhD
2,475 master's
1,279 undergraduate

ACADEMY MEMBERS & SOCIETY FELLOWS

1 Turing Award Winner
5 NAE
2 NAS
8 ACM
15 IEEE
35 additional society members, including AAAI and AAAS

ADDITIONAL HIGHLIGHTS

USC's online computer science graduate program was ranked No.1 according to *US News and World Report 2019*, for the seventh consecutive year

42 percent of entering fall 2019 computer science freshmen are women

The USC Games program is recognized as one of the top game design programs in North America by the *Princeton Review*

The USC Computer Science (CS) Department Industry Affiliate Program (IAP) launched in fall 2018, with current members including Google, Microsoft, Lyft, DiDi and Facebook

NEW FACULTY, RECRUITED 2018-2019

Assistant Professor



Mukund Raghothaman

PhD: University of Pennsylvania

Programming languages, software engineering, program synthesis, software verification, probabilistic methods in static analysis, automated reasoning

Research Assistant Prof.



Fred Morstatter

PhD: Arizona State University

Social network analysis, data mining, machine learning, artificial intelligence

Research Assistant Prof.



Mohammad Soleymani

PhD: University of Geneva

Affective computing, multimodal machine learning, computational mental health assessment, interactive virtual agents

Assoc Prof. of Practice



Wei-Min Shen

PhD: Carnegie Mellon University

Self-reconfigurable and metamorphic robots, surprise-based machine learning, artificial intelligence, autonomous systems, life sciences

Lecturer



Mohammad Reza Rajati

PhD: University of Southern California

Machine learning, natural language processing, data mining, artificial intelligence and multiagent systems

FACULTY DISTINCTIONS

Okawa Foundation Research Grant Award ... **Bistra Dilkina**
USC Distinguished Professor ... **Maja Mataric**
Google AI Faculty Research Award ... **Cyrus Shahabi** and **Xiang Ren**
AIMBE Fellow ... **Shrikanth Narayanan**
Herbert A. Simon Prize for Advances in Cognitive Systems ... **Paul Rosenbloom**
Academy of Motion Pictures, Arts and Sciences ... **Paul Debevec**
IEEE Fellow ... **Michael Zyda**
New Voices of National Academies of Science, Engineering and Medicine ... **Yan Liu**

GRANT HIGHLIGHTS

Jyotirmoy Deshmukh, FMITF: A Novel Framework for Learning Formal Abstractions and Causal Relations from Temporal Behaviors, US-National Science Foundation: **\$1,000,000**
Ramesh Govindan, CNS Core: Large: Collaborative Research: Network Design Automation, US-National Science Foundation: **\$1,000,000**
David Kempe, Multi-Scale Network Games of Collusion and Competition, Regents of the University of Michigan: **\$1,158,953**
Bistra Dilkina, CRISP Type 1/Collaborative Research: Sustainable and Resilient Design of Interdependent Water and Energy Systems at the Infrastructure-Human-Resource Nexus, US-National Science Foundation: **\$210,417**
Jernej Barbic, CHS: Small: Highly Realistic Virtual Human Hands using Anatomically Based Modeling, US-National Science Foundation: **\$498,865**

STUDENT DISTINCTIONS

Undergraduate student **Zane Durante** received the Goldwater Scholarship (2019-2020), the nation's preeminent scholarship for undergraduates in mathematics, natural sciences or engineering

For the second year in a row, a team of computer science students placed first in the regional contest of the "Olympics of Computer Programming," **the International Collegiate Programming Contest**

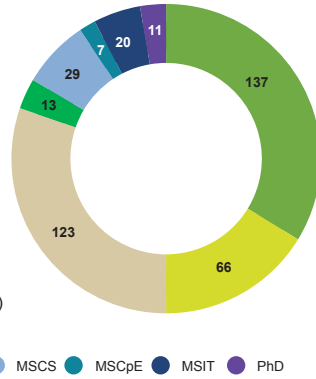
PhD student **I-Hung Hsu**, was named an Amazon Alexa Graduate Fellow, awarded to only 10 doctoral students from universities around the world



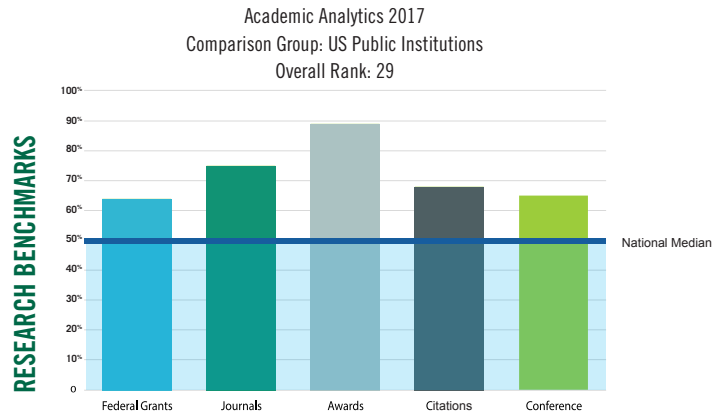


2018-2019 DEGREES AWARDED

BS in Computer Science (137)
BS in Computer Engineering (66)
BS in Information Technology (123)
BS in Cybersecurity (13)
MS in Computer Science (29)
MS in Computer Engineering (7)
MS in Information Technology (20)
PhD in Computer Science and Engineering (11)



● BSCS ● BSCpE ● BSIT ● BSCyS ● MSCS ● MSCpE ● MSIT ● PhD



- USF CSE has 28 tenure-stream faculty and 12 full-time instructors.
- Faculty members are currently executing \$9.6 million in active external research grants from NSF, DoD, NIH, NIST, industry and state sources.
- Twelve CSE faculty members are NSF CAREER awardees.
- Fellows include 6 IEEE, 4 AAAS, 1 NAI, 3 AIMBE and 3 IAPR.
- USF CSE is in the top sixth (rank 29) of computer science departments at U.S. public universities, according to Academic Analytics (2017) data based on Scholarly Research Index.*
*uses default weights for grants, articles, conferences, awards, and citations.
- In 2018, the Florida Board of Governors designated USF Tampa as a Preeminent State Research University, placing USF in the most elite category among the state's 12 public universities.

NEW FACULTY 2018-2020



James Anderson, Visiting Instructor

Securing networks and detecting when intruders have gained access



Giovanni Luca Ciampaglia, Assistant Professor

Computational social science; network science; data science



Jason Lewis, Instructor

Cybersecurity; digital forensics; computer science cybersecurity education



John Murray-Bruce, Assistant Professor

Computational imaging, which is a convergence of the areas of computer science, optics, electrical engineering and mathematics



Tempestt Neal, Assistant Professor

Scalable biometrics; mobile biometrics; AI and cognitive computing, NSF Cyber Corps Fellow



Marbin Pazos-Revilla, Instructor

Cybersecurity; secure authentication in electric vehicles; internet of things security



Attila Yavuz, Assistant Professor

Applied cryptography; privacy enhancing technologies; light-weight cryptography; cybersecurity, NSF CAREER Awardee

NEW IN 2020

- USF Institute for Artificial Intelligence (AI+X) approved by the Florida Board of Governors.
- In academic year 2018-19, 8% of BS were awarded to black students and 17.4% awarded to Hispanic students, more than double the national average for computer science.
- In academic year 2018-19, 16.2% of BS degrees were awarded to women students. This is below the national average of 21.2%, but our percentage has increased significantly in the past five years.
- USF CSE launches Broadening Participation in Computing initiative with help from NCWIT to determine the best ways for increasing the number of women in computer science and engineering.
- USF CSE Computing Partners Program commences to strengthen the connection of industry with students.

"Tampa Bay is home to 19 corporate headquarters with over \$1 billion in annual revenue, eight of which are Fortune 1000 companies.¹ Tampa is also home to USSOCOM. Tampa is the nation's second-fastest-growing tech hub.² Send us your best students. We are hiring tenure stream faculty and full-time instructors."

¹Greater Tampa Chamber of Commerce • ²Tampa Bay Tech





Computer Science and Engineering

College of Engineering and Computing

cse.sc.edu

DEPARTMENT SUMMARY

- 23 tenured and tenure-track faculty (10 are NSF CAREER Award winners); 8 instructors
- Focal Research Areas: artificial intelligence, bioinformatics, computer architecture, computer vision, cyber security, data science, machine learning, mobile computing, robotics, software engineering, and wireless networking
- Faculty and student research is funded currently by NSF, ONR, NIH, DoE, IARPA, SRNL and AFRL, as well as several corporations and South Carolina agencies.
- CSE is an NSF Research Experiences for Undergraduates (REU) site in Computational Robotics. reu.cse.sc.edu
- CSE is one of 15 BRAID (Building, Recruiting, and Inclusion for Diversity) Initiative Institutions anitab.org/braid-building-recruiting-and-inclusion-for-diversity

UNDERGRADUATE PROGRAMS

cse.sc.edu/undergraduate

- Majors (939 students): Computer Engineering (187), Computer Information Systems (161), Computer Science (591)
- Minors: Data Science; Computer Science; Applied Computing
- Cyber Security Specialization in Information Assurance

GRADUATE PROGRAMS

cse.sc.edu/graduate

- Total Enrollment = 168; M.S. and Ph.D. in Computer Science, M.S. and Ph.D. in Computer Engineering, Certificate in Cyber Security Studies

STUDENT HIGHLIGHTS

- Active Student Organizations: ACM, Carolina Gamer's Club, Cyber Security Club, IEEE, Minorities in Computing, Upsilon Pi Epsilon, Women in Computing.
- Over 100 CSE students have attended the Grace Hopper Celebration of Women in Computing over the last 5 years.
- 166 CSE seniors formed 34 teams to complete senior design capstone projects: capstone.cse.sc.edu

OTHER HIGHLIGHTS

- CSE opened a new Computer Engineering Lab in spring 2019 to support new, interactive courses in embedded systems and the Internet-of-Things.

NEW FACULTY HIRES



Amit Sheth
Professor

AI, Knowledge-enabled Computing, Big Data and Computing for Human Experience



Ramtin Zand
Assistant Professor

Hardware Design for Machine Learning Systems, Neuromorphic Computing, Emerging Nanoscale Electronics



Casey Cole
Instructor



William Hoskins
Instructor

NEW AI INSTITUTE

The institute, created under the recent excellence initiative, is led by Amit Sheth. With a proven funding record (> \$35 million), Sheth has created world-class research centers and launched three companies by licensing his university-developed technologies.

The institute will collaborate with 10 colleges and several major centers and active research groups across the university. Each partner group has identified cases involving a significant big data challenge that needs to be solved with AI techniques. Illustrative examples of collaborations initiated by the AI Institute and include:

- **College of Pharmacy** (incl. SC Colon Cancer Prevention Network): early onset of colorectal cancer
- **College of Arts and Sciences**: recovery and resilience from natural disasters (with Hazards and Vulnerability Research Institute), misinformation and radicalization (with Institute of Mind and Brain)
- **School of Journalism and Mass Communications**: social media insights and harassment of journalists (with Social Media Insights Lab)
- **College of Education**: using chatbots (virtual agents) for the health of school children through nutrition monitoring and guidance
- **School of Medicine and College of Nursing**: personalized digital health (asthma and obesity in children and adults)
- **Arnold School of Public Health**: brain imaging (with Aging Brain Cohort and Aphasia Laboratory), identification and management of mental health including depression and suicide ideation

University of Rochester

Department of Computer Science



HAJIM
SCHOOL OF ENGINEERING
& APPLIED SCIENCES
UNIVERSITY of ROCHESTER

We are Hiring!

cs.rochester.edu



Wegmans Hall
Home of Computer Science

Recent Hires



Zhen Bai
**Human-Computer
Interaction**

PhD, University of Cambridge
Postdoctorate, CMU



Fatemeh Nargesian
Data Management

PhD, University of Toronto



Sreepathi Pai
Heterogeneous Systems

PhD, IISc
Postdoctorate, UT Austin



Yuhao Zhu
Energy-Efficient Systems

PhD, UT Austin

Faculty Highlights

2019

Jiebo Luo named an AAAI Fellow.
Zhen Bai and Ted Pawlicki receive Sykes awards for new courses in AR/VR Interaction Design and Quantum Computing, respectively.
George Ferguson named Engineering Professor of the Year at UR Students' Association Awards.

2018

Ehsan Hoque receives NSF CAREER Award and the Early Career Award for Scientists and Engineers (ECASE-ARMY).
Henry Kautz named NSF Division Director for Information and Intelligent Systems. He also receives the 2018 ACM-AAAII Allen Newell Award.
Jiebo Luo receives the IEEE Region 1 Technological Innovation (Academic) Award for contributions in computer vision and data mining.
Yuhao Zhu receives Honorable Mention in the SIGARCH/TCCA Outstanding Dissertation Award Competition.
Sandhya Dwarkadas, Wendi Heinzelman, and Jiebo Luo named ACM Fellows.
Michael Scott receives Hajim School Lifetime Achievement Award.

Undergraduate and Graduate Highlights

2019

Louis Jenkins awarded Department of Energy Computational Science Graduate Fellowship.
Sam Lerman receives Honorable Mention in NSF GRFP Competition.
Samuel Triest '20 wins Gold Medal in ACM SRC.
Jackson Abascal '19 and Qiuyue Sun '20 win CRA Outstanding Graduate Researcher Awards.

2018

Zhengyuan Yang wins the 2018 ICPR Best Industry Related Paper Award.
BRAID funding extended through 2019.
Vivian Li wins honorable mention in the CRA Outstanding Undergraduate Researcher competition.
Gene Kim was selected to attend the Heidelberg Laureate Forum.



By the Numbers



New Faculty Hires

- Wonsun Ahn, *Visiting Lecturer*
- Katharine Anderson, *Visiting Assistant Professor*
- Amy Babay, *Assistant Professor*
- Jacob Biehl, *Associate Professor*
- Kayla Booth, *Research Assistant Professor*
- Seong Jae Hwang, *Assistant Professor*
- Stephen Lee, *Assistant Professor*
- Eleanor Mattern, *Teaching Assistant Professor*
- Luis de Oliveira, *Visiting Lecturer*
- Vinicius Petrucci, *Lecturer*
- Song Shi, *Visiting Assistant Professor*
- Xulong Tang, *Assistant Professor*
- Lingfei Wu, *Assistant Professor*
- Joseph Yurko, *Teaching Assistant Professor*

4-Year Undergraduate Program

SCI welcomed its inaugural class of first-year students in Fall 2019. As part of our undergraduate curriculum, students will be exposed to big ideas in computing and information that will allow them make connections and move seamlessly between disciplines.

Highlights

- Kayla Booth, research assistant professor and director of the iSchool Inclusion Institute (i3), received funding from the Andrew W. Mellon Foundation to continue funding the program through 2022.
- Panos Chrysanthis, professor, received the Outstanding Achievement in Education award from the University of Massachusetts at Amherst as part of their Outstanding Achievement and Advocacy award program.
- Diane Litman, professor, and Yu-Ru Lin, associate professor, were featured in SAGE Ocean's list of 39 *Woman Doing Amazing Research in Computational Social Science*.
- Late professor Janyce Wiebe was honored with the Test of Time award from the Association for Computational Linguistics.
- Nicholas Farnan, lecturer, Bill Garrison, lecturer, and Dmitriy Babichenko, clinical assistant professor, received Innovation in Education Award grants from the Provost's Advisory Council on Educational Excellence.
- Peter Brusilovsky, professor, won AMiner's Most Influential Scholar award.

MLIS Redesign

With the ever-changing roles of information professionals, our faculty undertook a redesign of the ALA-accredited Master of Library and Information Science (MLIS) program to better prepare the next generation of creative and entrepreneurial information professionals to make a difference in the communities they serve and pursue fulfilling and intellectually challenging careers. The first cohort of students entered the program in Fall 2019.

New Undergraduate Majors

Computational Biology

Offered jointly with the Department of Biological Science, the Computational Biology major will prepare students to understand the core principles, models, and theories in both biology and computer science and allow them to strategically solve key problems within the field.

Digital Narrative and Interactive Design

Offered jointly with the Department of English, the Digital Narrative and Interactive Design major will teach students how to build interactive narrative systems such as games, interactive literature, virtual reality environments, and other interactive types of media.

The University of Pennsylvania

Penn is the birthplace of the modern computer, the ENIAC. Our Computer and Information Science Department, in the center of a vibrant Ivy League campus

The CIS Department has strong collaborations with Penn's nearby Wharton School of Business, Perelman School of Medicine, Annenberg School of Communication, School of Law, Graduate School of Education, School of Social Policy and Practice, and School of Arts and Sciences.

Faculty:

- 34 tenure-track + 3 hires starting in 2020
- 11 teaching-track
- 4 research-track

Students:

- 161 PhD
- 646 Master's (5 degree programs)
- 1004 undergraduates (6 degree programs)

Continued Growth

As part of Penn Engineering's ambitious growth plans, our department is aggressively hiring, with multiple open positions. Areas of existing strength include programming languages and formal methods, databases, networks and distributed systems, machine learning and data science, natural language processing, robotics and vision, and computational social science.

New Faculty Members, 2019-20



Dinesh Jayaraman, Assistant Professor (Jan 20). *PhD, 2017, UT-Austin*. Computer vision, robotics, machine learning, computational photography.



Tal Rabin, Professor (July 20). *PhD, 1994, Hebrew University*. Cryptography, secure multiparty communication, threshold cryptography, proactive security.



Duncan Watts, Professor of Computer and Information Science, Communications, and Operations, Information, and Decisions. *PhD, 1997, Cornell*. Computational social science.



Mark Yatskar, Assistant Professor (July 20). *PhD, 2017, U Washington*. Natural language processing, computer vision, fairness.

Online Education Initiatives

The Penn Computer and Information Department has launched a new online Master of Computer and Information Technology degree, targeted at individuals in the workforce who have quantitative skills but do not have formal training in computer science. Approximately one year in, the program has enrolled 490 students.

Faculty and Student Highlights

- Sanjeev Khanna and Andre DeHon were named ACM Fellows.
- Linh Thi Xuan Phan was promoted to Associate Professor with tenure.
- Vincent Liu received an NSF CAREER Award.
- Andreas Haeberlen and Chris Murphy won university awards for teaching excellence.
- Michael Kearns and Aaron Roth's book *The Ethical Algorithm* was published.



GALLOGLY COLLEGE OF ENGINEERING
SCHOOL OF COMPUTER SCIENCE
The UNIVERSITY of OKLAHOMA

Leadership. Action. Success.



Amy McGovern

Professor, School of Computer Science
Adjunct Professor, School of
Meteorology

Amy McGovern's research focuses on machine learning methods and applications with a focus on severe weather. She also works with donors and K-12 outreach to interest more students in computer science.

McGovern's research in meteorology has demonstrated that machine learning can be used to improve predictions of severe weather, thus saving lives and property.



Christan Grant

Assistant Professor, School of
Computer Science
Assistant Professor, Data Science and
Analytics Program

Grant and colleagues develop systems for analyzing data, interactive machine learning, and privacy.

Grant's collaborations with colleagues in political science and epidemiology have been funded by Robert Wood Johnson Foundation, United States Department of Agriculture, National Science Foundation and others. Grant recently developed one of the most extensive multilingual, political event data sets between 1970 and 2015 (terrierdata.org).

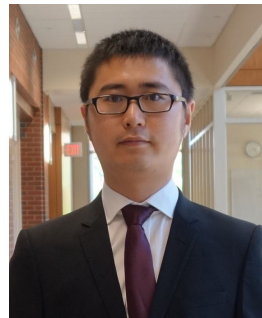


Dimitrios Diochnos

Assistant Professor, School of
Computer Science

Works in artificial intelligence and focuses on machine learning with provable guarantees. He is also interested in multi-agent systems and in reasoning with knowledge bases.

Recent work by Diochnos focuses on the robustness of machine learning classifiers. This line of work helps us create and deploy a new era of machine learning systems that make reliable predictions, even within adversarial contexts where part of the data that is fed into such systems has been maliciously altered.



Song Fang

Assistant Professor, School of
Computer Science

Song Fang's research interests include wireless and mobile system security, cyber physical systems and IoT security, mobile computing, and application of machine learning in wireless and mobile systems.

Fang's research has appeared in premier conferences and journals, including ACM Conf. on Mobile Computing and Networking, ACM Conf. on Computer and Communications Security, IEEE International Conf. on Computer Communications, and IEEE Trans. on Dependable and Secure Computing.

Computer Science is a rapidly evolving profession.

Our goal is to prepare you to grow with it during your education and beyond.



17
Full-Time Faculty

OFFERING

Bachelor's

Master's

Doctoral

DEGREES

More than
600
Undergraduate
 Students

With a **balanced curriculum** and **variety of minors**, the Computer Science undergraduate program is

broad AND flexible.

About Norman

Reasonable cost of living. Part of this is the very reasonable housing expenses. Rents for a one bedroom apartment begin around \$500, and a variety of units are within walking distance to campus.

Championship sports teams. OU football, seven national championships and seven Heisman Trophy winners, and the Oklahoma City Thunder major league basketball team.



RESEARCH THEMES

- » AI and Machine Learning
- » Algorithms and Theory
- » Assistive Technologies
- » Computer Architecture and Nanotechnology
- » Computer Vision, Medical Imaging, and Biometrics
- » Digital Humanities
- » Human Computer Interaction
- » Natural Language Processing
- » Network and Data Science
- » Scientific and High-performance Computing
- » Security, Privacy, and Cryptography
- » Software Engineering
- » Visualization and Visual Analytics
- » Wireless, Mobile, and Embedded Systems



At a Glance ... COMPUTER SCIENCE *and* ENGINEERING *at Notre Dame*



RESEARCH AND GRADUATE STUDY HIGHLIGHTS

- » **133 graduate students enrolled**
 - Ph.D. program: 49 domestic, 79 international
 - M.S. program: 5 international
- » **16 Ph.D. graduates in 2019**
- » **87 new research awards (\$12.8 million), \$14.2 million expended (14% increase over 2018)**

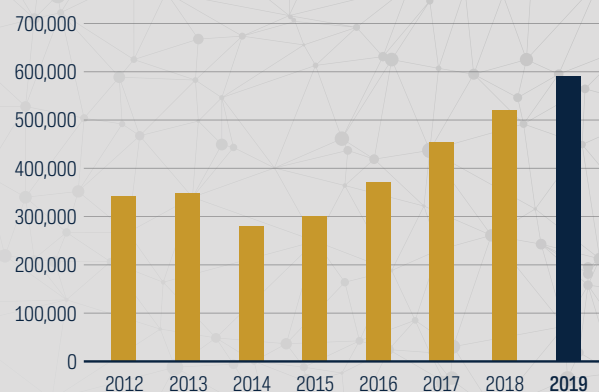
UNDERGRADUATE STUDY HIGHLIGHTS

- » **153 B.S. graduates in 2019**
- » **440 majors (sophomore through senior year)**
- » **Silicon Valley Semester program: 25 CSE students participating in courses and internships at Bay Area firms during the spring semester (25% increase from 2018)**

RECENT NEWS

- » Pratham Juneja, a senior pursuing a dual major in computer science and political science, was named a 2019 Truman Scholar.
- » A class project in Professor Jane Cleland-Huang's drone course laid the foundation for a student startup company that dispatches defibrillators by drone in response to 911 calls so bystanders can save lives before rescue workers arrive.
- » Professors Patrick Flynn and Timothy Wenering, along with Katherine Corcoran, associate director of media relations at Notre Dame, Anne Thompson from NBC Universal, and Cong Yu from Google Research, participated in a panel discussion titled "Fact, Fiction, and the Newsfeed."
- » The first edition of "Introduction to Compilers and Language Design," a free online textbook by Professor Douglas Thain was released.

RESEARCH EXPENDITURES PER FACULTY MEMBER



NEW FACULTY 2019-20

Matthew Morrison
VLSI and Hardware Security



Department of Computer Science and Engineering University of North Texas

<http://computerscience.engineering.unt.edu/>

Department Highlights

- With 3 new hires, described below, the department has grown to a size of 35 faculty.



Dr. Mark Albert joined UNT as an Assistant Professor with a primary appointment in Computer Science and Engineering with a secondary appointment in Biomedical Engineering. He received his Ph.D. in Computational Biology from Cornell University in 2009 after which he joined Loyola University of Chicago where he was recently recommended for tenure and promotion to Associate Professor. His research focusses on machine learning, wearable devices in health care, and applying efficient coding principles to computational neuroscience.



Dr. Nagendra Gulur joined UNT as an Assistant Professor after working for more than 20 years at Texas Instruments. While working at TI, he received his Ph.D. in Computer Architecture from the Indian Institute of Science in 2015. His research areas are memory systems, embedded computing, and formal methods.



Dr. Yanyan He comes to UNT as an Assistant Professor from New Mexico Institute of Mining and Technology. Her primary appointment is in Mathematics with a secondary appointment in Computer Science and Engineering. She received her Ph.D. in [Applied and Computational Mathematics](#) from Florida State University in 2013. Her research focuses on uncertainty quantification, uncertainty modeling, and computational statistics.

Research Highlights

- CSE has three Research Centers: Center for Computational Epidemiology and Response Analysis (CeCERA), Center for Information and Cybersecurity (CICS), and the Net-Centric Software & Systems Center.
- CSE has 15 Research Labs in these areas: Algorithms and Computational Science, Artificial Intelligence and Data Science, Computer Systems and Networks, Cybersecurity, and Software Engineering.
- Three NSF CAREER award recipients on faculty – Dr. Eduardo Blanco, Dr. Hyunsook Do and Dr. Wei Jin.

Other Highlights

- UNT was renewed as a Tier 1 Research Institution (Carnegie Classification as a Doctoral University: Highest Research Activity).
- UNT is a [BRAID](#) (Building, Recruiting And Inclusion for Diversity) institution.
- Dr. Stephanie Ludi was appointed Editor-in-Chief of the ACM Transactions on Accessible Computing.
- The Teach North Texas program facilitates undergraduates in receiving teacher certification to become K-12 computer science teachers.

Student Numbers and Growth

- CSE awarded 178 Bachelors, 50 Masters and 14 Ph.D.s in 2018-2019.
- CSE sent 8 students to Richard Tapia in Sept 2019 and 19 students to Grace Hopper in October 2019.
- In fall 2019, CSE has over 100 Ph.D. students, 100 M.S. students, and 1,200 undergraduate students enrolled.

The College of Computing and Informatics (CCI) at UNC Charlotte is the **FASTEST-GROWING** College in the UNC System

3,043 STUDENTS
150 PHD
708 MASTERS
2,185 UNDERGRADS

#1

Producer of CS Degrees in NC

Female CS Graduates in NC

#1

Hispanic CS Graduates in NC

#1

African-American CS Graduates in NC

#2

RESEARCH

Research initiatives are at the heart of CCI's mission. Recently, CCI's Research was ranked 35th in Funding and 13th in Citations, nationally by *Academic Analytics*. Research opportunities are varied and currently include projects in the Top- 5 Computer Science concentrations, according to *ITWorld.com*:

- **Artificial Intelligence and Robotics**
- **Big Data Analysis**
- **Computing Education**
- **Bioinformatics**
- **Cybersecurity**

Research opportunities are open to Master's and Doctoral candidates as well as undergraduates.

FY2018
RESEARCH FUNDING \$9.8M
#35 Nationally in CS Grant Dollars
14,165 CITATIONS
GRANTS 68

CCI.UNCC.EDU



A MESSAGE FROM OUR DEAN **Dr. Fatma Mili**

The College of Computing and Informatics (CCI) is celebrating 20 years of innovation in thinking, teaching, and engaging with the world.

Twenty years ago, Chancellor James Woodward foresaw how computing was fundamentally transforming all key human enterprises: education, scientific inquiry and discovery, health care, communication, and transportation. This warranted a dedicated college housing two departments dedicated to the science of computing and to the design and use of computing systems.

A few years later, he added the Department of Bioinformatics and Genomics, thus combining our electronic, information, and biological worlds.

Interestingly, the continuous osmosis between these three spaces and the blurring of boundaries between them may very well be the most important signature of our times.

The genesis of our college, its people, and its enduring footprint, continue to be a source of inspiration and a cause for pride and humility.

Three major enduring themes emerge in examining our history: Curiosity, Action and Care. These themes will also shape how we navigate our future.

20 YEARS CELEBRATING COMPUTING INNOVATION

DEPARTMENTS

- Computer Science
- Software and Information Systems
- Bioinformatics and Genomics
- School of Data Science

DEGREES

- B.S. in Computer Science and Data Science
- B.A. in Computer Science
- M.S. in Computer Science, Cybersecurity, Bioinformatics and IT
- P.S.M. in Data Science and Business Analysis, Health Informatics
- Ph.D. in Bioinformatics, Computational Biology, Computing and Information Systems, and Data Science

CITAP

The new Center for Information, Technology, and Public Life (CITAP) at the University of North Carolina at Chapel Hill brings together some of the nation's leading experts in journalism, information science, communication, and law.
citap.unc.edu

SILS has the #3 best program in the nation according to *U.S. News & World Report*. The University of North Carolina at Chapel Hill is the 3rd best public school in the U.S. according to the *Wall Street Journal* and *Times Higher Education*.

SILS faculty were authors on 2 of the 5 papers named as finalists for the best paper award at iConference 2019. Other recent honors include ASIS&T's 2019 Pratt Severn Best Student Research Paper Award for master's graduate Matthew Johnson.

U.S. News & World Report ranked SILS #1 for Digital Librarianship and Health Librarianship. *Kiplinger's Personal Finance* named Carolina the No. 1 value in American public higher education.

New research center will study impact of digital information sharing on democracy

The UNC School of Information and Library Science (SILS) is the lead partner in a new interdisciplinary initiative to study the impact of the internet, social media, and other forms of digital information sharing on democracy in the U.S. and socio-political systems around the globe. A \$5 million gift from the John S. and James L. Knight Foundation enabled the launch of the Center for Information, Technology, and Public Life (CITAP). An additional \$750,000 from Luminate and \$600,000 from the William and Flora Hewlett Foundation will help expand the center's impact.



Photo courtesy of CERN

CITAP Investigator and SILS Associate Professor Zeynep Tufekci speaks at the WEB@30 ceremony hosted by CERN in March.

Advancing email curation with \$1.1M from Mellon Foundation

SILS Professor Cal Lee is leading the Review, Appraisal, and Triage of Mail (RATOM) project to develop new software and workflows that will enable institutions to efficiently process emails included in digital collections. The RATOM acronym was developed not only to label the project, but also to honor Ray Tomlinson, the computer programmer credited with inventing email. SILS and the State Archives of North Carolina are partnering on the project, which received a \$1.1 million grant from the Andrew W. Mellon Foundation. Learn more at ratom.web.unc.edu.

Helping teens become DataAware

Hosted by the Carolina Health Informatics Program and supported by the NIH, Data Analytics for Teen Advancement: Applications in the Workforce and Academics with Research Experience (DataAware) brought high school students to UNC-Chapel Hill's campus this summer to learn about health data analytics, digital health technology, and academic research. Learn more at dataaware.unc.edu.



Devesh Kasireddy, a high school junior from Cary, N.C., points to data used in his project on pharmacogenomics.

Gotz named RTIUX Scholar

David Gotz, Associate Professor at SILS and Assistant Director of the Carolina Health Informatics Program (CHIP), was selected for the 2019-20 RTIUX scholars program, which provides support for distinguished academic researchers to spend scholarly leave time at RTI International. Gotz is partnering with an interdisciplinary team at RTI's Center for Data Science, working on extensions of his ongoing visual analytics research.



Photo courtesy of Jeopardy! Productions, Inc.

"Jeopardy!" host Alex Trebek and Emma Boettcher

Science behind the Jeopardy! 'Giant Killer'

SILS alumna Emma Boettcher (MSIS' 16) made headlines in June after her defeat of "Jeopardy!" phenomenon James Holzhauer. Before Boettcher's debut, Holzhauer had enjoyed a 32-game winning streak. Boettcher, a UX Librarian at the University of Chicago and long-time "Jeopardy!" fan, had focused her SILS master's paper on determining the difficulty of "Jeopardy!" questions using textual features.

From Formal Methods to Interactive Design

COMPUTER SCIENCE at UNM has research strengths in biological systems and processes, distributed and parallel computing, machine learning, and theoretical foundations. The department has 15 tenure-track faculty and 2 lecturers, with research expenditures averaging over \$3M per year since 2015. UNM is a designated Minority-serving institution, and one of only four Carnegie Research/Doctoral-Extensive Universities designated as Hispanic-serving.

Leah Buechley Joins Faculty

LEAH BUECHLEY, newly hired Associate Professor, builds connections between computer science and art. Her research focuses on “how computation can be used to open up new potentials in design.”

Dr. Buechley was formerly a professor at the MIT Media Laboratory and founded Rural/Digital, an independent design and engineering firm that focuses on technology, design and learning. She received the National Science Foundation CAREER Award in 2011 and the Edith Ackerman Award for Interaction Design and Children in 2017.

Buechley grew up in northern New Mexico, the daughter of two furniture makers, and says “one of the things that attracted me back to New Mexico is that we have a rich cultural history here with traditions that include ceramics, weaving and other art.”



Trilce Estrada is Emerging Woman Leader

TRILCE ESTRADA has been selected as the 2019 SIGHPC Emerging Woman Leader in Technical Computing Award winner. Associate Professor Estrada’s overarching research goal is to “solve computationally and data intensive problems in science, health, and education, especially in scenarios where resources and trained professionals are scarce.”

The award is presented every two years, to a woman in high-performance computing (HPC), in recognition of impact on technical computing as indicated

by early career achievements, and her commitment to growing our community through service and mentorship.

Estrada is also the recipient of a National Science Foundation CAREER Award in 2015 for “Enabling Distributed and In-Situ Analysis for Multidimensional Structured Data.”



José Castellanos Interns at MSR

JOSÉ CASTELLANOS, PhD student at UNM CS, interned last summer at Microsoft Research in Redmond. During that time, he worked with Dr. Mark Marron on adding formal methods to the compiler for a new programming language called Bosque.

José says that “Software verification is becoming increasingly relevant because many unintentional bugs are introduced while integrating large systems. I was introduced to my mentor at MSR thanks to my adviser Prof. Deepak Kapur. Microsoft Research

is a great place to intern! Not only was I able to learn and apply many new things in my research area, but also I got a broad sense of other projects developed at Microsoft and now appreciate how important interdisciplinary research is to finding solutions and developing novel technologies.”



Diverse Impacts

OUR DEPARTMENT conducts fundamental and applied research, with collaborations both on campus and around the world. Recent successes include:

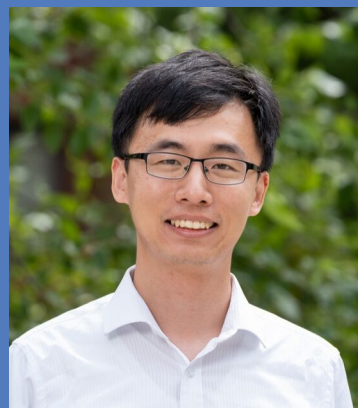
- *Faculty Awards:* Abdullah Mueen won the UNM School of Engineering Junior Faculty Research Excellence Award (May 2019).
- *Postings:* Recent PhD graduates have taken research and academic positions at Visa Research, Sandia Labs, Los Alamos Labs, the University of Michigan, and Oxford University.
- *Pedagogy:* Our “NM-CS4All” program has trained 60 high school teachers to teach introductory computer science, to date reaching 1,500 students across New Mexico—and for the first time, adding a computer science class to the UNM core curriculum.
- *New Grants:* Assistant Professor Matt Lakin is Co-PI on a new NSF “Rules of Life” grant to create synthetic cells that can learn without evolution. His project aims to develop synthetic cells that learn to respond to a light pulse by associating it with the addition of molecules detected by olfactory receptors.



UNIVERSITY OF NEW HAMPSHIRE

DEPARTMENT OF COMPUTER SCIENCE

4 FACULTY MEMBERS HIRED IN THE LAST 3 YEARS



DONGPENG XU

Cybersecurity



MAREK PETRIK

Machine Learning



MOMOTAZ BEGUM

Robotics



LAURA DIETZ

Information Retrieval

RESEARCH HIGHLIGHTS

- Wheeler Ruml has been named a fellow of the National Academy of Inventors.
- Marek Petrik was awarded 2 NSF grants: Robust Reinforcement Learning for Invasive Species Management and Robust Reinforcement Learning Using Bayesian Models.
- Momotaz Begum was awarded an NSF grant: Robust Learning of Sequential Motion from Human Demonstrations to Enable Robot-Guided Exercise Training.
- Laura Dietz has been awarded an NSF CAREER grant: Utilizing Fine-grained Knowledge Annotations in Text Understanding and Retrieval.
- In collaboration with the UNH InterOperability Laboratory, Radim Bartos is exploring methods making network time transfer systems more robust and secure.
- Research team of Dongpeng Xu is working on research projects in software deobfuscation, malware detection, and automated vulnerability testing.

STUDENT HIGHLIGHTS

- Enrollments: 380 undergraduates, 55 MS students, & 32 PhD students
- New BA program in Computer Science with tracks in Algorithms, Systems, & Cybersecurity.
- New undergraduate and graduate interdisciplinary programs in Analytics & Data Science
- YouScheduler, a company founded by current CS undergraduate students Francesco Mikulis-Borsoi and Kristian Comer, is expanding to serve students at the University of Maryland and Northeastern University.
- Wildcat Women in Computer Science is a student-led organization focusing on increasing participation of women in the field of computer science.
- UNH Cybersecurity Club participates in regional and national competitions.



UNIVERSITY OF NEBRASKA-LINCOLN

COMPUTER SCIENCE AND ENGINEERING

RESEARCH

2019-20

CORE AREAS



- \$3.75 million in expenditures
- Average of 8 publications per year per faculty

STUDENTS

POPULATIONS

888 undergraduates
44 master's students
61 doctoral students

DEGREES AWARDED

98 Bachelor's degrees
15 Master's degrees
2 Doctoral degrees

5-YEAR GROWTH TRENDS

86% in enrollment
177% in female students
108% in underrepresented students

FACULTY

STATISTICS

24 Tenure Track (3 new hires)
10 Instructional (4 new hires)
8 NSF Career Awardees

3 Endowed Chairs
2 IEEE Fellows
1 ACM Fellow

New Department Chair:
Marilyn C. Wolf

OUTREACH

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

Department of Computer and Information Science



<http://www.umdearborn.edu/cecs/CIS>

Overview:

- 19 tenured/tenure-track faculty members, including 2 NSF CAREER award recipients.
- 9 full-time/part-time lecturers.
- Over 800 students: 630+ undergraduates and 170+ graduates.
- 4 B.S. programs, 4 M.S. programs, and 1 Ph.D. program.
- Searches for 2 new faculty members are under the way.

New Faculty Hires (Fall 2019):

- Jin Lu, Assistant Professor, data science and machine learning, PhD'19 UConn.
- Niccolo Meneghetti, Assistant Professor, data management, PhD'16 SUNY Buffalo.
- Probir Roy, Assistant Professor, computer systems and HPC, PhD'19 W&M.

Research Highlights:

- *Research sponsors:* NSF, NIH, NHTSA, DOS, NASA, TARDEC, IBM, HP, Toyota, Ford, Chrysler, TRW, Microsoft, Amazon, Sema, eBay, etc.
- *Selected recent grants:*
 - Mohamed Abouelenien, "Circadian State Detection and Classification System", Ford Motor Company, \$220,223.
 - Marouane Kessentini, "Collaborative Research: Elements: Software: Software Health Monitoring and Improvement Framework", NSF, \$354,451.
 - Luis Ortiz, "RI: Small: Collaborative Research: Influence Games: A Game-theoretic Approach to Strategic Behavior in Networks", NSF, 228,919.
- *Selected recent publication venues:* TACO, TBD, TDSC, TEAC, TEVC, TKDE, TMC, TODS, TOIT, TON, TPDS, TSE, TVT, AAMAS, ASE, CAL, CGO, CoPR, ICC, ICCD, ICPR, ICSOC, IEEE S&P, MASS, SEC, SIGMOD, USENIX MIPR, PACT, Ubicomp, etc.

Other Highlights:

- Marouane Kessentini received the 2019 Distinguished Tunisian Diaspora Research Award and the 2019 Beit al-Hikma Distinguished Early Career Research Award.
- Marouane Kessentini served as PC chair for MODELS 2019.
- Anys Bacha served as Travel Award Chair for MICRO 2019 and received an NSF award of \$20,000 to support student travels for the conference.
- Brahim Medjahed was appointed as Associate Dean of University of Michigan Rackham Graduate School.
- Brahim Medjahed received the 2019 Michigan Distinguished Professor of the Year Award from the Michigan Association of State Universities (MASU).
- Di Ma, Brahim Medjahed and their students received the 2018 Trevor O. Jones Outstanding Paper Award from SAE.
- Jie Shen was elected to Fellow of ASME (2019) and Fellow of IET (2019).
- New MS in Cybersecurity and Information Assurance program was launched in Fall 2019.

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 ONLINE DEGREE

In fall 2019, the School of Information inaugurated its first all-online graduate degree, a Master of Applied Data Science, on the learning platform Coursera. The program's entering cohort numbered 150+ students.

umsi.info/mads

23

tenure-track
faculty positions
added since 2015

#1

in Information
Systems—
*U.S. News & World
Report*, 2018

**98–
100%**

employment rate
for recent grads
in all programs

NEW FACULTY IN 2019



Nazanin Andalibi
Assistant
Professor
*PhD, Drexel
University*



**Michaelanne
Dye** President's
Postdoctoral Fellow
PhD, Georgia Tech



Robin Brewer
Assistant
Professor
PhD, Northwestern



Abigail Jacobs
Assistant Professor
*PhD, University of
Colorado, Boulder*



**Christopher
Brooks** Assistant
Professor
*PhD, University of
Saskatchewan*



Grant Schoenebeck
Assistant Professor
*PhD, University of
California, Berkeley*



**Parmveer
Dhillon** Assistant
Professor
*PhD, University of
Pennsylvania*



Misha Teplitskiy
Assistant Professor
*PhD, University of
Chicago*



Hariharan Subramonyam, lead author of CHI Best Paper
"Affinity Lens: Data-Assisted Affinity Diagramming with
Augmented Reality" umsi.tv/affinity-lens

2019 HONORS & ACCOMPLISHMENTS

- **CHI Conference**—
Three Best Papers,
five Honorable Mentions
- **The Web Conference**—
Best Paper, Best Poster
- **Learning Analytics &
Knowledge Conference**—
Best Full Research Paper
- **ICWSM Conference**—
Best Paper
- **IMS Global Learning
Impact Gold Medal** —
Stephanie Teasley,
Matthew Kay
- **International Commu-
nications Association
Fellow**—Nicole Ellison
- **ACM Distinguished
Members**—
Eytan Adar, Cliff Lampe
- **ACM SIGCSE Outstanding
Contribution to Computer
Science Education**—
Mark Guzdial

CURRENT GRANT HIGHLIGHTS

- Assessing the Impact
of Exogenous Shocks
on User Behavior and
Information Diffusion in
Social Media—
DARPA, \$449,547
- Preparing the Public
Sector Research
Workforce to Impact
Communities through
Data Science—
NSF, \$498,778
- Systematic Comparative
and Historical Analysis
Framework for Social
Movements—
NSF, \$495,942
- Drawing from Theories
of Justice to Respond to
Online Harassment—
NSF, \$909,213

DEGREES OFFERED AND STUDENT ENROLLMENTS (FALL 2019)

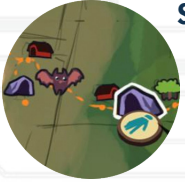
- Bachelor of Science in Information **337**
- Master of Science in Information **497**
- Master of Health Informatics **91**
- Master of Applied Data Science (online) **149**
- PhD in Information **105**



RESEARCH IMPACTS



Algorithm can help robots navigate a home. Prof. Chad Jenkins' algorithm allows robots to perceive environments orders of magnitude faster than previous approaches, enabling them to go from structured surroundings like factories to complex places like our homes.



Strategy game has players tackle real-life bat catastrophe. As a fungal infection ravages bat populations, the new game developed by Austin Yarger and funded by the US Fish and Wildlife Service hopes to promote public awareness of ongoing research to combat the issue.



RFID turns all objects into smart objects. Prof. Alanson Sample's IDAct bridges the gap between the 14.2 billion 'smart' electronic devices part of the Internet of Things and hundreds of billions of everyday non-smart objects left out of the picture, a key step toward a truly immersive IoT experience.



New chip stops hacks before they start. Prof. Todd Austin's MORPHEUS chip can encrypt and reshuffle code thousands of times faster than human and electronic hackers – 20 times per second.



Virtual assistant startup draws windfall funding, looks ahead to IPO. Clinc AI closed a funding round with \$52M, and co-founders Profs. Jason Mars and Lingjia Tang hope for an IPO by 2022 to continue developing their AI to vastly improve human-computer interaction.



Prominent publication features election security specialist. Prof. J. Alex Halderman published an essay in *Scientific American* describing a worst-case cyberwarfare scenario for the 2020 American presidential election.



Driverless shuttle startup sees year of rapid expansion. May Mobility, co-founded by Prof. Ed Olson, introduced automated routes in 2 additional US cities, for a total of 4, opened a new headquarters in Ann Arbor, Michigan, raised \$22M in series A funding, and unveiled a prototype wheelchair-accessible driverless shuttle.

Faculty
83

Undergraduates
2561

PhDs
258

Student numbers based on Fall semester 2019; faculty number includes 60 tenure track faculty, 20 teaching faculty, and 3 research faculty.

7 NEW FACULTY



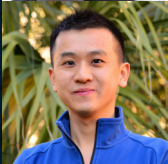
Michael Adams
Asst. Research Scientist
Programming Languages



Joyce Chai
Professor
Robotics



Euiwoong Lee
Asst. Professor
Theory of Computation



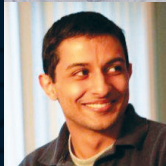
Xinyu Wang
Asst. Professor
Programming Languages



Jonathan Beaumont
Lecturer



Mahdi Cheraghchi
Asst. Professor
Theory of Computation



Cyrus Omar
Asst. Professor
Programming Languages

DIVERSITY | OUTREACH

- ☐ **New course introduces CS.** A 1-credit class for students with no programming experience.
- ☐ **Engaging women in CS research.** Semester-long workshop gave 70 undergrad women hands-on CS research experience.
- ☐ **4th annual CS Kickstart experience.** Orientation held to welcome first-year women.
- ☐ **Connecting with diverse groups in CS.** Sending 30+ students to Grace Hopper, Richard Tapia, SHPE, and NSBE conferences.
- ☐ **Bringing diverse voices to campus.** A new lecture series features lectures from minority and underrepresented voices across industry and academia.

The University of Memphis Department of Computer Science 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 20 faculty members are highly productive researchers. With more than \$20 million in active research grants, the department has been ranked 55th nationwide among CS departments in federally funded research expenditures and 80th nationwide among 173 doctoral computer science programs in citations of tenure-track faculty. Our faculty include two IEEE Fellows, an ACM Distinguished Speaker and the first state-endowed chair of excellence in computer science in Tennessee.

FALL 2019 NEW TENURE-TRACK FACULTY HIRE



Amy Cook
PhD, Human-Computer Interaction,
Carnegie Mellon University, 2019

RESEARCH HIGHLIGHTS

- Dr. Lan Wang is on a team that was awarded \$418,000 from the Public Safety Communications Research Division of NIST to work with the City of Memphis on Map901: Building Rich Interior Hazard Maps for First Responders.
- The Center of Excellence for Mobile Sensor Data-to-Knowledge (MD2K), now in its fifth year under the direction of Dr. Santosh Kumar, landed two grants totaling \$2 million from NSF and NIH that will enable the center to enhance its software infrastructure, and also join the effort to curb opioid abuse.
- The Center for Information Assurance (CfIA) successfully hosted its 11th annual Mid-South Cybersecurity Summit on Oct. 5. Center director Dr. Dipankar Dasgupta gave an invited talk at Oxford University on his patented adaptive multi-factor authentication research (cs.ox.ac.uk/seminars/2225.html) on June 7.

STUDENT AND ALUMNI HIGHLIGHTS

- The inaugural Mid-South Student Hackathon, a joint effort between student organizations at the UofM and Christian Brothers University, was held March 8-9 at the FedEx Institute of Technology. International Paper, The Seam, Blockchain901 and the IEEE Memphis chapter helped sponsor the hackathon.
- Kareem Dasilva and Brandon Ellis, both members of the Memphis chapter of Black Data Processing Associates (BDPA), were on a team that placed first among five teams at the StartCo 48 Hours Launch Competition on Nov. 11.
- Undergraduates Marshal Hayes, Michael Bowman and Daniel Linn placed first at the UT Martin local site of the ACM International Collegiate Programming Contest on Nov. 3, 2018. The team bested eight other teams at the UT Martin site and placed 39th out of 125 teams in the Mid-Central USA region of five states.
- Nine students from the Memphis chapter of Black Data Processing Associates qualified to attend the annual BDPA National Conference in New Orleans in August 2018. Four students (Brandon Ellis, Bryce Ellis, Cody Seymour, Jada Thomas) were awarded \$2,500 scholarships.

OTHER HIGHLIGHTS

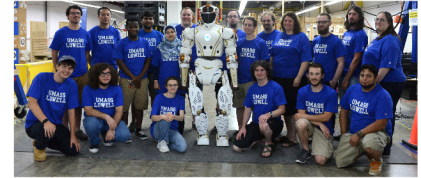
- The department received a one-year \$10,000 grant from the National Center for Women and Information Technology (NCWIT) to improve recruitment and retention of female undergraduate CS students.

University of Massachusetts LOWELL

Department of Computer Science



2nd Conversational Intelligence Summer School, June 2019



NASA Valkyrie Humanoid Robot Team Members

Research Areas

Artificial Intelligence
Biomedical Informatics
Computational Social Science
Computer Science Education
Databases and Data Mining
Graphics and Visualization
Human-Computer Interaction
Human-Robot Interaction
Machine Learning
Natural Language Processing

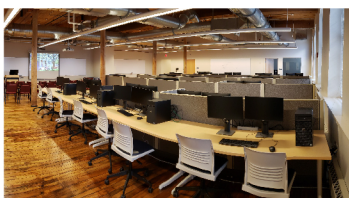


Networking
Operating Systems
Programming Languages
Robotics
Security and Privacy
Theory and Algorithms

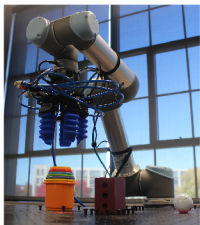
UMass Lowell CS by the Numbers

CSrankings.org, 2014 - 2019	#80
Research faculty members	21
Teaching faculty members	7
NSF CAREER awards	6
Last 5 years in research expenditures	\$15M
New research awards in FY2019	\$6.7M
New research awards in FY2020 Q1	\$2.4M
Undergraduate majors, Fall 2019	846
Degrees awarded in 2018 - 2019	120 MS
	47 MS
	8 PhD

Facilities



Cyber Security Range: 40 seat lecture theater, 20 workstations, real world security problems simulated in a controlled environment



New England Robotics Validation and Experimentation (NERVE) Center:
Industrial manipulators, exoskeletons, mobile robots, unmanned aerial vehicles

Highlights

Best Thematic Paper Award, NAACL-HLT 2019: *What's in a Name? Reducing Bias in Bios without Access to Protected Attributes*, A. Romanov, M. De-Arteaga, H. Wallach, J. Chayes, C. Borgs, A. Chouldechova, S. Geyik, K. Kenthapadi, A. Rumshisky, and A. Kalai

Best Paper Award, 2019 IMIA Yearbook of Medical Informatics: *Extraction of Information Related to Adverse Drug Events from Electronic Health Record Notes: Design of an End-to-End Model Based on Deep Learning*, F. Li, W. Liu, and H. Yu

Second Place, FetchIt! Mobile Manipulation Challenge, 2019 IEEE International Conference on Robotics and Automation, *Team RoboHawks*, Z. Han, J. Allspaw, R. Ahmadzadeh, and H. Yanco.

New Faculty Hires



Ivon Arroyo
Associate Professor
(January 2020)



Jaime Dávila
Senior Teaching Faculty
(September 2019)



Matthew Rattigan
Teaching Faculty
(September 2019)



Ali Sarvghad
Research Assistant Professor
(September 2019)



Yair Zick
Assistant Professor
(September 2020)

30 tenured,
tenure-track,
and teaching
faculty hired
since 2015.

UMassAmherst

College of Information
& Computer Sciences

COMPUTING FOR THE COMMON GOOD™



Innovation for the Common Good

Profs. Beverly Woolf and Shlomo Zilberstein are developing software that guides workers in the U.S. manufacturing workforce through the process of **job selection and upskilling**.

In collaboration with UMass Amherst's Institute for Applied Life Sciences, faculty in CICS's new Center for Smart & Connected Society (CS2) are making advances in **wireless sensing, battery life, data capture, and other aspects of wearable tech**.

A study led by recent doctoral graduate Emma Strubell found that the computer usage required to train a neural network can create a **carbon footprint five times as large as the lifetime emissions of the average car**.

Awards & Accolades (AY '18-'19)

AAAI Distinguished Service Award: Shlomo Zilberstein

ACM Distinguished Members: Emery Berger & Deepak Ganesan

ASPLOS Most Influential Paper Award: Emery Berger & collaborators

CRA Treasurer: James Allan

IEEE Computer Pioneer Award: Dean Laura Haas

IEEE Fellow: Ramesh Sitaraman

NSF CAREER Award: Brendan O'Connor

IFAAMAS Influential Paper Award: Shlomo Zilberstein, Neil Immerman, & collaborators



Education for the Common Good

New interdisciplinary **BS in Informatics program** combines computer science curriculum with domain expertise in another major.

CICS is a founding sponsor of **HackHer413**, the first student-run hackathon for women and non-binary students in Western Massachusetts.

Now in its second year, the **Data Science for the Common Good** program partners graduate students with public interest organizations in Massachusetts.

By the Numbers

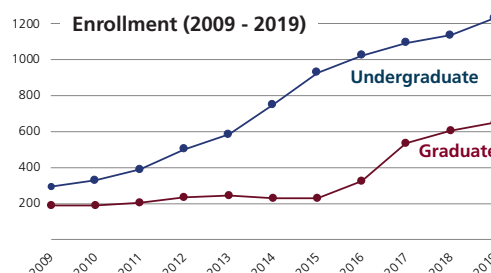
62 tenure, tenure-track & teaching faculty

\$20.5 million in new research awards in FY18

#11 in Artificial Intelligence

#20 in Computer Science overall
U.S. News & World Report

A Destination of Choice for Talented Students



First-Year Undergraduate Students Fall 2019



4.2 Avg. GPA



1457 Avg. SAT

For more information about our open faculty positions and graduate programs, visit cics.umass.edu.



DEPARTMENT OF COMPUTER SCIENCE & ELECTRICAL ENGINEERING

*WE ARE
GROWING!*
9 NEW FACULTY
in 2019
&
HIRING for 2020



Dmitri Perkins, Ph.D.
Professor
Wireless Networking



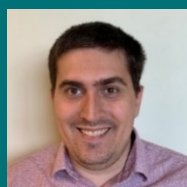
Riadul Islam, Ph.D.
Assistant Professor
VLSI Design & Automation



Chenchen Liu, Ph.D.
Assistant Professor
High Perf. Computing



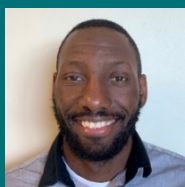
Prasanna Joeg, Ph.D.
Professor of the Practice
Data Mining



Eric Hamilton, M.S.
Lecturer



Jeannette Kartchner, M.S.
Lecturer



Ivan Sekyonda, M.S.
Lecturer



Fereydoon Vafaei, M.S.
Lecturer



Marcella Wilson, Ph.D.
Lecturer

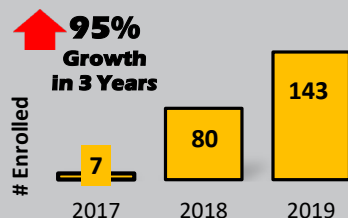
CSEE Highlights, Awards and Honors

- ❖ Tim Finin was named an ACM fellow for “contributions to the theory and practice of knowledge sharing in distributed systems and the World Wide Web.”
- ❖ Adam Bargteil was elected to a 3-year term as Director-at-Large at ACM SIGGRAPH.
- ❖ Cynthia Matuszek has been named one of “AI’s 10 to Watch,” a list of rising stars in artificial intelligence published by *IEEE Intelligent Systems*.
- ❖ Fow-Sen Choa and Seung-Jun Kim (with Co-PI Tulay Adali) are leading teams receiving two awards from NSF (Brain Initiative).
- ❖ PI Yelena Yesha and Co-PIs Milton Halem and Karuna Joshi received a Phase I award from NSF to establish an Industry–University Cooperative Research Center, the Center for Accelerated Real Time Analytics (CARTA).
- ❖ Alan Sherman (PI) and Richard Forno (Co-PI) was awarded more than \$4.9 million over five years through NSF’s CyberCorps: Scholarship for Service (SFS) program. The program is designed to increase the number of cybersecurity professionals that are trained to enter careers in government, focused on protecting the nation’s information, communications, and computer systems.
- ❖ Hamed Pirsiavash (PI) and Co-PIs Naghmeh Karimi, Cynthia Matuszek, Damian Doyle, and Francis Ferraro received an NSF MRI award for a Heterogeneous GPU Cluster to Facilitate Deep Learning Research.

**UMBC RANKS #1
in MARYLAND for
CITATIONS/FACULTY
and #17 Nationally**

CSEE GOES GLOBAL! UMBC has partnered to create a global university network dedicated to securing critical systems against cyber threats- The International Cybersecurity Center of Excellence, which includes UMBC, Keio University in Japan, Royal Holloway University of London, Northeastern University, Kyushu University in Japan, and Imperial College London.

Data Science M.P.S. Program



CSEE Numbers at a Glance, 2019

- ❖ Enrollment- 1,953 Undergraduates, 645 Graduates
- ❖ Degrees Granted- 270 Bachelors, 140 Masters, 10 Ph.D. Graduates
- ❖ Faculty- 35 Tenure Track, 14 Teaching, 7 Research

Academic Programs- A Success Story

- ❖ 95%! That’s how much growth CSEE’s Data Science M.P.S. program has seen since its launch in 2017.
- ❖ Anupam Joshi (PI) and Co-PIs Freeman Hrabowski, David Chapman, Susan Mitchell and Katharine Cole received an NSF award, EAGER:X+CS: CS Pathways for Non CS majors, to develop new computing courses for non-majors.

Student Accomplishments Highlight Diversity

A team of UMBC students was named champions of the college division of the 2018 Maryland Cyber Challenge held at the annual Cyber-Maryland Conference. UMBC’s team showcased its dedication to inclusive excellence, and included Niara Richards ‘22, computer science; Nithya Prakash ‘22, information systems; Josh Mperere ‘19, computer science; Seamus Burke ‘20 computer science; and Swathi Krithivasan ‘22, computer science.

Be the Future.



DEPARTMENT OF
COMPUTER SCIENCE



Our new home, **The Brendan Iribe Center for Computer Science and Engineering**, opened in April 2019

16TH

IN THE NATION BEST GRADUATE PROGRAMS

U.S. News & World Report, 2019

RECENT HIRES

Abhinav Bhatele - Ph.D. from UIUC
High-Performance Computing & Visualization

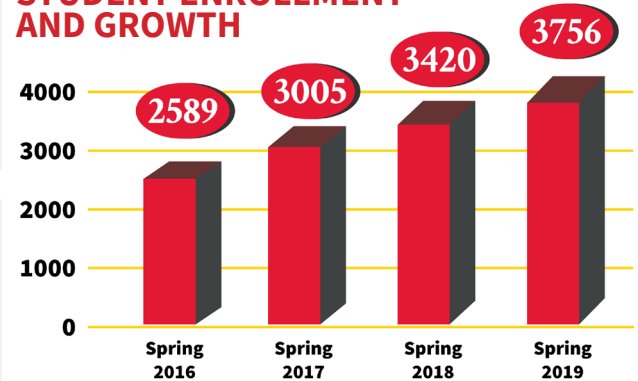
Ian Miers - Ph.D. from Johns Hopkins
Cybersecurity & Crypto Currency

Rachel Rudinger - Ph.D. from Johns Hopkins
NLP, Computational Linguistics & Machine Learning

Robert Patro - Ph.D. from UMD College Park,
Bioinformatics & Computational Biology

Pratap Tokekar - Ph.D. from UMN at Twin Cities
Algorithmic Robotics & Mobile Sensing

STUDENT ENROLLMENT AND GROWTH



**MOST POPULAR UNDERGRADUATE
MAJOR ON CAMPUS**

RECENT FACULTY AWARDS

Department Chair Professor **Ming C. Lin** - **2019 UMD Distinguished University Professor**

Professors **Dinesh Manocha & Hanan Samet** - **2019 SIGGRAPH Academy Fellows**

Professor **Mohammad Taghi Hajiaghayi** - **ACM Fellow**

Professor **Aravind Srinivasan** - **AMS Fellow**

Professor **Jonathan Katz** - **Intl. Association for Cryptologic Research Fellow**

Professor **Larry Davis** - **2019 USM Board of Regents' Faculty Award for Excellence in Research/Scholarship/Creative Activities**

Principal Lecturer **Jan Plane** - **2019 USM Board of Regents' Faculty Award for Excellence in Public Service**

Assistant Professors **John Dickerson** and **David Van Horn** - **NSF CAREER awards**

Assistant Professor **Soheil Feizi** - **Simons Fellowship**

Professor **Aravind Srinivasan** - **2019 Edsger W. Dijkstra Prize in Distributed Computing**

STUDENT/ALUMNI HIGHLIGHTS

Undergrad **Yaelle Goldschlag**, Banneker/Key Scholar, was awarded a **Barry Goldwater Scholarship 2019**

Alumna **Barna Saha** (Ph.D.'11) receives the **Presidential Early CAREER Award (PECASE) 2019**

Ph.D. student **Heba Aly** selected to participate in **"Rising Stars in EECS 2019"**

Undergrad **Louis-Henri Merino** named a **Fulbright Scholar**

Ph.D. Student **Denis Peskov** awarded a **DAAD Scholarship** to conduct research in Germany

Faculty Statistics

45 IEEE Fellows, 12 AAAS Fellows, 5 ACM Fellows,
5 APS Fellows
NAE Members: 7 active, 15 emeritus

11 | New tenure-track and specialized
teaching faculty members added in 2019
113 | Faculty members

Departmental News

Professor Bruce Hajek, Leonard C. and Mary Lou Hoeft Endowed Chair in Engineering, an internationally renowned expert in the field of communications networks, and a 40-year veteran of The Grainger College of Engineering faculty, has been named the new head of the Department of Electrical and Computer Engineering.

The Illinois College of Engineering has become The Grainger College of Engineering, recognizing a new \$100 million gift from the Grainger Foundation and more than \$300 million in total support. The Grainger Foundation's total support represents the largest amount ever given to a public university to name a college of engineering.

New Direct PhD program, which allows students with a BS degree in an appropriate engineering field to enter directly into the PhD program.

New rooftop solar array consists of 950 panels, which includes 60 panels dedicated to research use. At their peak, panels can produce a combined 275 kilowatts. The system was designed to provide 20% of the building's electrical consumption, but is currently generating about 25%.

Top Honors

ACM Best Open Source Software Award: Tsung-Wei Huang, Martin Wong, Chun-Xun Lin, and Guannan Guo

Young Scientist Prize in Optics by the International Union of Pure and Applied Physics: Can Bayram

Clarivate Analytics Highly Cited Researchers: Thomas Huang, Shuming Nie

IEEE Fellows: Deming Chen and Romit Roy Choudhury

SPIE Fellow: Lynford Goddard

Sloan Research Fellowship: Haitham Al-Hassanieh

ACM SIGDA Outstanding PhD Dissertation Award in Electronic Design Automation: Tsung-Wei Huang

CS MANTECH Best Student Paper: Patrick Su and co-authors Thomas R O'Brien, Jr (PhD '17), Fu Chen Hsiao (PhD '20) and Professor John Michael Dallesasse

NASA Heliophysics Early Career Investigator Award: Raluca Ilie

International Symposium on Computer Architecture (ISCA) Hall of Fame: Nam Sung Kim

Finalist Collegiate Inventors Competition: Graduate student Richard Liu



Student Statistics

Welcoming The Grainger College of Engineering **Class of 2023** with **ECE ILLINOIS** students in purple.

1,987 | Undergraduate Students
699 | Graduate Students

Professor Bruce Hajek,
the new head of the
Department of Electrical
and Computer
Engineering





New Faculty



Nancy Amato
Department Head
Robotics
(January 2019)



Payam Delgosha
Research Asst. Prof.
Theory
(August 2020)



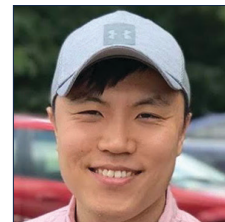
Kris Hauser
Associate Prof.
Robotics
(August 2019)



Heng Ji
Professor
NLP
(August 2019)



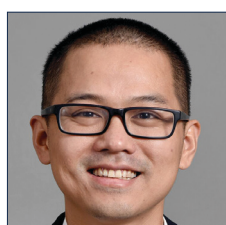
Hongye Liu
Teaching Asst. Prof.
Biomedical Informatics
(August 2019)



Yongjoo Park
Assistant Prof.
Databases
(August 2020)



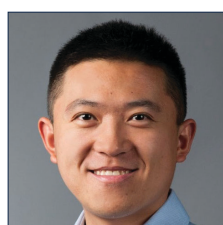
Lawrence Rauchwerger
Professor
Parallel Computing
(August 2019)



Hanghang Tong
Assoc. Prof.
Data Mining
(August 2019)



Deepack Vasishth
Assistant Prof.
Internet of Things
(August 2020)



Gang Wang
Assistant Prof.
Internet Security
(August 2019)

Top Faculty Honors

In the past 12 months, major recognitions have included: **ACM Fellow**: Gul Agha; **ACM Distinguished Member**: Brian Bailey, Indranil Gupta; **ACM IEEE-CS Ken Kennedy Award**: Sarita Adve; **Funai Achievement Award**: Jiawei Han; **Robert-Piloty Award**: Klara Nahrstedt; **Best of Language, Vol. III**: Tandy Warnow; **Most Impactful HiPC Papers Over 25 Years**: Laxmikant "Sanjay" Kale; **Top 10 SIGCSE Technical Symposium Papers of All Time - #1**: Geoffrey Herman; **DARPA Assured Autonomy Award**: Grigore Rosu; **IEEE CS TCHPC Award for Excellence for Early Career Researchers in High Performance Computing**: Edgar Solomonik; **NSF CAREER Award**: Sasa Misailovic.

Education Innovations

CS + X DEGREE PROGRAMS



Illinois leads the field in CS + X degree options, enabling students to bring computational skills to technical or professional training in the arts and sciences. These include: Advertising, Animal Sciences, Anthropology, Astronomy, Chemistry, Crop Sciences, Economics, Geography & GIS, Linguistics, Music, Philosophy, and legacy programs in Mathematics & CS and Statistics & CS.

ENGINEERING CITY SCHOLARS LIVE, INTERN, & STUDY IN CHICAGO



BROADENING PARTICIPATION IN COMPUTING

Illinois expanded its commitment to Broadening Participation in Computing by hiring a BPC Coordinator, expanding its Summer Research Experience for Undergraduates program, and hosting the 2019 Rising Stars in EECS Workshop.

90

World-Class
Faculty

MORE NSF FUNDING

Illinois was awarded more NSF Funding than any other University in 6 of the last 8 years

1286

Graduate
Enrollment

793

MCS
Enrollment

122

MS
Enrollment

324

PhD
Enrollment

1740

Undergraduate
Enrollment

#5

Computer Science
Graduate Ranking,
U.S. News & World Report

FACULTY BY RESEARCH AREA

(Counts recognize faculty doing research across multiple areas.)

Architecture, Compilers, and Parallel Computing	13
Artificial Intelligence	18
Bioinformatics and Computational Biology	7
Computers and Education	14
Database and Information Systems	8
Interactive Computing	10
Programming Languages, Formal Methods, and Software Engineering	14
Scientific Computing	9
Security and Privacy	14
Systems and Networking	16
Theory and Algorithms	15



Department of Computer Science

Franklin College of Arts and Sciences

UNIVERSITY OF GEORGIA

cs.uga.edu



DEPARTMENT OVERVIEW

This is an exciting year for the Department of Computer Science at UGA. The department offers the BS, MS with thesis and non-thesis options, and PhD degrees in Computer Science. The number of our undergraduate enrollments increased from 588 in fall 2014 to 1,158 in fall 2019 (an increase of 97%). Also, the department has close to 250 minors. At the graduate level, enrollment exceeded 195 graduate students.

In fall 2019, the Computer Science Department and Statistics Department are jointly offering a BS in Applied Data Science. In the last two years, the department has hired five new tenure-track faculty members in the areas of: computational science and high performance computing, machine learning, robotics, and two in cybersecurity. In addition, the department has hired three new lecturers: Dr. Marzieh Ahmadzadeh, Sal LaMarca, and Dr. Hao Peng.

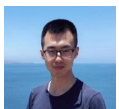
NEWLY HIRED FACULTY



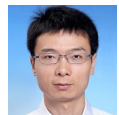
Dr. Ramviyas Nattanmai Parasuraman, Assistant Professor. He received his PhD from Technical University of Madrid, Spain in 2014. His research interests are in field robotics, with specific focus on multi-robot control, coordination, communication, and interfaces. He is interested in bridging the fields of heterogeneous multi-robot systems and human-robot interaction.



Dr. In Kee Kim, Assistant Professor. He received his PhD in Computer Science from the University of Virginia in 2018. His research areas include cloud computing, distributed systems, IoT/edge, and machine learning systems. The current focus is resource management for emerging cloud infrastructure systems. e.g., serverless and container orchestration.



Dr. Sheng Li, Assistant Professor. He received his PhD in Computer Engineering from the Northeastern University in 2017, and he worked as a Data Scientist at Adobe Research from 2017 to 2018. His research interests include machine learning with applications to data mining, computer vision, natural language processing, and causal inference.



Dr. Le Guan, Assistant Professor. He received his PhD from the University of Chinese Academy of Sciences in 2015. His research interests cover a wide range of systems security, including mobile security and IoT systems security. He is especially interested in leveraging COTS hardware components/features to design and build systems that are more reliable and secure than solutions based on software alone.



Dr. Wenwen Wang, Assistant Professor. He earned his PhD from the University of Chinese Academy of Sciences in 2014. His research interests have spanned a wide spectrum of issues in computer systems that cut across computer architectures, operating systems, compilers, runtimes, and security.

RECENTLY AWARDED GRANTS



Dr. Shannon Quinn received a 5-year CAREER grant from NSF for the proposal titled: "CAREER: ABI-Innovation: CiliaWeb: Integrated platform for foundational and reproducible ciliary beat pattern analysis."



Dr. Yi Hong received a 2-year NSF grant for the proposal titled: "CRII: SCH: Analysis of Population-Based Image Metamorphosis."

Professor Prashant Doshi and Dr. Yi Hong received a 3-year NSF grant for the proposal titled: "Robust Inverse Learning for Human-Robot."



Professor Prashant Doshi received a 3-year NSF grant for the proposal titled: "Tractable Decision-Theoretic Planning Driven by Data." Professor Prashant Doshi, in collaboration with Professors Adam Eck of Oberlin College and LeenKiat Soh of University of Nebraska at Lincoln, received a 3-year NSF grant in AI.



Professor Prashant Doshi (PI) and Dr. Kyu Hyung Lee (Co-PI) received a 3-year U.S. Army research grant for the proposal titled: "A Framework for Asymmetric Information Interactions among (Cyber) Defenders and Attackers."

Dr. Kyu Hyung Lee received a 3-year NSF grant for the proposal titled: "OAC Core: Small: Collaborative Research: Data Provenance Infrastructure towards Robust and Reliable Data Sharing and Analytics, 3-years, PI Kyu Hyung Lee." Dr. Kyu Hyung Lee received a 4-year NSF grant for the proposal titled: "SaTC: CORE: Medium: Collaborative: Doctor WHO: Investigation and Prevention of Online Content Management System Abuse."

CS STUDENTS WIN FIRST PLACE AT ASA DATAFEST AT EMORY!

Anna Gann, Mina Jeong, Michael Hearn, Andrew Palmer, and Hend Rasheed, five undergraduate students from the Computer Science Department, won first place in "Data Visualization" at the (ASA) DataFest at Emory competition. The team was accompanied by CS faculty member, Dr. Delaram Yazdansepar. ASA DataFest is an annual competition in which student teams work to reveal insights from a large and rich data set provided by a real client.

COMPUTER & INFORMATION SCIENCE & ENGINEERING

UF UNIVERSITY of FLORIDA

#3

AMONG COMPUTER SCIENCE DEPARTMENTS AT PUBLIC UNIVERSITIES IN THE NUMBER OF WOMEN FACULTY.
2018 ASEE DATA

17%

OF THE 66 BLACK WOMEN ENROLLED IN COMPUTER SCIENCE PH.D. PROGRAMS NATIONWIDE ARE AT UF CISE.
2018 CRA DATA

48%

DOMESTIC STUDENTS COMPRISE 48 PERCENT OF UF CISE'S PH.D. ENROLLMENT.
2018 DEPARTMENTAL DATA

TOP 15

UF CISE IS RANKED AMONG THE TOP 15 LARGEST COMPUTER SCIENCE DEPARTMENTS NATIONWIDE.
2018 ASEE DATA

3X

UF CISE EMPLOYS 3X THE NATIONAL AVERAGE OF BLACK FACULTY MEMBERS AMONG COMPUTER SCIENCE PROGRAMS.
2018 ASEE DATA

Research Highlights

USING 3D AUDIO TO AID SEARCH AND RESCUE

Kyla McMullen, Ph.D., assistant professor, earned an early CAREER Award from the National Science Foundation to enhance first-responder effectiveness using 3D audio rendering and perception.

UF ENGINEER LEADS COLLABORATION FOR SAFER ROADS

Sanjay Ranka, Ph.D., a professor, was recently awarded a \$2 million grant from the National Science Foundation to develop technology that will monitor high-risk intersections in Gainesville, FL, to make roadways safer.

Awards & Recognition

ACM Fellow: Juan E. Gilbert, Ph.D.; **IEEE Fellow:** Ahmed Helmy, Ph.D.; **ACM Senior Member:** Lisa Anthony, Ph.D.; **University of Florida Term Professorship:** Faculty members Arunava Banerjee, Ph.D.; Kevin R. B. Butler, Ph.D.; Tamer Kahveci, Ph.D.; Meera Sitharam, Ph.D.; and Daisy Zhe Wang, Ph.D.; **Herbert Wertheim College of Engineering Doctoral Dissertation Advisor/Mentoring Awardee:** Prabhat Mishra, Ph.D.; **UF Innovate | Tech Licensing Innovator of the Year:** Benjamin Lok, Ph.D.

My T. Thai, Ph.D., was named **Associate Director of the Warren B. Nelms Institute for the Connected World.**

Noteable News

Arnold and Lisa Goldberg Rising Star Professorship in Computer Science: UF CISE received a \$1 million gift to fund two rising star professorships for an appointment of five years. Associate professors Kevin R. B. Butler, Ph.D., and Daisy Zhe Wang, Ph.D., were named as holders of the professorships.

UF Cybersecurity Engineers Prevent Smartphone Hacking: Kevin R.B. Butler, Ph.D., and his team at the Florida Institute for Cybersecurity Research help companies stymie hackers' use of ghost commands.

Inspiring the Next Generation of Black Women in Computing: Kyla McMullen, Ph.D., and Jeremy A. Magruder Waisome, Ph.D., host the Modern Figures Podcast, which is sponsored by the National Center for Women & Information Technology.

#1

AMONG COMPUTER SCIENCE DEPARTMENTS IN THE NUMBER OF BLACK STUDENTS ENROLLED IN THE PH.D. PROGRAM.
2018 ASEE DATA

#7

UF RANKS NUMBER 7 AMONG PUBLIC UNIVERSITIES, U.S. NEWS & WORLD REPORT, 2020

2,362

UNDERGRADUATE ENROLLMENT

525

MASTER'S ENROLLMENT

148

PH.D. ENROLLMENT

34

GRANTS RECEIVED SINCE JULY 2018

12

ACTIVE GRANTS OVER \$1 MILLION

COMPUTER SCIENCE AT CU BOULDER

OUR FACULTY CONTINUES TO GROW



Mirela Alistar (ATLAS)

Creates cyber-physical systems based on biochips; investigates related issues in digital microfluidics, personal medicine, and DIYBio.



Katharina Kann (Spring 2020)

Investigates issues in Natural Language processing, morphology, deep learning for NLP, NLP for low-resource languages and grammar induction/latent tree learning.



Nolen Scaife (Technology, Cybersecurity, and Policy)

Engages in research that addresses fundamental weaknesses in systems in networks (e.g. electronic payment systems) with a focus on near-term deployability by design.



Bo Waggoner

Performs research in machine learning, AI, game theory, and EconCS.

2000+ Undergraduates

200+ MS and

180 PhDs



13

NSF CAREER Award
winners on faculty



69

tenure-track and
instructional faculty



LEADING ENTREPRENEURIAL COMMUNITY

Boulder is a nationally leading entrepreneurial community. It is headquarters of global accelerator Techstars and home to a thriving tech community including Google, Amazon and Twitter and close by, Uber, Oracle and Salesforce.



#1 in U.S. in per capita tech startups

#2 best city in U.S. for startups and entrepreneurs

#4 in U.S. in per capita VC investment

COLORADO.EDU/CS



University of Colorado **Boulder**

UNIVERSITY OF CINCINNATI

SCHOOL OF INFORMATION TECHNOLOGY

Home of the NSA and DHS Center for Academic Excellence in Cyber Defense



SoIT IN NUMBERS

794

BSIT Students

211

MSIT Students

3

PhD Students



1,008

Students Enrolled

7 year average
annual growth
rate has increased to

19%



\$1.7 Million

External Funding

NEW HIRES

ABDOU FALL

Assistant Professor Educator

NELLY ELSAYED

Assistant Professor

SHANE HALSE

Assistant Professor

KELLY BROSCHEID

Assistant Director, Early IT Program

ALANA CALHOUN

Academic Specialist

SELENA RAMANAYAKE

Instructional Designer

TRACY COLLINS

Academic Specialist- Assessment

MORGAN HALL

Marketing and Promotions Coordinator

18

Full-time
Faculty

12

Full-time
Staff

2019 HIGHLIGHTS

Early IT Program Expands

An innovative partnership to improve college access and affordability while increasing the quantity, quality and diversity of the IT talent pool. High school students complete the first year of the UC BSIT program and receive automatic admission to complete their BSIT, co-ops, and a possible Master's degree in just four years after high school.

12

Early IT Students
Enrolled as Sophomores
at UC this Fall

35

High School
Teachers
Trained

1,500

Student
Enrollment in
Partner Schools

7

School Districts
Added since
2018

UC to Host Ohio's Cyber Range

The successful completion of the demonstration site for the OCR resulted in UC partnering with six state agencies to host Ohio's Cyber Range starting in 2020. Ohio Department of Higher Education, in collaboration with the Ohio Adjutant General's Department, awarded UC \$3 million to explore nine outcomes including: Technology and Infrastructure, Industry Engagement, Hands-on Practice, Higher Education Engagement, Dissemination, Cyber Exercises, Discovering Best Practices, K12 Engagement, and Workforce Development.

Accelerated Program Adds New Degree

The School of Information Technology developed the Accelerated Program that offers undergraduate students the opportunity to earn a dynamic master's degree while completing the Bachelor of Science in Information Technology degree. The school has collaborated with the following programs to offer the accelerated master's degree:

BSIT + Master of Information
Technology

BSIT + Master of Business
Administration

BSIT + Master of Health
Informatics

BSIT + Master of Instructional
Design and Technology

BSIT + Master of Criminal
Justice

(Coming Spring 2020)

**Launches
New PhD Program**

(Launched in Fall 2019)

**Adds New Undergraduate
Specialization Track**

(Data Technology- Coming Spring 2020)

**Online Master's Program
Ranked #11**

(US News and World Report- 2019)



We empower individuals to become passionate, solution-minded information technology professionals by fostering continuous innovation, research, leadership development, interdisciplinary problem solving, and real-world experience.



2019-2020 UPDATE

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

—Michael J. Franklin,
Liew Family Chair of Computer Science

RESEARCH AREAS

- Theory
- Databases & Data Science
- Human-Computer Interaction
- Systems & Networking
- Quantum Computing
- AI/Machine Learning
- Programming
- Visual Computing
- High Performance Computing
- Security & Privacy

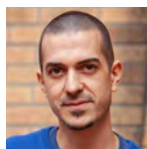
2018-19 NEWS HIGHLIGHTS

- Center for Data and Computing (CDAC) awarded 12 Data Science Discovery grants to fund **interdisciplinary collaborations in medicine, physics, social science, and the humanities**.
- The Enabling Practical-Scale Quantum Computing (EPIQC) collaboration, an NSF Expedition in Computing, joined the NSF STAQ project to **co-design hardware and software for the first practical quantum computer**.
- Associate Professor Henry “Hank” Hoffmann received a Presidential Early Career Award for Scientists and Engineers (PECASE) for his work on **self-aware computing**.
- Prof. Ian Foster received the Charles Babbage Award from the IEEE Computer Society, in recognition of significant contributions in the field of **parallel computation**.
- Students received **NSF Graduate Research Fellowships**, Siebel and Schwarzman Scholarships and the Physical Science Consortium Fellowship.
- Awards from Google and Intel for work on **machine learning and databases for video and energy-efficient systems**.



- Moved into new **state-of-the-art** computer and data science **research and teaching facility** in the renovated John Crerar Library building.
- Accepted **our largest class of PhD students ever**: 38 students starting Fall 2019.

2019-2020 NEW FACULTY



Raul Castro Fernandez

Area: Data Science
Title: Assistant Professor
PhD: Imperial College London '15
Previously: MIT



Marshini Chetty

Area: Human Computer Interaction
Title: Assistant Professor
PhD: Georgia Institute of Technology '11
Previously: Princeton



Bill Fefferman

Area: Quantum Computing
Title: Assistant Professor
PhD: Caltech '14
Previously: University of Maryland/NIST



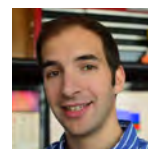
Kyle Chard

Area: Data Science
Title: Research Assistant Professor
PhD: Victoria University of Wellington '17
Previously: Argonne/UChicago



William Conner

Area: Security
Title: Assistant Clinical Professor
PhD: University of Illinois '09
Previously: Braintree/Google



Eric Jonas

Area: Machine Learning
Title: Assistant Professor
PhD: MIT '13
Previously: UC Berkeley



Yuxin Chen

Area: Machine Learning
Title: Assistant Professor
PhD: ETH Zurich '17
Previously: Caltech



Nick Feamster

Area: Networking, Security
Title: Neubauer Professor
PhD: MIT '05
Previously: Princeton



Lorenzo Orecchia

Area: Machine Learning
Title: Assistant Professor
PhD: UC Berkeley '11
Previously: Boston University

ENGAGED

Top
50

CSRankings.org

For publishing in the most
selective CS conferences

6th

Computer Vision

13th

Visualization

25th

Human-Computer
Interaction

28th

Computer
Architecture

28th

Computational
Biology

2nd

Software Systems

INFLUENTIAL

Google Scholar Classic Papers

4th

Multimedia

10th

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

1st

3-Time National Collegiate
Cyber Defense Champions

In 2014, 2015, and 2016.
2nd Place in 2018 and 2019.

36

Consecutive Top 3s
Southeast Regional ICPC

1st

2018 Department of Energy
CyberForce Competition

COMPETITIVE

16th

U.S. News & World Report
Most Innovative Schools

New Ph.D.

Big Data Analytics

New M.S.
Data Analytics

New M.S.

Financial Technology
(Starting Fall 2020)

INNOVATIVE

INDUSTRIAL

Geometric Intelligence
Startup acquired by Uber

TeachLIVE

Technology commercialized by
Murison

28

Corporate Sponsors
Including Adobe, Disney, Intel,
Lockheed Martin, and Siemens



UCF



UCF

Department of
Computer Science

UNIVERSITY OF CENTRAL FLORIDA

DEPARTMENT OF Computer Science and Engineering

Shaping the Digital World of the Future

UC San Diego
JACOBS SCHOOL OF ENGINEERING

NEW FACULTY



Nadia Heninger



Niema Moshiri



Pat Pannuto



Jingbo Shang



Gerald Soosai Raj



Yiying Zhang

EXPANDING CSE'S RESEARCH INNOVATION & IMPACT

Catching Gas Station Credit Card Skimmers

Scientists have developed algorithms and a new platform, called Bluetana, that more accurately detect card skimmers' Bluetooth signatures, helping inspectors find fraud and protecting consumers.

Healthcare Meets Human-Centered Computing

Computer engineers develop technology to help providers detect neurodegenerative diseases, provide remote surgeries and generally improve care.

Smartfins Collect Ocean Data

Few people spend as much time in the ocean as surfers. CSE students are part of a collaborative team designing surfboard fins with sensors to collect oceanographic data.

CONTINUING CSE'S IMPACT

Celebration of Diversity

This inaugural event united CSE students, faculty and alumni as they discussed new ways to strengthen diversity in the field.

Engaging Alumni Events

More than 800 department alumni participated in recent events in California and across the U.S. that strengthen ties between our students, faculty and industry.

Research Open House

From robots that support healthy aging to technology to study archaeological sites virtually, CSE students showcased the many ways they are shaping the digital world of tomorrow.

CSE BY THE NUMBERS

74 Faculty Members **9,957** Alumni

#9 in publications in top computer science venues, according to csrankings.org

\$31M TOTAL RESEARCH EXPENDITURES

FACULTY AWARDS & HONORS

Our faculty members were recognized for their innovative research. Award and honor highlights from 2018-2019 are below. For a full list, see cse.ucsd.edu/faculty-research/faculty-awards.

Andrew B. Kahng

Ho-Am Prize
for Engineering

Mihir Bellare

Levchin Prize

Hadi Esmaeilzadeh

IEEE TCCA Young
Computer Architect Award

Ravi Ramamoorthi

ACM SIGGRAPH
Academy

1 IEEE W. Wallace McDowell Award • 1 AFOSR Young Investigator Award • 1 new IEEE Fellow • 1 new ACM Fellow • 1 new ISCB Fellow • 1 IACR Fellow • 2 new NSF CAREER Awards • 2 new AAAS Fellows • 3 Test of Time Papers



CONNECT & LEARN MORE
cse.ucsd.edu





UNIVERSITY OF CALIFORNIA MERCED

COMPUTER SCIENCE AND ENGINEERING

School of Engineering



NEW HIRES



Ahmed Sabbir Arif

Human-Computer Interaction, Tangible User Interfaces, Accessibility, Usable Security, Scientific Data Visualization



Shijia Pan

Ubiquitous Computing, Mobile Sensing Systems, Ambient Structural Vibration Sensing, Objects as Sensors



Wan Du

Cyber Physical Systems, Internet of Things, Networked Embedded Systems, Wireless and Mobile Networking

46%
of our faculty have earned
CAREER AWARDS

NSF CAREER AWARDEES

PECASE

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

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

IEEE FELLOWS

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

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



2019
Sungjin Im



2016
Dong Li



2013
Alberto Cerpa



2012
Shawn Newsam



2012
Ming-Hsuan Yang



2006
Miguel Carreira-Perpinan

#4 among new U.S. universities

2019 Young University Rankings

#105 in Computer Science
2019 U.S. News & World Report's Best Graduate Schools

2018-2019 HIGHLIGHTS



Sefano Carpin
Best Paper Award at IEEE International Conference on Automation Science & Engineering



Ahmed Sabbir Arif
Best Paper Award at Conference on Computer Graphics, Visualization and Human-Computer Interaction



Ming-Hsuan Yang
Most Influential Scholar by AMiner



Yijun Li, Ph.D. Student
Facebook Fellowship

WE ARE GROWING...

AND
HIRING

37
Faculty

171
Ph.D.
students

122
M.S.
students

945
Undergraduate
students

GETTING RECOGNIZED...

from CSrankings.com

36th
OVERALL

3rd
ARCH, DA,
EMB SYS, HPC

12th
BIOINFORMATICS

15th
SYSTEMS

19th
SECURITY

4 AAAS FELLOWS • 6 IEEE FELLOWS • 12 NSF CAREER AWARDS • 4 ACM FELLOWS

GETTING THINGS DONE...

- EXPENDITURES: \$8M/year ▷ \$240,000/year per faculty
- \$2M grant from NSF to enrich AsterixDB
- \$1.2M award for Efficient Collaborative Perception
- \$2.7M NSF grant to Modernize Big Data Management
- 3 NSF SBIR grants

HAVING REAL WORLD IMPACT

ENTREPRENEURSHIP

6 FACULTY LED STARTUPS



EAMONN KEOGH
FARMSENSE



FRANK VAHID
ZYBOOKS
\$60M EXIT



VAGELIS HRISTIDIS
SMARTBOT360

SOCIAL IMPACT

#1

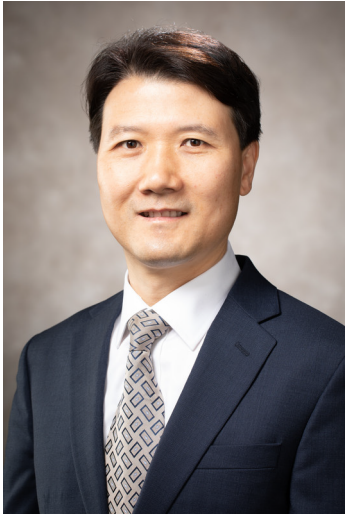
SOCIAL
MOBILITY
[US NEWS]

#1

MOST
TRANSFORMATIVE
UNIVERSITY
[MONEY MAGAZINE]



NEW FACULTY HIRES



Justin Zhan

ARA Scholar/Professor
Data science, biomedical
informatics, artificial intelligence,
and social computing



Thi Hoang Nang "Nancy" Le

Assistant Professor
Computer vision, machine
learning, deep learning for
biometrics and medical imaging



Lora Streeter

Clinical (Teaching) Assistant Professor
Gesture-based programming
languages, teaching programming
to non-traditional students

RESEARCH HIGHLIGHTS

\$ 3.03M in Annual New Research Awards
\$4.63M new NSF Award to train Cybersecurity Professionals
NSF Sponsors New Project on Fairness in Data Science
ARO Sponsors Infrastructure to Enable Data Science Research and Education
NSF Sponsors New Project on Performance of Next Gen Computers

OTHER HIGHLIGHTS

4 Endowed Chairs
4 NSF CAREER Awardees
Faculty Grows to 20
CSCE Searching for 2 New Faculty for 2020

STUDENT NEWS

571 Undergrads, 57 PhD students enrolled
CSCE Student Awarded Goldwater Scholarship
CSCE Students Receive 4 Distinguished Doctoral Fellowships, 2 Doctoral Academy Fellowships
All-Female Team wins CSCE-Hosted High School Programming Contest

ORGANIZATIONAL NEWS

U of A and Governor Support Plan to Add B.S. in Data Science
Campaign Arkansas Raised \$163M in 2019 Towards Goal of \$1.11B
U of A again Classified "Research 1: Doctoral University: Very High Research Activity" by Carnegie Foundation



UA SCIENCE

Computer Science

Research Faculty

Kobus Barnard
 Christian Collberg
 Saumya Debray
 Alon Efrat
 Chris Gniady
 John Hartman
 Katherine Isaacs
 Kwang-Sung Jun
 John Kececioglu
 Stephen Kobourov
 Joshua Levine
 David Lowenthal
 Jason Pacheco
 Todd Proebsting
 Carlos Scheidegger
 Richard Snodgrass
 Michelle Strout
 Mihai Surdeanu
 Beichuan Zhang
 Chicheng Zhang

By the Numbers

Faculty: 28
 Research Funding: \$4.2 million
 Undergraduate Students: 1,827
 Graduate Students: 79

Connect

520-621-4632
 1040 E 4th Street
 Gould-Simpson Room 917
 Tucson, AZ 85721



Awards and Recognitions

Dr. Katherine Isaacs - NSF Career Award

Dr. Joshua Levine - DOE Early Career Award

Staci Smith, PhD Student - 2019 ACM/IEEE-CS HPC Fellow

Dr. Christian Collberg and Stephen Kobourov - Most Influential Paper (MIP) award 2019 provided by IEEE VIS/ISOFT 2019

Dr. Michelle Strout - Then and Now DOE Early Career Award

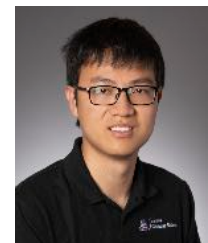
New Faculty



Kwang-Sung Jun
 Assistant Prof.
 PhD Wisconsin



Jason Pacheco
 Assistant Prof.
 PhD Brown



Chicheng Zhang
 Assistant Prof.
 PhD UCSD



RECENT FULL-TIME FACULTY HIRES:

Alona Fyshe

[Assistant Prof., PhD Carnegie Mellon U., 2015]

Ashique (Rupam) Mahmood

[Assistant Prof., PhD U. of Alberta, 2017]

James Wright

[Assistant Prof., PhD UBC, 2016]

Lili Mou

[Assistant Prof., PhD Peking U., 2017] AltaML Professor in Natural Language Processing

Matthew Guzdial

[Assistant Prof., PhD Georgia Tech, 2019]

Nathan Sturtevant

[Professor, PhD UCLA, 2003]



- 50 faculty members (11 assist., 5 assoc. and 34 full) and 14 adjunct professors.
- ~150 undergraduate degrees conferred in 2017.
- More than 1,000 undergraduate students in all programs in 2017, as well as over 200 (thesis-based) graduates.
- More than \$10M in research funding.
- According to csrankings.org as of July/2019, the department ranks:

#6

in Canada

#96

in the world

#4

in the world in the combined areas of artificial intelligence, machine learning and data mining.



- NLP breakthrough in decoding the 15th century (no longer!) mysterious Voynich manuscript.
- Creators of a Coursera-hosted highly popular certificate in **Software Product Management Specialization** and **Reinforcement Learning Specialization** and of the **Software Design & Architecture** and **Problem Solving, Python Programming, and Video Games** MOOCs.
- Changing Edmonton's high tech landscape by attracting big research labs such as DeepMind, RBC's Borealis AI, and Mitsubishi, 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.
- Excellency in games research (e.g., Go, Hex, SKAT, and Poker):
 - Solved "heads-up limit Texas hold'em" poker (Science 2015), and created an AI capable of beating professional players in "heads-up no-limit Texas hold'em" poker (Science 2017).
 - Alma matter for the first author of the Nature (2016) paper on AlphaGo.
 - Professor Martin Müller recently named DeepMind Chair in Artificial Intelligence.
- Our department has a steady number of more than 200 graduate students nearly evenly split between the PhD and thesis-based MSc programs.
- Our students are routinely recruited by top companies such as Google, Facebook, Amazon, Twitter, Microsoft, and IBM.

Edmonton, Alberta, Canada
ualberta.ca/computing-science



UNIVERSITY OF ALBERTA
 DEPARTMENT OF COMPUTING SCIENCE



COMPUTER SCIENCE AND ENGINEERING

// DEPARTMENT HIGHLIGHTS

// MAKING AN IMPACT.

A Record of Five CSE Faculty Awarded NSF Early CAREER Awards in 2019

The grants, which total **over \$2.5 million**, will support research in artificial intelligence, cybersecurity, autonomous robots and more.



Karthik Dantu
\$549,369

Enabling Seamless Vision Sensing in Cloud-Edge Systems



Nils Napp
\$498,619

Abstraction Barriers for Embodied Algorithms



Marco Gaboardi
\$496,573

FormalDP: Formally Verified, Private, Accurate and Efficient Data Analysis



Jaroslaw Zola
\$487,569

Scalable Software and Algorithmic Infrastructure for Probabilistic Graphical Modeling



Shi Li
\$500,034

Approximate Scheduling Algorithms via Mathematical Relaxations

// SIGNIFICANT NEW RESEARCH AWARDS

- Associate professor **Marina Blanton** received a **Google Faculty Research award**. Entitled "Efficient Tools for Privacy-Preserving Data Analysis," her project has the potential to impact a wide variety of organizations in health, education, private and government sectors.
- UB was one of 17 educational institutions nationwide to receive a grant from the **Responsible Computer Science Challenge**, a competition funded by Omidyar Network, Mozilla Foundation, Schmidt Futures and Craig Newmark Philanthropies. Led by professor **Atri Rudra**, the project will integrate ethics and responsibility into computer science programs.
- Training cybersecurity experts** is a new \$2.39 million National Science Foundation grant to educate the next generation of experts who will protect the United States from cyberattacks. The five year award is led by Professor **Shambhu Upadhyaya**.

// RESEARCH HIGHLIGHTS



- Inspired by animals and buoyed by advancements in computing and sensing, assistant professor **Nils Napp** is investigating how teams of autonomous robots, above, could alleviate future housing needs.
- A study by associate professor **Wenyao Xu** found that 3D printers have 'fingerprints,' a discovery that could help trace 3D-printed guns and counterfeit goods.
- Artificial intelligence expert and SUNY Empire Innovation Professor **David Doermann** testified before the House Intelligence Committee in June concerning national security challenges posed by deepfake videos and other manipulated forms of digital media.
- A collaborative study by assistant professor **Kenny Joseph** found that 'supersharers' on Twitter spread the majority of fake news. They represent less than 1 percent of Twitter users, but shared 80 percent of the fake news.



// BY THE NUMBERS

25

CSRankings.org since 2018

\$9.6M

new research awards in 2018-2019

52

faculty

2,000+

graduate/undergraduate students in 2019-2020



University at Buffalo
Department of Computer Science and Engineering
School of Engineering and Applied Sciences

cse.buffalo.edu

Department of Computer Science Tufts University

<https://engineering.tufts.edu/cs/>

Faculty

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

New Faculty for Fall 2019



[Marty Allen](#)
Associate Teaching
Professor; Director
of Online Programs



[Abani Patra](#)
Stern Family
Professor;
Director, [DISC](#)



[Raja Sambasivan](#)
Sahu Assistant
Professor



[Elaine Short](#)
Clare Boothe Luce
Assistant Professor



[Richard Townsend](#)
Assistant Teaching
Professor

Program offerings

- Ph.D., M.S., B.S., Minor, Post-Baccalaureate, and Certificate in Computer Science
- Ph.D. and M.S. in Human-Robot Interaction
- Ph.D. in Cognitive Science
- M.S., B.S., and Certificate in Data Science
- M.S. and Certificate in Computer Engineering
- M.S. in Bioengineering
- **New in 2020:**
 - M.S. in Software Systems Development
 - M.S. in Cybersecurity and Public Policy
 - Online M.S. and Post-Bac in CS
- Certificate in Human-Computer Interaction

Recent Faculty Highlights

- Professor Diane Souvaine is serving as Chair of the National Science Board.
- Tufts faculty have served as program committee chairs for the 2018 IEEE Conference on Visual Analytics Science and Technology (Remco Chang), Recomb 2019 (Lenore Cowen), 2019 ACM Conference on Programming Language Design and Implementation (Kathleen Fisher), and ISMB 2020 (Donna Slonim).
- Tufts received a 3-year, \$1.5M grant from the NSF as part of NSF's Harnessing the Data Revolution initiative to launch an interdisciplinary center focused on the theory underlying data science. Professor Lenore Cowen is the PI of this effort.
- Professor Matthias Scheutz received a five-year \$5M grant from AFOSR to develop techniques for inferring individual and team mental states to make artificial teammates more adaptive, proactive, and trustworthy.
- Professor Soha Hassoun received a four-year \$1.5M R01 grant from the NIH to explore computational techniques for advancing untargeted metabolomics analysis with the goal of advancing biomedical research and improving human health.

Students by the numbers:

- Declared CS majors as of May 1, 2018: 675; CS majors who graduated in May 2018: 150
- Fraction of CS majors that are women: 1/3
- Attendees at Tufts' student-run [Women in Tech Conference](#) in Fall 2019: over 200.
- Number of undergraduates partnering with faculty to help teach our courses: more than 170.
- Number of non-profits receiving custom software developed by [JumboCode](#) in the past two years: 9.
- One of nine schools that nominated a student for CRA's undergraduate research competition for the past four years.

New Space!



The CS Department will move into two floors of the newly constructed Joyce Cummings Center in 2021, which will be adjacent to a new Green Line T Stop that will provide direct access to downtown Boston.

Research Highlights

- At COLT 2019, *both* Best Student Paper awards went to papers authored by TTIC students and faculty. Congratulations to Steve Hanneke, Omar Montasser, Nati Srebro, and Blake Woodworth!
- Jinbo Xu received the 2019 RECOMB Test of Time Award
- Arturs Backurs received the 2019 EATCS Distinguished Dissertation Award
- Karen Livescu was Program Co-Chair for ICLR 2019
- Avrim Blum was Program Chair for ITCS 2019
- Julia Chuzhoy was selected Program Chair for STOC 2020
- Two TTIC alumni have now won Sloan Research Fellowships
- Congratulations to 2018 PhD graduates Haris Angelidakis, Heejin Choi, and Shubhendu Trivedi, and 2019 PhD graduate Mohammadreza Mostajabi!

Research Assistant Professor Placements

- Allyson Ettinger joined the University of Chicago Dept of Linguistics as an Assistant Professor
- Suriya Gunasekar joined Microsoft Research as a Research Scientist
- Mark Hallen co-founded a biomedical startup Gavilán Biodesign
- Aly Khan joined the University of Chicago Dept of Pathology
- Mesrob Ohannessian joined the University of Illinois at Chicago as an Assistant Professor of Electrical and Computer Engineering
- Karl Stratos joined Rutgers as an Assistant Professor of Computer Science

Events & Workshops

- TTIC joined 6 other academic institutions in hosting the AI Driving Olympics at NeurIPS 2018
- May 2019, TTIC hosted the 2019 Midwest Speech and Language Days
- Summer 2019, 2nd Annual TTIC Summer Workshop Program, with four exciting workshops on topics in machine learning, theoretical computer science, and computational biology.
- Summer 2019, TTIC hosted 17 visiting students (interns), including PhD students, undergraduates, and high-school students.

New Faculty Hires



Matthew Turk

President

Computer Vision, HCI, AI, Augmented Reality, Mobile Computing, and Multimodal Interaction



Brian Bullins

Research Assistant Professor

Optimization and machine learning. Higher-order methods for convex and non-convex optimization.



Mrinmaya Sachan

Research Assistant Professor

Machine learning models for natural language processing, knowledge discovery and reasoning.



Dougal Sutherland

Research Assistant Professor

Machine learning: learning over sets and distributions, implicit generative models, deep networks, kernel embeddings, active learning



Saeed Seddighin

Research Assistant Professor

Theoretical computer science, approximation algorithms, algorithmic game theory.

TTIC

By the

Numbers

Tenure-track Faculty

12

Research Assistant Prof.

(3yr position)

10

PhD Students

43

Department of Computer Science and Engineering

**\$9.3
million**

Ohio State CSE research expenditures in the 2018-2019 academic year

31

NSF Career Awards held by current and past CSE faculty

14

Current and past ACM and IEEE Fellows

44

Tenure-track faculty members

1

Research-track faculty members

4

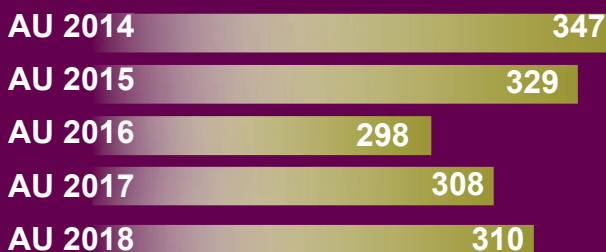
Clinical-track faculty members

Department Highlights

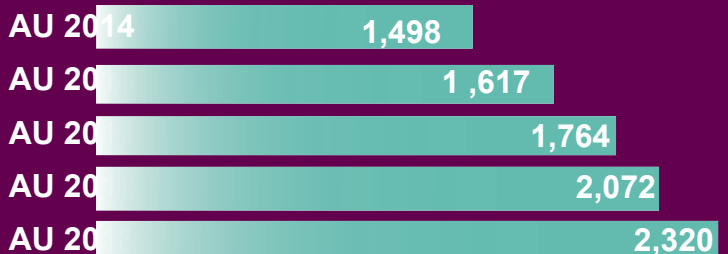
- CSE Alumni Ahmed Elmagarmid received the SIGMOD Contribution Award
- The paper titled Reconciling modern machine-learning practice and the classical bias-variance trade-off authored by Mikhail Belkin, Daniel Hsu, Siyuan Ma, and Soumik Manda was published in August 2019 in PNAS.
- Dr. Arnab Nandi was selected as one of the 40 under 40 for the year. Nominated by College of Engineering's Associate Dean for Research Dorota Grejner-Brzezinska.
- Three CSE members were awarded The Lumley Engineering Research Award, Hari Subramoni, a research scientist; Dr. Alan Ritter, Assistant Professor; and Dr. Yinqian Zhang, Assistant Professor.
- Prof. Han-Wei Shen's research group has recently won two best paper awards in the IEEE VIS 2019 conference. One is the best paper award in the SciVis track, and the other is the best paper honorable mention award in the VAST track.
- 49 Ohio State students attended the Grace Hopper Celebration of Women in Computing in Houston, Texas, supported by Ohio State's ACM-W chapter.

Celebrating over
50 Years
of teaching excellence

Graduate students

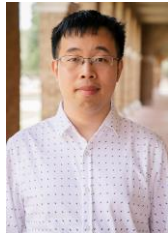


Undergraduate students

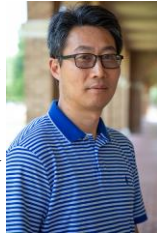


Department of Computer Science
Texas Tech University (TTU)
<http://www.depts.ttu.edu/cs/>

Recent Faculty Hire



Lin Chen, Ph.D. CS
Research Assistant
Professor, University
of Houston
Assistant Professor
Algorithms, complexity
and distributed
systems



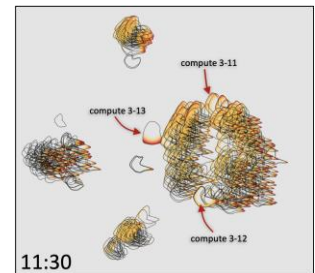
Victor Sheng, Ph.D. CS
Western University
Associate Professor,
University of Central
Arkansas
Associate Professor
Big data analytics,
machine learning and
data science



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

Research Highlights

- The Cloud and Autonomic Computing Center (an NSF sponsored Industry-University Cooperative Research Center) has been elevated to a Phase II Center by obtaining committed funds of \$200K/year from seven industrial members.
- At the Super Computing Conference, Dr. Chen and Dr. Dang were interviewed¹ about their industry-funded research project on the visualization, monitoring and prediction of the health status of High-performance Computing Centers.

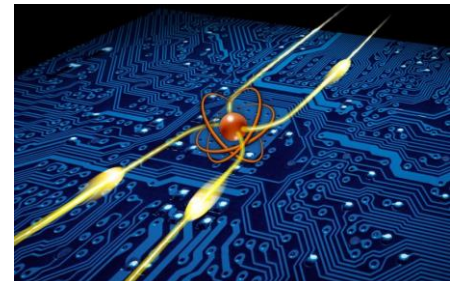


Other Highlights

- 542 engineering students went broad in 2018. 45 of them were undergraduate CS students who went to 12 countries to study/intern as part of the college mandatory of 6-8 weeks of International experience.
- First year Ph.D. student, Ngan V.T. Nguyen, won the third place at the Herobots AI stock prediction and Visualization Showcase at the Practice & Experience in Advanced Research Computing Conference Series (PEARC 2019).

Organizational News

- Quantum Computing is now a top priority at TTU. The dean of the college of engineering has committed to hiring two faculty in the next academic year; one in Quantum information (CS department) and the other in Quantum sensing and communication (ECE department).
- \$1.25 M spent on graduate recruitment fellowships this year where \$286,000 supports six CS fellows.



Student Numbers

693

Undergraduate Student
Enrollment

141

Graduate Student Enrollment
including 58 Ph.D. students

113

Undergraduate Degrees
Awarded

31

Graduate Degrees
Awarded

¹ URL: <https://www.youtube.com/watch?v=Bc9GqVZDvek>

TEXAS STATE

COMPUTER SCIENCE



New Faculty Hire

Dr. Tanzima Islam, Assistant Professor

- High-performance computing, machine learning, fault tolerance, and scalable systems

Faculty Highlights

- Dr. Oleg Komogortsev was selected as a keynote speaker for the 2019 ACM Symposium on Eye Tracking Research and Applications.
- Dr. Oleg Komogortsev received two awards from the Texas State University President — the 2019-2020 Presidential Seminar Award and the 2019 Award for Excellence in Scholarly/Creative Activities.
- Instructor Greg LaKonski was in the “Best Academic Team” in the 2019 MITRE Verification Challenge.
- Professor Xiao Chen won the Best Paper Award at the 17th IEEE International Conference on Embedded and Ubiquitous Computing.
- Dr. Kecheng Yang was invited to participate in the Dagstuhl Seminar: Analysis, Design, and Control of Predictable Interconnected Systems.
- Dr. Oleg Komogortsev gave the Alpha Chi Honor Society 2019 Distinguished Lecture.

Research Highlights

- Dr. Ziliang Zong and Dr. Yan Yan were awarded an NSF CNS core research grant, and Dr. Yan Yan was awarded an additional NSF CNS core research grant.
- Dr. Oleg Komogortsev received a new Global Google Research Award.
- Computer Science hosted two summer 2019 NSF REU groups (REUSSA and REUSCC). The REU students presented at the poster convention in August.

Student Highlights

- CS major Laura Godinez was featured in the Hillviews Magazine article entitled “Meeting the demand in science and technology.”
- Computer Science was represented in three different student groups at the 2019 SXSW Innovation Lab.
- Brent Redmon presented a CS poster at the 2019 WiSE conference.
- CS hosted an International Collegiate Programming Contest with students from all over Texas and Mexico.
- PhD Students Christopher Bell II and Molly O’Neil won first prize at the 2019 MSEC/CS Bootcamp entrepreneur competition.
- Three computer science student organizations (VRDG, EXE, and Coding Titans) hosted several hackathons to enhance the CS student community.

Recent faculty hires for Fall 2017:



Antonio Medrano
Assistant Professor

- Combinatorial Optimization & Path Algorithms
- Spatial Optimization
- High Performance Computing

Teaching Faculty
• Agatha Owora

Degrees Offered

- Computer Science BS
- Geographical Information Science BS
- Computer Science MS
- Geographical Systems Engineering MS
- Geospatial Computer Science PhD

New research Awards

- \$7M grant from NOAA for “Geospatial Modeling-NGS”,
- NSF MRI (\$550K) for cloud computing
- NSF BIGDATA:IA grant \$1.3M
- NSF EAGER (\$80K)
- Part of NSF CAHSI INCLUDES Alliance (3.6M total funding).
- Involved in \$2.1M NASA UAS UTM TCL 4 Test activities

Highlights for externally funded projects

- Integrated Gas Monitoring sensors into medium UAS with \$540K MRI funding from NSF.
- CAHSI Circuits alliance (\$3.8M) from NSF
- \$360K NSF REU Site.
- TxARM AGEF Alliance with \$2.8M NSF funding
- NSF S-STEM: \$609K
- USDA-NIFA, “Experiential Training in Use of Unmanned Aerial Systems” (\$1M)

Research Highlights:

- Journal articles in *Remote Sensing*, *Precision Agriculture*, *International Journal of Geo-Information*, *Entertainment Computing*, *Public Health*, *Remote Sensing Letters*, *IEEE Control Systems Letters*, *IEEE Access*, *IEEE Internet of Things*, *IEEE Transactions on Multimedia*, *IEEE Transactions on Mobile Computing*, *IEEE Network*, *IEEE Transactions on Wireless Communications*, *IEEE Transactions on Vehicular Technology*, *IEEE Transactions on Communications*, *Network and Computer Applications*, *Pervasive and Mobile Computing*
- Papers in IGARSS, ASCE, IEEE Big Data. Data Science. 2018. IEEE Conference on Decision and Control. HCI International. IEEE International Conference on Control and Automation. IEEE DASC IEEE EDGE, ICC
- 3 Best Paper Awards, from IEEE ICC 2019, IEEE ICC 2019, and IEEE TAOS.
- Winner of NIST Performance Evaluation of Smartphone Indoor Localization Application Challenge

Other Highlights:

- Graduated first Geospatial Computer Science Ph.D. student.
- Student team took second place at 2018 NSPS competition.
- Held three one-week summer coding camps for over 90 middle school girls.
- High-school and middle school camps for programming UAS.

Organizational News:

- Diverse undergraduate population with 50% URM (43% are Hispanic) and 20% are female.
- 35 % of full-time faculty are female.



TEXAS A&M UNIVERSITY

Department of Computer
Science & Engineering

BY THE NUMBERS

FACULTY 2018-19

47

Tenured/
Tenure Track

9

Academic
Professional Track

2

Chairs

6

Professorships

15

Faculty Fellowships

ENROLLMENT 2019

1,225

Undergraduates

238

Graduates

170

Ph.D.

STUDENT SUCCESS

221

Engineering Honors
CSE Track

120

Undergraduate
Scholarships

100%

Classes are Under
100 Students

OVER 2,500

students took
our introductory
programming course

NEW FACULTY



Martin Carlisle

Professor of Practice



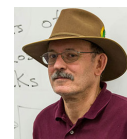
Jeeun Kim

Assistant Professor



Robert Lightfoot

Lecturer



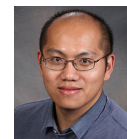
Tim McGuire

Instructional Professor



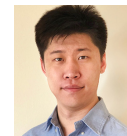
Shawna Thomas

Instructional Assistant Professor



Chia-Che Tsai

Assistant Professor



Yupeng Zhang

Assistant Professor

RESEARCH HIGHLIGHTS

Texas A&M and Yale use machine
learning to predict bleeding during
coronary procedures:

tx.ag/MortazaviML

Texas A&M researchers
partner with MoodMe to
enhance facial analysis:

tx.ag/WangFacialAnalysis

Huang receives ACM's Early Career
Researcher Award for impact on
software engineering community:

tx.ag/HuangACMAward

Flying drones during disasters
may be dangerously fatiguing:

tx.ag/MurphyDisasterDrone

Sueda receives NSF Faculty Early
Career Development Award for work
in biomechanical simulation:

tx.ag/SuedaNSF

Syracuse University

College of Engineering & Computer Science

Computer Science at SU

- Artificial Intelligence and Machine Learning
- Cognitive wireless systems
- Cybersecurity
- Electromagnetics and Photonics
- Green computing
- Programming languages
- Smart Grid systems

New Faculty



Fernando Fioretto
Assistant Professor
Artificial intelligence,
multiagent systems,
and data privacy
Joining January 2019



Endadul Hoque
Assistant Professor
Network and system
security, IoT security,
program analysis,
software testing and
verification, and
vulnerability detection



Bryan Kim
Assistant Professor
Data storage, data-
intensive applications
and systems, and file
systems and database
management systems



Kris Micinski
Assistant Professor
Programming
languages, static
analysis, formal
methods, and
foundations of
computer security and
privacy



Farzana Rahman
Associate Teaching
Professor
Mobile and pervasive
health technology,
IoT, education,
and broadening
participation
Joining January 2019



Asif Salekin
Assistant Professor
IoT, pervasive and
ubiquitous computing,
machine learning,
connected and
mobile health, and
cyberphysical systems

406

Undergraduates

375

Masters Students

44

Ph.D. Students

Transform together.

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

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





**Stony Brook
University**

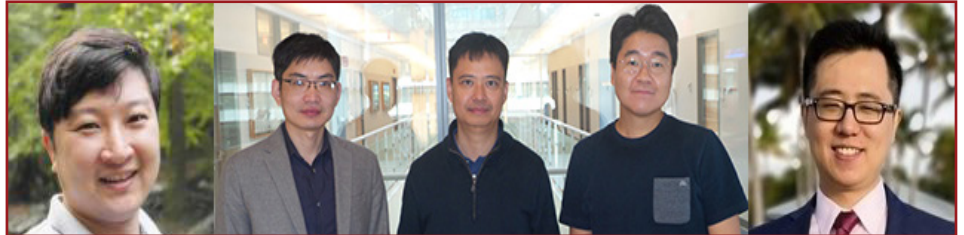
**Department of
Computer Science**
www.cs.stonybrook.edu

NEW FACULTY HIRES

Five new faculty hired in 2019 on tenure track or tenured positions:

Shuai Mu (Distributed Systems), Dongyoon Lee (Computer Systems, Reliability), Haibin Ling (Computer Vision, Medical Image

Analysis), Michael Ryoo (Computer Vision, Robotics), Zhaozheng Yin (Biomedical Image Analysis, Computer Vision). Also, Pramod Ganapathi (Parallel Programming) and Christopher Kane (Programming Languages) are hired on teaching positions



FACULTY HONORS

- Professor Steven Skiena named AAAS fellow
- Several faculty are technical program or organizing committee chair, co-chair or vice chair of top-tier conferences during 2019-20: Aruna Balasubramanian (ACM CoNEXT and ACM MobiCom), Michael Bender (ESA), Erez Zadok (Usenix ATC)
- Faculty honored with various industry awards: Aruna Balasubramanian (VMWare), Nick Nikiforakis (Amazon), Steven Skiena and Haibin Ling (Yahoo)
- Departmental annual research expenditure saw a 12% increase in just one year, now going over \$9M
- Aruna Balasubramanian honored as N²Women: Rising Stars in Computer Networking and Communications, Anshul Gandhi named 2019 ACM SIGMETRICS Rising Star



STUDENT GROWTH AND SUCCESS

- Steady increase in enrollment with 1400+ undergrad, 500+ masters and 200+ doctoral students
- Multiple students took up faculty positions in academic institutions: Syed Billah (Pennsylvania State University), Vikas Ashok (Old Dominion University) and Mohammad Ruhul Amin (Fordham University)
- New interdisciplinary teaching initiative: Enrollment in the new freshman Digital Intelligence class co-taught by CS and Humanities faculty crossed 200



AI INSTITUTE LAUNCHED

The Institute for AI-Driven Discovery and Innovation with Professor Steven Skiena as the Director, celebrated its official launch on Thursday, May 9, with an event at Bloomberg's Global Headquarters in Manhattan. The event was attended by several high-powered guests including then Stony Brook President, Samuel L. Stanley Jr., and SUNY Chancellor Kristina Johnson. The keynote address was given by author and Francis Crick Professor at the Salk Institute, Terrence Sejnowski.





STEVENS
INSTITUTE of TECHNOLOGY
THE INNOVATION UNIVERSITY®

DEPARTMENT OF COMPUTER SCIENCE
stevens.edu/ses/cs

RANKINGS

from CSrankings.com

38th

computer
vision

37th

security

25th

programming
languages

42nd

cryptography

27th

logic and
verification

STUDENT NUMBERS AND GROWTH



621

Undergraduate
Students

46

Enrolled in CS
Ph.D. Program

216

New Freshman

477

Enrolled in the
CS Masters'
Programs



21

Tenure-Track
Faculty

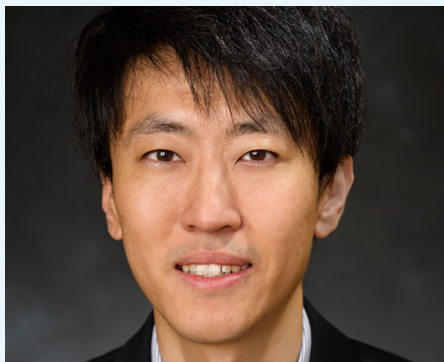
5

Teaching
Faculty

HIGHLIGHTS

- Grant Awards from NSF and NIH totaling \$2.3M received by Samantha Kleinberg to develop AI patients can use to manage their health
- Department Chair Giuseppe Ateniese ranked #7 cybersecurity expert in the world by AMiner
- Supported by NIH and Google, Philippos Mordohai is developing algorithms that will support and improve AR applications by continuously reconstructing a scene in 3D from multiple images.
- The Gateway Academic Center will be the new home of the computer science department and house many state-of-the-art computer science laboratories

NEW FACULTY HIRES



Tian Han, Assistant Professor
August 2019

*Statistical machine learning
focused on computer vision
applications*



Xueqing Liu, Assistant Professor
January 2020

*Software engineering, security
and privacy, data mining*



Jia Xu, Assistant Professor
October 2019

*Machine learning and statistical
natural language processing*

DEPARTMENT OF COMPUTER SCIENCE

stevens.edu/ses/cs

The School of Computing Science at Simon Fraser University has world-class researchers, talented instructors, and motivated staff, all dedicated to the success of its students and advancing the scientific knowledge in computing.

60 Faculty Members
400 PhD and MSc Students
2200 Undergrad Students

Recent Faculty Hires



Yagiz Aksoy: Computational Photography, PhD from ETH Zurich



Saba Alimadadi: Software Engineering, PhD from UBC, postdoc at Northeastern



Mo Chen: Robotics and AI, PhD from UC Berkeley, postdoc at Stanford



Hang Ma: Robotics and AI, PhD from USC



Manolis Savva: Graphics and Vision, PhD from Stanford, postdoc at Princeton



Igor Shinkar: Computational Complexity, PhD from Weizmann Institute of Science



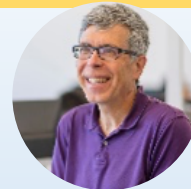
Tianzhang Wang: Database Systems, PhD from University of Toronto

Faculty Honor (Sample)

Royal Society of Canada Fellows



Eugene Fiume



Martin Ester



Jian Pei



Pavol Hell

Canada CIFAR AI Chair



Angel Chang

SIAM Fellow

ACM CHI Academy, IEEE VIS Fellow



Sheelagh Carpendale

MIT SLOAN Research Fellow



Leonid Chindelevitch

Test of Time and Best Paper Awards (Sample)

- A. Bulatov, A Dichotomy Theorem for Nonuniform CSPs, Best Paper Award, IEEE Symposium on Foundations of Computer Science (FOCS)
- B. Zhou and J. Pei, Preserving Privacy in Social Networks Against Neighborhood Attacks, Influential Paper Award (10-year Best Paper Award), IEEE International Conference on Data Engineering (ICDE).
- X. Zhang, J. Liu, B. Li, and T. Yum, CoolStreaming/DONet: A Data-driven Overlay Network for Peer-to-Peer Live Media Streaming, Test of Time Paper Award, IEEE INFOCOM.
- A. Efros, A. Berg, G. Mori, and J. Malik, Recognizing Action at A Distance, Helmholtz Prize (10-year Test of Time Award), International Conference on Computer Vision (ICCV)

Simmons UNIVERSITY

The College of Organizational, Computational, and Information Sciences

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

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

The Division of Mathematics and Computer Science (MCS) houses undergraduate degree programs in **Computer Science, Information Technology, Data Science and Analytics, Web Design and Development, Mathematics, and Statistics**. The School of Library and Information Science (SLIS) offers graduate programs in **Library and Information Science**, with specializations in **Archives, Cultural Heritage, and Information Science and Technology**, as well as a dual degree in **Archives Management and History**. Both MCS and SLIS are part of the College of Organizational, Computational, and Information Sciences, which also includes the School of Business.

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

simmons.edu/cocis

FACULTY AWARDS & ACCOMPLISHMENTS



Associate Professor Naresh Agarwal was invited as keynote speaker at the ISIC 2020 Conference in South Africa.



Assistant Professor Amber Stubbs co-advised a student project, "Digitizing Court Records: A Database of Unfreedoms," which was selected for a keynote presentation at the Undergraduate Symposium.



Professor and Dean Emerita Michèle Cloonan received the 2019 Historic Preservation Book Prize from the Center for Historic Preservation at the University of Mary Washington, for her book, *The Monumental Challenge of Preservation: The Past in a Volatile World* (MIT Press, 2018).



Professor Laura Saunders received the 2019 Provost's Award for Graduate Teaching.



Professor Jeannette Bastian was elected a Fellow by the Society of American Archivists.



Associate Professor Špela Trefalt has been chosen as the faculty recipient of a Simmons endowed chair, the Diana K. Trust Professorship in Leadership Development.



Associate Professor Rong Tang was awarded a 2019 Laura Bush 21st Century Librarian Program award for the project "Retooling the Librarian Workforce."



Adjunct Faculty Caryn Anderson '04MS was accepted to the U.S. Fulbright Program as a Fulbright Specialist.



**Professor &
MCS Director
Nanette
Veilleux**



**Associate
Professor Lisa
Hussey**

Traveled with students to Nyamata, Rwanda, to collaborate with the computer science instructors and organize the library at the Maranyundo Girls School.

DEPARTMENT OF COMPUTER SCIENCE

New Faculty in 2019



Abby Stylianou

Assistant Professor
Image Processing, Deep
Learning, Citizen Science

Jie Hou

Assistant Professor
Machine Learning and Data Mining
Methods for Bioinformatics



Faculty Highlights



Erin Chambers

NSF Award to Study Algorithms
to Compute and Visualize Reeb Graphs



David Letscher

Collaborative NSF Award to Study
Plant Root Topology with
Danforth Plant Science Center



Flavio Esposito

2 new NSF Awards on Computer
Networks & Machine Learning;
1 new Award on Gambling Disorders



Kevin Scannell

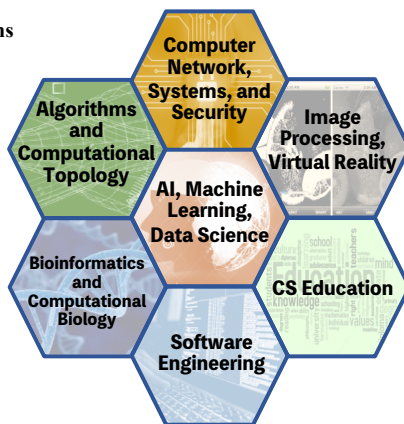
Computer Science Professor Named
2019-2020 Fulbright Scholar



Tae-Hyuk (Ted) Ahn

Obese vs Lean Dogs' Microbiomes?
Research Grant from Nestle-Purina

Research Clusters



Department Highlights

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

We're hiring graduate students!



About Saint Louis University

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

Fast Facts about SLU

12,649

Students from all 50 states
and 78 foreign countries

\$1.2B

Endowment

190+

Undergraduate and
graduate programs

2,270

Faculty members

Fast Facts about CS@SLU

13

Computer science faculty

150+

Undergraduate and graduate students

19

Average CS class size

\$3.3M

Research funding of current active awards

Degrees Offered

BS in Computer Science	MS in Computer Science
BA in Computer Science	MS in Software Engineering
BS in Data Science	MS in Bioinformatics



cs.slu.edu



facebook.com/cs.slu.edu/



SAINT LOUIS
UNIVERSITY
— EST. 1818 —

NEW FACULTY HIRED 2019

ASSOCIATE PROFESSORS



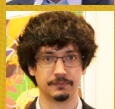
CHANGHEE JUNG
PhD, Georgia Institute of Technology



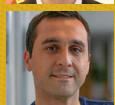
RYAN NEWTON
PhD, Massachusetts Institute of Technology



KAMYAR AZIZZADENESHELI
PhD, University of California, Berkeley

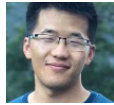


ANTONIO BIANCHI
PhD, University of California Santa Barbara



BERKAY CELIK
PhD, Pennsylvania State University

ASSISTANT PROFESSORS



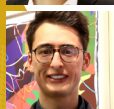
PAN LI
PhD, University of Illinois Urbana - Champaign



JIANZHU MA
PhD, Toyota Technological Institute at Chicago



ALEX PSOMAS
PhD, University of California, Berkeley



KENT QUANRUD
PhD, University of Illinois at Urbana-Champaign



DAVE TIAN
PhD, University of Florida

**FACULTY
MEMBERS**

**63
TENURED /
TENURE TRACK**

**4
PROFESSORS
OF PRACTICE**

**DEGREES AWARDED
2018-2019**
414 BS | 63 MS | 26 PhD

AWARD WINNING FACULTY

ELISA BERTINO // Named the 2019-2020 Athena Lecturer by the ACM // Named to GSMA's Mobile Security Research Hall of Fame // Received the IEEE 2018 Research Innovation Award // Received Best Paper from ACM Conference on Data and Application Security and Privacy

BEN DELAWARE // Received an NSF CAREER Grant

PEDRO FONSECA // Received a Google Faculty Research Award

SURESH JAGANNATHAN // Received the Programming Language Design and Implementation (PLDI) Distinguished Paper Award

ANIKET KATE // Received an NSF CAREER Award

NINGHUI LI // Named to GSMA's Mobile Security Research Hall of Fame // Elected Chairman of ACM SIGSAC (Security, Audit, and Control)

CHUNYI PENG // Best Community Paper Award at ACM MobiCom 2018

TIARK ROMPF // Received the 2018 VMware Systems Research Award, the 2018 Facebook Probability and Programming Research Award

ROOPSHA SAMANTA // Received an NSF CAREER Award

EUGENE SPAFFORD // Received the ISE Luminary Leadership Award 2018

LIN TAN // 2018 Facebook Probability and Programming Research Award // ACM SIGSOFT Distinguished Paper Award, MSR 2018

YEXIANG XUE // Received an NSF CAREER Grant

DONGYAN XU // Named the Department Head of Computer Science

PETROS DRINEAS // Promoted to full Professor of Computer Science

JENNIFER NEVILLE // Promoted to full Professor of Computer Science

NEW RESEARCH CENTER LAUNCHED

The Purdue University Center for Programming Principles and Software Systems (PurPL)

HACCLE PROJECT RECEIVED \$10.7M IARPA GRANT

High Assurance Compositional Cryptography: Languages and Environments (HACCLE)

Professors Jeremiah Blocki, Benjamin Delaware, Christina Garman, Aniket Kate, Majid Kazemian, Milind Kulkarni, Tiark Rompf, and Roopsha Samanta

**\$14.2
MILLION
RESEARCH
EXPENDITURES**

FY2017

**US NEWS
RANKS
PURDUE**

#20

**IN COMPUTER
SCIENCE**

#14

**IN PROGRAMMING
LANGUAGES**

#15

IN SYSTEMS

AN ERA OF GROWTH

93% Increase growth in undergrad population over 5 years (2014-2019)

1751 CS Majors (9 Tracks)

180 Data Science Majors (program started 2017)

2 UNDERGRADUATE DEGREES

Computer Science | Data Science

TOTAL UNDERGRADUATE WOMEN POPULATION

Freshman class 2019-2020 – **27%**

Undergraduates 2019-2020 – **21%**

SUPPORT

142 RAs | **130** TAs | **20** Fellowships

GRADUATE STUDENTS

Graduate Students **396**

Representing **36** countries

88% Increase growth in grad population over 10 years

261 PhD Students

135 Master's Degree Students

20% Women Grad Students

cs.purdue.edu

Penn State Computer Science and Engineering

HIGHLIGHTS



Department hosted "Dancing with Robots" girls' summer camp

Department co-hosted:

Penn State Symposium on Election Security



New Hires:



ARZOO KATIYAR
Data Science



DAVID KOSLICKI
Computational Science

Awards:

Sean Hallgren, professor of computer science and engineering, received the **Penn State Engineering Alumni Society's Outstanding Research Award**

Swaroop Ghosh, Monkowski Career Development Assistant Professor of Electrical Engineering and Computer Science and Engineering, named as a **senior member of the National Academy of Inventors**

Eric Pauley, computer science and engineering student, received **2019 NSF Graduate Research Fellowship**

Kaisheng Ma, 2018 computer science and engineering graduate, received the **EDAA Ph.D. Outstanding Dissertation Award**

Daniel Kifer, associate professor of computer science and engineering, named a recipient of the **Google AI Impact Grant**

Department by the Numbers:

#21

Computer Engineering
U.S. News and World Report
Specialty Rankings (2018)

Research
Expenditures
(2018-19)

\$10.5M

1,005

JUNIORS AND SENIORS

34

TENURE TRACK FACULTY

149

PH.D. STUDENTS

136

M.S. + M.ENG. STUDENTS

Institutes / Labs / Special Projects:

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



PennState
College of Engineering



PennState

College of Information Sciences and Technology

Faculty and Research

IST continues contributions to **Northeast Big Data Innovation Hub** through additional \$4 million multi-institution NSF grant

Shomir Wilson part of a \$1.2 million NSF grant to develop software aimed at helping users understand and make decisions about online privacy policies

James Wang is first Penn State researcher to receive Amazon Research Award for his work in affective computing

Vasant Honavar named a Fellow of the American Association for the Advancement of Science and distinguished member of Association for Computing Machinery

IST team earns **Outstanding Paper Award** at ACM Conference on Computer and Communications Security for work on building trust in deep learning models

Ongoing and published **interdisciplinary research** focuses on identifying discrimination in AI recruiting tools, training clickbait detectors, detecting severe weather, collecting emergency data through social media, teaching computers to understand body language, and analyzing attitudes toward climate change

Student Success

Students **excel in internships** with Boeing, Microsoft, Lockheed Martin, Canon, National Basketball Association, PepsiCo, U.S. Army, Capital One, Vera Bradley, General Electric, Dell, Comcast, Deloitte, EY, Hallmark, and many others

IST-led team **claims top prize** in first-ever University Kaggle Hackathon

Students use **augmented reality** to bring \$10 million Penn State Dance Marathon to children's hospital

Students take advantage of **experiential opportunities** at Grace Hopper Celebration of Women in Computing and ACM Richard Tapia Celebration of Diversity in Computing, and travel to New York City and Texas for professional networking

By The Numbers



- 1,900+ Resident Undergraduate Students
- 1,100+ Online Undergraduate Students
- 650+ Online Graduate Students
- 150+ Resident Graduate Students

84% Of undergraduate students offered a full-time position by a company they've interned with

\$8.4M Annual research expenditures by IST faculty, researchers, and scholars

#7 U.S. News & World Report for "Best Online Graduate Computer IT Programs"

New Faculty Hires

Mahir Akgun

Assistant Teaching Professor

Syed Billah

Assistant Professor

Patrick Dudas

Assistant Teaching Professor

Xinning Gui

Assistant Professor

Yubo Kou

Assistant Professor

Fenglong Ma

Assistant Professor

William Parquette

Assistant Teaching Professor

Joanne Peca

Assistant Teaching Professor

Kevin Sylvester

Lecturer

Chun-Hua Tsai

Research Assistant Professor

Ting Wang

Assistant Professor

Penn State College of IST
E397 Westgate Building
University Park, PA 16802
814-865-8947
ist.psu.edu
@ISTatPennState

Faculty

- 82 Faculty
- 1 Member of the National Academy of Engineering
- 2 Fellows of the National Academy of Inventors
- 13 ACM/IEEE fellows
- 27 Young investigator/CAREER awards
- 4 Editors-in-chief of internationally recognized academic journals

Research

- \$11.6M in research expenditures (2017–2018)
- 14 spinoff companies + licenses

Research Areas of Excellence

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

2018-2019 National Awards

- David Allstot: Meritorious Service Award, IEEE Circuits and Systems Society
- John Conley: Fellow Award, American Vacuum Society
- Fuxin Li: Amazon Research Award
- Steve Ramsey: Zoetis Research Excellence Award
- Arash Termehchy: Best Papers of SIGMOD Conference Award, ACM SIGMOD Research Highlight Award

Programs and Students

- Electrical and computer engineering (B.S., M.S., M.Eng., Ph.D.)
- Computer science (B.S., M.S., M.Eng., Ph.D.)
- Online post-bacc degree in computer science (BS)
- Enrollment (Fall 2018)
 - 3,602 undergraduate students
 - 252 master's students
 - 216 doctoral students

	Bachelor's	Master's	Doctoral
ECE	124	51	15
CS	564*	62	7

**One of the top in the nation*

- Enrollment doubled in the last 5 years

Affiliated Centers and Institutes

- Center for Design of Analog and Mixed-Signal Circuits (CDADIC)
- Cyber Resilient Energy Delivery Consortium (CREDC)
- Collaborative Robotics and Intelligent Systems Institute (CoRIS)
- Northwest Alliance for Computational Science and Engineering (NACSE)
- Northwest National Marine Renewable Energy Center (NNMREC)

ROBOTICS AT OREGON STATE UNIVERSITY

Oregon State is the home of the Collaborative Robotics and Intelligent Systems Institute. Our robotics program is recognized as one of the country's best, where more than 25 faculty and 180 top-notch graduate students conduct cutting-edge robotics research or apply robotics applications. Reaching beyond technological development, they explore robotics and intelligent systems holistically, considering their impact on people and the potential for robots to shape the future.



Department of Computer Science , Oklahoma State University

<http://cs.okstate.edu>

New faculty who joined us, Fall 2019

- Sathyanarayanan Aakur, University of South Florida
- Rittika Shamsuddin, University of Texas at Dallas
- Arunkumar Bagavathi, UNC Charlotte
- Thanh Thieu, University of Missouri-Columbia

Meet Our Assistant Professors



Esra Akbas received her Ph.D. degree in Computer Science from Florida State University. Her research interest is broadly on the development of algorithms for large-scale data mining and analysis, with particular emphasis on text and graph-structured data, with social network and health data as the application area. Along with reviewing and publishing numerous referenced papers in international conferences and journals, Dr. Akbas has also been supervising many high school, undergraduate and graduate students.



Sathyanarayanan Aakur is interested in the intersection of computer vision, natural language processing and psychology. His aim is to build intelligent agents that understand the visual world beyond recognition (labels) or captions (sentences) without the need for explicit human supervision. This entails developing approaches such as self-supervised predictive learning for video event segmentation, common sense reasoning for ground perception and prior knowledge, and generative modeling for building knowledge.



Arunkumar Bagavathi focuses on designing deep-learning frameworks to learn multiple activities in social media to enhance network-based machine learning tasks like prediction, forecasting, and clustering. His work also leverages the use of cloud tools to frame a collection of scalable data agnostic models to glean actionable recommendations from massive data sources. For example, his multiplex model can identify user communities in the social media from their various activities and his action-mining model can impart personalized recommendations for hospitals to handle patients to improve care and reduce readmission rates.



Thanh Thieu is experienced in computational intelligence and computational linguistics. His work involves Natural Language Processing (NLP), data science, predictive modeling, machine and deep learning, semi-supervision, data augmentation and domain adaptation. Before joining OSU, he worked on NLP of functional terminology and interpretable predictive modeling of allegation text at NIH Clinical Center. Currently, he is focusing on NLP and Deep Learning, with application in Health Care, Education, and Bioinformatics.



Rittika Shamsuddin aims to improve communication between researchers in fields of computer science, biology, and medicine via knowledge-sharing and by developing algorithms and experiments, which will increase the interpretability of various machine-learning and artificial intelligence models. Such libraries and developments are necessary for extending technological success of computational fields to solve problems in healthcare/biology with a higher degree of trustworthiness and reliability than exists at present. Her past work includes bioinformatics and clinical informatics.

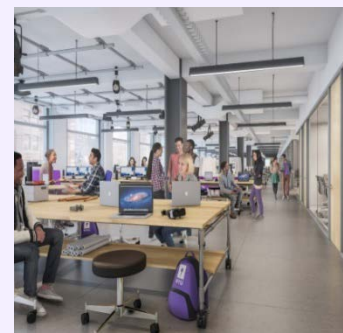


**NYU****TANDON SCHOOL
OF ENGINEERING**

Polytechnic Institute

Computer Science and Engineering

New Building: In summer 2019, the NYU CSE department moved into a new building at 370 J Street in Brooklyn, former headquarters of the New York MTA. The new building, shared by CSE with other NYU departments and centers with a joint vision for highly cross-disciplinary research, is an ambitious effort to advance NYU's technology efforts and to support Brooklyn's and the City's evolution into a leading center for creative engineering and technology innovation. With the opening of 370 Jay Street, CSE's opportunities for synergy in areas such as Cybersecurity, Data Science, Health and Medicine, Sustainability, Emerging Media, and Urban are about to expand greatly.



Department

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

Faculty: 25 TT/T Faculty (20 FTE, incl. 7 joint faculty with NYU Shanghai, CDS, Steinhardt, Global Public Health), 12 clinical/contract faculty, 15 adjuncts teaching any semester, 10 affiliated/associated faculty.

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

Enrollments: 980 majors (722 CSE, 258 CompE jointly with ECE), 975 students in two M.S. programs (644 CS, 331 cybersec., with 275 online only), 90 PhD students.

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

New TT Faculty



Shan Muthukrishnan, ACM fellow, PhD NYU Courant. Previous affiliation: Rutgers. Research Areas: Algorithms, Analysis of Big Data. Joined in Fall 2018.



Christopher Musco, PhD MIT CS, previously research instructor at Princeton. Research Areas: ML, Algorithms, Numerical Linear Algebra. Joined in Fall 2019.



Chinmay Hegde, PhD Rice University, previous affiliation: Iowa State University. Research Areas: Data Analytics, ML, Signal Processing. Joined in Fall 2019.

Faculty promoted: **Damon McCoy**, Associate Professor

Department Highlights AY 2018/19:

- Incoming CSE undergraduate class of F2019 includes 44% women, up from 32% in F2017 and 22% in F2015.
- Major Awards: IEEE Fellow (Gerig), NSF CAREER awards (Chunara, McCoy).
- NYU Center for Cyber Security runs largest Cyber Security competition event in the world – CSAW, with over 20,000 participants in 2019.

Recent new education programs:

- **NYU Cyber Fellows:** The Cyber Fellows program — launched by NYU Tandon under the leadership of Nasir Memon in partnership with firms, government institutions and the New York City Cyber Command (NYC3) — offers scholarships that result in one of the lowest-cost online master's degrees in the country and develops highly skilled technical graduates ready to step into the growing cybersecurity gap.
- **A Bridge Program to NYU Tandon:** Created for individuals with non-engineering backgrounds, the program provides the tools needed to be admitted into select graduate-level programs at NYU Tandon School of Engineering. Bridge enrollment is over 500 students in Fall 2019, and over 100 former Bridge students enrolled in the regular M.S. program.
- Tandon cybersecurity received 3 million dollars from NYCEDC to build a stackable credentials cyber security program in partnership with NYC companies and universities. It also received 5 million dollars from NSF for renewal of the cyber security scholarships.

The two NYU Computer Science Departments, Tandon CSE and the Computer Science Department at Courant Institute of Mathematical Science, maintain close shared efforts in faculty hiring, research and PhD education.

**NYU**COURANT INSTITUTE OF
MATHEMATICAL SCIENCES

Computer Science

Department in Numbers

42 tenure-track; 14 contract faculty
78 PhD students; 435 MS students
643 majors; 420 minors

NYU Courant's CS Department maintains a close, collaborative effort with the Tandon School of Engineering's Computer Science and Engineering Department, with shared efforts in hiring and PhD education.

Academy and Society Fellows:

1 AAAS Fellow, 2 Academia Europea, 5 ACM, 2 AMS, 3 IEEE, 13 PYI and CAREER awards, 3 NAE/NAS, 1 Royal Society, 4 SIAM, 5 Sloan Fellows

Major Awards 2018-2019:

Academia Europea (C. Yap), ACM Computer Graphics Achievement Award (D. Zorin), AMS Norbert Wiener Prize (M. Berger), Gödel Prize (O. Regev)

Student Distinctions:

Adobe Research Fellowship (Z. Jiang and F. Gil-Ureta); Google PhD Fellowship (M. Arjovsky); La Caixa Foundation Fellowship (C. Enrich); NDSEG Fellowship (D. Brandfonbrener and K. Otness); NSERC Fellowship (S. Jean and A. Kattis); NSF Graduate Research Fellowship (E. Perez and A. Wang); NYU GSAS Dean's Dissertation Fellowship (S. Krishna)

Notable Grants:

Google PhD Partnership will support a number of PhD students. Rajesh Ranganath received \$3,338,186 from NIH for "Deep probabilistic predictive models for stroke and coronary heart disease."

New Faculty Recruited



He He (Assistant Professor), machine learning and natural language processing (postdoc at Stanford, PhD University of Maryland).



Julia Kempe (Director of the Center for Data Science), data science, and quantum computing (PhD UC Berkeley and École Nationale Supérieure des Telecommunications).



Benjamin Peherstorfer (Assistant Professor), scientific computing, model reduction, uncertainty quantification, and Bayesian inference (PhD Technical University of Munich).



Michael Picheny (Research Professor), speech technologies, speech recognition, and speech synthesis (PhD MIT).



Lerrel Pinto (Assistant Professor, joining 2020), robotics and computer vision (postdoc Berkeley, PhD Carnegie Mellon).



Andrew G. Wilson (Assistant Professor), Gaussian processes, scalable machine learning, probabilistic deep learning (postdoc CMU, PhD University of Cambridge).

Turing Award



Yann LeCun awarded the ACM A.M. Turing Award for his breakthroughs in artificial intelligence and, specifically, deep learning and convolutional neural networks—the foundation of modern computer vision, speech recognition, speech synthesis, image synthesis, and natural language processing. The ACM A.M. Turing Award is an annual prize given by the Association for Computing Machinery (ACM) to an individual selected for contributions "of lasting and major technical importance to the computer field." The Turing Award is generally recognized as the highest distinction in computer science.

Faculty Distinctions in 2018-19:

ACM Computer Graphics Achievement Award (D. Zorin); AI Breakthrough Award (L. Subramanian); Armstrong Medal (T. Rappaport); Edison Award (L. Subramanian); Gödel Prize (O. Regev); IACR Test of Time Award (Y. Dodis); IEEE Best Presentation Award (A. Bari); Industrial Research Institute Medal (Y. LeCun); INFORMS Computing Society Prize (M. Overton); NSF CAREER and Presidential Young Investigator Awards (J. Bruna); NYU CAS Teach/Tech Award (C. Kapp); Samuel L. Marateck Prize for Outstanding Teaching in Computer Science (A. Siegel); Savage Award (R. Ranganath); SIGSPATIAL 10-Year Impact Award (D. Panozzo); Sloan Foundation Fellowships (J. Bruna); Symposium of Geometry Processing Dataset Award (D. Panozzo and D. Zorin)

Selected Conferences and Workshops:

J. Bonneau, Program Chair, Financial Crypto 2020; J. Li, Program Co-Chair, HotOS 2019; S. Odeh, Chair, Women in Computing in the Arab World; D. Panozzo, Paper Chair, Eurographics 2020; B. Mishra, General Chair, BICT 2019; O. Regev, Organizer, Lattice-Based Cryptography at Simons Institute; Emergent Communication (K. Cho); Synthesis at CAV (T. Wies); Programmable Networks at NSF (A. Sivaraman); Machine Learning and Healthcare (R. Ranganath); Computational Statistics and Data-Driven Models at ICERM (B. Peherstorfer); Simons Foundation Math+X Symposium (J. Bruna); Geometric Computation and Applications at HMI (C. Yap)

Technical excellence. Whole-brain thinking. Highly interdisciplinary work.

Computer Science at Northwestern University embodies these three core values. In its third year of an ambitious growth initiative, Northwestern CS has hired a new department chair and is in the process of hiring 20 tenure-track faculty members and more than doubling the size of its teaching faculty. Northwestern CS is driven by the goal of constantly pushing at the boundaries of the field with exceptional work in programming languages, machine learning, robotics, network security, theoretical computer science, artificial intelligence, computational imaging, high performance computing, networking, and personalized education.

Rapidly Growing Department



Northwestern is excited to announce the hire of a [new Peter and Adrienne Barris Chair of the department](#). Samir

Khuller joined from the University of Maryland, where he previously served as department chair of computer science.



Three tenure-track faculty members joined in core CS areas: Christos Dimoulas (from Harvard / programming languages), Konstantin Makarychev (from Microsoft Research / theory), and Xiao Wang (from MIT / cryptography).



Four tenure-track faculty members joined in collaborative “[CS+X](#)” areas with other disciplines: Jessica Hullman (from University of Washington / CS+journalism), Han Liu (from Princeton University / CS+statistics), Eleanor O’Rourke (from U of Washington / CS+learning sciences), and Marcelo Worsley (from Stanford University / CS+learning sciences).



Teaching faculty doubled in response to overwhelming enrollment, with substantial additional investment in postdoctoral teaching resources.

Highlights include: Sara Sood (from Pomona College), Vincent St-Amour (from Northeastern University), Stephen Tarzia (from Northwestern), Jesse Tov (from Northeastern University), and Sarah Van Wart (from University of California, Berkeley).

New, Expanded Facilities



Computer Science moved into remodeled space in the Mudd Building on

Northwestern’s Evanston campus. The CS community is now in a single space, enhancing collaboration and culture.

Continued Growth in Majors, Enrollments

For the 2019-20 academic year, Northwestern saw the largest number of CS master’s and PhD applications and enrollments in its history, plus growth in collaborative PhD programs such as the PhD in Technology and Social Behavior (with the School of Communication) and the new PhD in Computer Science and Learning Sciences (with the School of Education and Social Policy).

The overwhelming demand for specific education in artificial intelligence and machine learning inspired the launch of the new Master of Science in Artificial Intelligence (MSAI) program in 2018.

CS+X Connections



We have developed a truly interdisciplinary

approach, with joint CS+X initiatives in collaboration with our other top Northwestern schools, including Feinberg School of Medicine, Kellogg School of Management, Medill School of Journalism, Pritzker School of Law, Weinberg College of Arts and Sciences, and the School of Education and Social Policy.

Collaborations include joint research, workshops, joint faculty appointments, the launch of the new Center for Computer Science and Learning Sciences in 2019, and plans for a new center in human-machine interaction.

Research and Award Highlights

- Han Liu earned the [Presidential Early Career Award for Scientists and Engineers](#)
- Jessica Hullman received a [2019 Microsoft Research Faculty Fellowship](#)
- Jennie Rogers received the [NSF CAREER award](#)
- Haoqi Zhang and Darren Gergle received a [Google Faculty Research Award](#)
- Nikos Hardavellas received the EDBT 10-year Test-of-Time Award
- Yan Chen won the [2018 ASPLOS Most Influential Paper Award](#)
- Robby Findler won the annual SIGPLAN Programming Languages Software Award

New Faculty

Seth Adjei

Assistant Professor

Data Visualization and Mining
Computer Science Education



Nicholas Caporusso

Assistant Professor

Human-Machine Interaction
Web and Mobile Development



Junxiu Zhou

Assistant Professor

Deep Learning
Artificial Intelligence



Kenneth Roth

Assistant Professor of Practice

Systems Administration
Networking



Aziz Bahha

Visiting Assistant Professor

Software Engineering
Networking



Bradford Thomas

Lab Manager / Lecturer

Information Technology
Systems Administration



Current Programs

Undergraduate Majors

- Computer Information Technology
- Computer Science
- Data Science

Graduate Degree Programs

- Master of Science in Computer Information Technology
- Master of Science in Computer Science

Department News

- NKU's designation as a National Center of Academic Excellence in Cyber Defense Education (CAE-CDE) for the Bachelor of Science in Computer Information Technology, Cybersecurity Track has been renewed until 2024 by the National Security Agency and the Department of Homeland Security.
- Northern Kentucky University tops in Kentucky for awarding computer science degrees to women. The CS Department ranked 40th nationally, awarding 171 degrees in Computer Science with 21.1 percent going to women.
- The Bachelor of Science in Data Science is ranked as the 16th best program in the nation by the Data Science Degree Programs Guide (DSD) in 2019.

CS Department by the Numbers

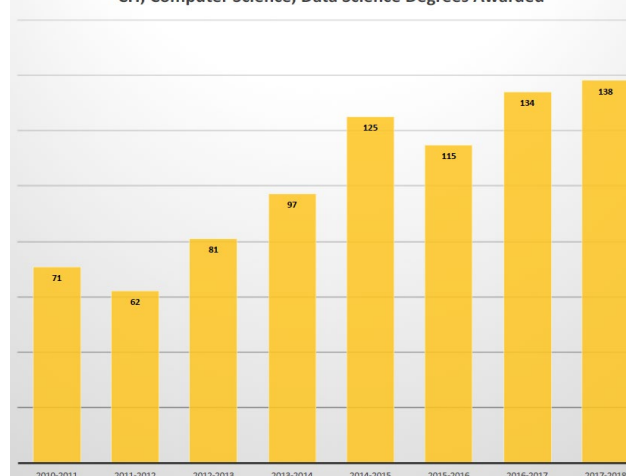
Faculty:

- 24 full-time faculty, including 9 Full Professors, 3 Associate Professors, 7 Assistant Professors, 1 Professor of Practice, and 4 Lecturers

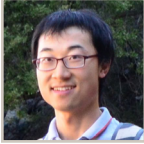
Students:

- Over 900 current majors, with over 300 majors in Computer Information Technology and Computer Science undergraduate programs.
- 4.1 average time to degree.
- \$70,000 average starting salary for Computer Information Technology, Computer Science, and Data Science graduates in 2019.
- 75% of students stay in Northern Kentucky/Greater-Cincinnati region after graduation.

CIT, Computer Science, Data Science Degrees Awarded



2019



Hongyang Zhang
Assistant Professor
PhD, Stanford University

2018



Lawson Wong
Assistant Professor
PhD, Massachusetts Institute of Technology



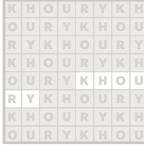
Paul Hand
Associate Professor
PhD, New York University



Predrag Radivojac
Professor
PhD, Temple University



Don Fallis
Professor
PhD, University of California, Irvine



Renee Miller
Professor
PhD, University of Wisconsin

2017



Wolfgang Gatterbauer
Associate Professor
PhD, Vienna University of Technology



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



Long Lu
Assistant Professor
PhD, Georgia Institute of Technology



Aanjan Ranganathan
Assistant Professor
Doctor of Science, ETH Zürich



Stavros Tripakis
Associate Professor
PhD, Joseph Fourier University



Rose Yu
Assistant Professor
PhD, University of Southern California

2016



Christopher Amato
Assistant Professor
PhD, University of Massachusetts



Cody Dunne
Assistant Professor
PhD, University of Maryland



Tina Eliassi-Rad
Associate Professor
PhD, University of Wisconsin



Huy Lê Nguyen
Assistant Professor
PhD, Princeton University



Alina Oprea
Associate Professor
PhD, Carnegie Mellon University



Abhi Shelat
Associate Professor
PhD, Massachusetts Institute of Technology



Frank Tip
Professor
PhD, University of Amsterdam



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



Byron Wallace
Assistant Professor
PhD, Tufts University

NAMING GIFT

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

NEW FACULTY

- **21** tenured and tenure-track faculty over the past four years
- **20+** more new hires anticipated over the next three years

RESEARCH HIGHLIGHTS

BEST PAPER AWARDS

2015-2019 Khoury College faculty and students won best paper/test of time awards at the following conferences, forums and workshops:

AAMAS, ACL, AISEC, ANRW, CCS, CHI, CNS, COSN, CSCW, DSN, EAPLS, FDG, FPF, ICDM, ISWC, NDSS, PETS, SecDev, SIGCOMM, SIGKDD, SIGSOFT, SOSYM, S&P, TACAS, USENIX FAST, USENIX Security, VEE, WISEC

CAREER, YOUNG INVESTIGATOR & SLOAN FELLOWSHIP AWARDS

From 2016-2018, the following members were awarded the Sloan Research Fellowship, Young Investigator, NSF CAREER or DARPA Young Faculty Awards:

Chris Amato, Michelle Borkin, David Choffnes, Seth Cooper, Ehsan Elhamifar, Raymond Fu, Long Lu, Huy Le Nguyen, Robert Platt, Christoph Riedl, Jonathan Ullman, Olga Vitek, Byron Wallace, Lu Wang, Daniel Wicks, Christo Wilson

CONFERENCE GENERAL OR CO-CHAIRS

2015-2019 Khoury College faculty have been general chair or co-chair for the following conferences:

AAMAS, ACSAC, AsiaCCS, CHI, CNS, Curry On, DSAA, DSN, ECCB, ECOOP, ESOP, FAT, FMCAD, ICNP, IDSC, IMC, ISMB, ISSTA, MLHC, MSST, NDSS, NetSci, PAM, PMLDC, PROBPROG, SIGKDD, SIGIR, SIGSOFT, STOC, USENIX Security, WebSci, WISEC, WoWMoM

INSTITUTES & CENTERS

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

Khoury College houses the Cybersecurity and Privacy Institute (cyber.khoury.northeastern.edu) and the Network Science Institute (networkscienceinstitute.org)

BY THE NUMBERS

- **62 TT/T faculty total** - (25% interdisciplinary with another college)
- **4 PhD programs** - Computer Science, Cybersecurity, Personal Health Informatics, Network Science
- **199 PhD Students** - 24% female

COOPERATIVE EDUCATION

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

NC STATE
UNIVERSITY

**Computer
Science**

Dr. Gregg Rothermel
Department Head &
Professor



CSC FOR ALL!

5 New Faculty



Bita Akram

Teaching Assistant Professor
Ph.D. NC State University



Ignacio Dominguez

Teaching Assistant Professor
Ph.D. NC State University



John-Paul Ore

Assistant Professor
Ph.D. University of Nebraska-Lincoln



Don Sheehy

Associate Professor
Ph.D. Carnegie Mellon University



Rhouzhou Yu

Assistant Professor
Ph.D. Arizona State University



#1

Celebrating that NC State ranks #1 in the nation in number of female tenure-track / tenured faculty in departments of computer science in colleges of engineering. (ASEE 18-19)

2018-19 Highlights:

- Ranked #2 in the world in publishing at conferences and journals dedicated to games and interactive entertainment computing research.
- NC State Paper Ranks #2 on SIGCSE's Top Ten Symposium Papers of All Time (co-authored by Nachiappan Nagappan, Laurie Williams, Miriam Ferzli, Eric Wiebe, Kai Yang, Carol Miller and Suzanne Balik)
- NSA Renews Science of Security Lablet at NC State
- NSA Re-Designates NC State a National Center of Academic Excellence in Cyber Defense Research
- Dr. Xipeng Shen Named Distinguished Member of the ACM
- Dr. Frank Mueller Named 2018 ACM Fellow (department's 1st)
- Dr. Tim Menzies Elected as Fellow of IEEE (department's 10th)
- Dr. Carla Savage Named 2019 SIAM Fellow
- Dr. James Lester Named Distinguished University Professor
- Dr. Donald Bitzer was one of two faculty members to receive the Alexander Quarles Holladay Medal for Excellence, the highest honor bestowed by NC State and the university's Board of Trustees
- Collaborating on a \$1M multi-institute NSF grant to support Broadening Participation in Computer Science and Computational Thinking
- Launched Undergraduate Security & Entrepreneurship Tracks
- May 2019 grads had NC State's HIGHEST average starting salaries:

\$76,000 BS CSC

\$112,000 MS CSC

\$10.4M

Research Expenditures

\$12.9M

New Research Awards

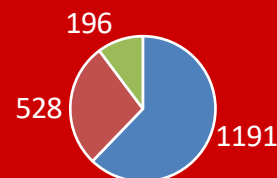
#6

USN&WR Best Online
Computer IT Programs

#23

The Princeton Review's
2019 Top 50 UG Schools to
Study Game Design

Enrollments



■ BS ■ MS ■ PhD

csc.ncsu.edu

Department of Computer Science

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

Our Mission

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

Our Students

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

Our Faculty

We have 21 tenure track faculty, 4 lecturers, and about a dozen research faculty.

Our Curricula

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

Our Research

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

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

Department of Computer Science National University of Singapore

Recent faculty hires:



Arnab Bhattacharyya

Theoretical computer science: algorithms for problems involving high-dimensional data, statistics, coding theory, complexity theory



Bryan Hooi

Scalable machine learning deep learning, graph algorithms, anomaly detection, and biomedical applications of AI



Diptarka Chakraborty

Theoretical Computer Science: algorithms on large data set, streaming algorithms, string matching algorithms, graph algorithms and data structures



Angela Yao

Human and hand pose estimation, action recognition, random forests, semi-supervised and unsupervised learning algorithms

Research Highlights:

- Apache SINGA, a distributed machine learning platform developed by Beng Chin Ooi, Wei Wang and team, has graduated as a top level project (TLP).
- Test of Time Award: Jin Song Dong and his former PhD students, Dr Sun Jun and Dr Liu Yang, won the 20 Year ICFEM Most Influential System Award.
- Best Papers: Beng Chin Ooi won the 2019 VLDB Best Paper Award; Seth Gilbert received the 2018 OPODIS Best Paper Award; Ilya Sergeev received a distinguished paper award at POPL 2019; Mun Choon Chan won the Symposium on SDN Research (SOSR) 2019 Best Paper Award; Zhenkai Liang won the Best Paper award at WASA 2019; Jianshu Li won the Best Student Paper award at ACM MM'18.

Other Highlights:

- Min-Yen Kan received the 2019 ACL distinguished service award.
- Abhik Roychoudhury has been appointed chair of the inaugural CACM Special Section on East Asia and Oceania.
- David Hsu has been appointed a IEEE Robotics & Automation Society Distinguished Lecturer.
- Angela Yao received the 2018 German Pattern Recognition Award.
- Jonathan Scarlett received the 2018 NUS Early Career Research Award; Reza Shokri has been appointed Presidential Young Professor; Angela Yao, Arnab Bhattacharyya, and Meel Kuldeep received the 2019 NRF Fellowships for AI.
- (PhD Alumni) Loi Luu was named MIT TR35 Asia (2019); Sergey Mechtaev received the ACM SIGSOFT Outstanding Dissertation Award, he was also the winner for the IMDA Excellence Prize; Yaoqi Jia was a recipient of the Forbes 30 Under 30 Asia - Enterprise Technology 2019; Abdelhak Bentaleb received the DASH-IF Best PhD Dissertation Award at ACM MMSys 2019, he also won the ACM 2019 SIGMM Award for Outstanding PhD Thesis.
- Bingsheng received the Editorial Excellence and Eminence (EEE) award from IEEE TCC and the IEEE TPDS Award for Editorial Excellence; Roland Yap, Yair Zick and Maria Andreina Francisco Rodriguez were recognized for their exceptional reviewing contributions to IJCAI 2019.

Entrepreneurial News:

- Visual recognition technology company ViSenze, started by NUS Computing Professor Chua Tat Seng and alumnus Li Guangda, was named as one of 45 top Artificial Intelligence companies in the world. It has raised \$20 million in a series C funding round.
- Human resources (HR) startup, StaffAny, co-founded by Computer Science alumnus Jeremy Hon, has raised a S\$1 million in seed funding.

Organizational News:

- The School's third building is expected to be ready by Dec 2020.
- SoC Professors helm numerous new research projects: Wynne Hsu and Beng Chin Ooi are leading research in two projects on artificial intelligence healthcare technologies funded by AI Singapore's AI in Healthcare Grand Challenge.
- NUS Computing's new blockchain research centre and think tank, Crystal Centre, was named one of five influential blockchain organisations in shaping the cryptocurrency ecosystem.

MOUNT HOLYOKE

Computer Science Department



Barbara Lerner was promoted to Full Professor



Daniel Sheldon received tenure at UMASS Amherst (Dan is shared between the UMASS and MHC CS Departments)



Valerie Barr received NSF funding to lead a project collaborative with Colby and Union Colleges: CUE Ethics: Collaborative Research: Evaluating Frameworks for Incorporating Computing Across the Curriculum

Student Highlights

- CS largest major in the college (9.6% of the graduating class)
- Graduating senior Jaemarie Solyst received Fulbright to go to Germany and work on human robot interaction, deferring her graduate study at U Toronto until fall 2020.
- Graduating senior Emilyann Nault received an ACM-W Scholarship to attend ACM SIGCHI. She has started graduate study at Herriot-Watt University.
- Several students continue on to graduate study, particularly in interdisciplinary areas such as computational biology, while the remainder are heading to industry positions.
- One student received an ACM-BCB undergraduate travel award, and one receive and ACM UPE scholarship.

Other News

- Approval of the new data science major which launched September, 2019. Curriculum combines CS, Statistics, and a domain area of the student's choosing.

Gianforte School of Computing

Montana State University

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

Faculty Hires for 2019-2020

- Travis Peters, Assistant Professor: Cybersecurity, Internet of Things
- Laura Stanley, Associate Professor: Human Computer Interaction, Virtual and Augmented Reality, Human Robot Interaction, Affective Computing



Research Highlights

- Laura Stanley (PI) received a three year, \$1.2M NSF grant to explore how collaborative robots can augment human cognition.
- Clem Izurieta (PI) received \$200K from Wright-Patterson Airforce Base to conduct software assurance research with Montana State University's TechLink Office.
- Brittany Terese Fasy (PI) is overseeing a three-year \$1,166K NSF grant entitled *Improving the Pipeline for Rural and American Indian Students Entering Computer Science Via Storytelling*. For this work, Brittany received the MSU College of Engineering's Excellence in Outreach Award.
- Indika Kahanda is working with the Montana branch of the National Alliance on Mental Illness to develop article curation tools for sorting through millions of publications about mental illness and making the information more accessible to clinicians.
- Mike Wittie is collaborating with Dr. Ahmed Elmokashfi during a Fall 2019 sabbatical at the Centre for Resilient Networks and Applications in Oslo, Norway.
- Brendan Mumey will serve as the Fulbright Distinguished Chair in Information and Communications Technologies at the University of Helsinki during Spring Semester 2020.

Student Numbers and Growth

- 568 students in Fall 2019 (including B.S., M.S. and Ph.D. students)
- 573 students in Fall 2018 (including B.S., M.S. and Ph.D. students)
- Awarded 1 Ph.D. degree, 10 M.S. degrees and 90 B.S. degrees in AY 2018-19

Organizational News

- A Computer Science B.A. degree became available in Fall 2018.
- A Data Science M.S. degree became available in Spring 2019.
- The platinum LEED-certified Norm Asbjornson Hall opened in Spring 2019. The new building houses some CS faculty and graduate students and provides state-of-the-art classrooms.



Computer Science at MIT

MIT Stephen A. Schwarzman College of Computing

This new College will accelerate pioneering research and innovation in computing, build awareness of ethical implications and societal impact, and educate leaders for an algorithmic future. Dan Huttenlocher SM '84, PhD '88, founding dean of Cornell Tech, is the College's inaugural dean. MIT celebrated the College's creation with a historic three-day kickoff event in February 2019. For more information, visit computing.mit.edu.

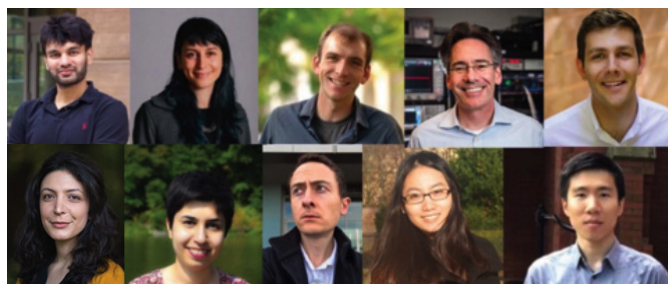
Recent Faculty Awards

- **National Academy of Engineering Fellow:** Robert T. Morris
- **National Academy of Inventors Fellows:** Muriel Medard, Rafael Reif
- **American Academy of Arts & Science Fellows:** Dimitri Antoniadis, Anantha Chandrakasan, David Karger
- **Carnegie Corporation Great Immigrant:** Dina Katabi
- **Financial Times Person of the Year:** Sir Tim Berners-Lee
- **Microsoft Research Fellowship:** Mohammad Alizadeh
- **NSF CAREER Awards:** Stefanie Mueller, Julian Shun, Suvrit Sra
- **Deep Knowledge Analytics Top 100 AI Leaders:** Regina Barzilay, Tommi Jaakkola, Manolis Kellis, Peter Szolovits
- **Simons Investigator Award:** Caroline Uhler
- **ACM Grace Murray Hopper Award:** Constantinos Daskalakis
- **ACM SIGMETRICS Test of Time Paper Award:** Devavrat Shah
- **AISTATS Notable Paper Award:** Tamara Broderick
- **IEEE EMBS Distinguished Lecturer:** Thomas Heldt
- **Materials Research Society Fellow:** Jesús del Alamo
- **Intel Outstanding Researcher Award:** Ruonan Han

Recent Ranking Highlights

#1, Computer Science and Information Systems, QS World University Rankings, June 2019

#1, Computer Engineering, U.S. News, 2019



Recent Hires: Top: Agrawal, Ghobadi, Corrigan-Gibbs, Oliver, Andreas
Bottom: Niroui, Reiskarimian, Ragan-Kelley, Yan, Chen

Interdisciplinary Majors

- **Computation and Cognition (Course 6-9):** New joint major with Brain & Cognitive Sciences launched in fall 2019.
- **Computer Science, Economics, & Data Science (Course 6-14):** Joint major with Economics, launched in fall 2017, enrolled 110 students for 2019-2020.
- **Urban Science and Planning with Computer Science (Course 11-6):** Joint major with Urban Studies and Planning enrolled its first students in September 2018.

Recent Hires

Assistant Professors and Research Areas

- **Pulkit Agrawal, PhD, UC Berkeley.** Robotics; computer vision; reinforcement learning.
- **Jacob Andreas, PhD, UC Berkeley.** Computation for efficient language learning; intelligent systems.
- **Yufeng Chen, PhD, Harvard.** Robotic design; dynamics and control.
- **Henry Corrigan-Gibbs, PhD, Stanford.** Security; systems; cryptography.
- **Manya Ghobadi, PhD, University of Toronto.** Systems and networking; optical networks.
- **Farnaz Niroui, PhD, MIT.** Nanofabrication; nanoscale devices.
- **Negar Reiskarimian, PhD, Columbia.** Integrated circuits and systems, applied electromagnetics and nanophotonics,
- **Jonathan Ragan-Kelley, PhD, MIT.** Computer graphics; programming systems.
- **Mengjia Yan, PhD, University of Illinois.** Hardware support for security.
- **Associate Professor and Research Area**
 - **William D. Oliver, PhD, Stanford.** Quantum systems.

Recent and Ongoing Initiatives

- **SuperUROP:** Nearly 130 undergrads completed this EECS-hosted one-year advanced research program in 2018-2019.
- **Rising Stars in EECS:** This workshop brought together 76 of the world's top graduate students and postdocs for two days of discussions about academic careers.
- **Postdoc 6:** This ongoing initiative provides leadership training, social hours, and other support for 200+ postdocs in EECS-affiliated labs.
- **EECS Comm Lab:** This program offers workshops on technical communication and trains graduate students and postdocs to help their peers with presentations, posters, resumes, and more.

Department of Computer Science

LOYOLA UNIVERSITY CHICAGO



[HTTP://CS.LUC.EDU](http://cs.luc.edu) @LOYOLACHICAGOCS [FACEBOOK.COM/LOYOLACHICAGOCS](https://facebook.com/loyolachicagocs)

NEW FACULTY



Eric Chan-Tin
STARTED 2018
Cybersecurity



Dmitriy Dilgach
STARTED 2016
ML, NLP



Neil Klingensmith
STARTED 2019
IoT / Security



Heather Wheeler
STARTED 2015
Bioinformatics



DOYLE HALL

Home of the Computer
Science Department

FACULTY AFFILIATIONS



STRITCH
SCHOOL of MEDICINE



BS Data Science



New Degree Program Fall 2019

This interdisciplinary degree provides students with a solid undergraduate background in programming and data manipulation, applied statistics and inference, and practical domain experience.

RECENT FACULTY GRANTS AND ACCOMPLISHMENTS

Catherine Putonti, CRA undergraduate research faculty mentoring award and an NSF award (\$676,000) for *Deciphering the genetic diversity of viruses through gene networks*

Heather Wheeler, awarded 2018 Sujack award and an NIH R15 grant (\$429,000) for *Predicting gene regulation across populations to understand mechanisms underlying complex traits*

Ron Greenberg and George K. Thiruvanthukal, NSF Collaborative research grant (\$72,000) *Chicago Alliance for Equality in Computer Science (CAFECS)*

An Introduction to Computer Networks, by **Dr. Peter L Dordal**, is a free and open general-purpose computer-networking textbook released under Creative Commons license, Version 1.9, 2019.

STUDENT AWARDS

John O'Sullivan on winning team in IBM Unchain the Frame global hackathon (\$15,000 prize)

Nathaniel Alemu (BS 2017), Illinois Technology Fifty for the Future awardee

Cybersecurity



New Degree Program Fall 2018

In addition to Computer Science (BS, MS, MS+Thesis), Software Engineering (BS, MS), Information Technology (BS, BA, MS), and Digital Humanities (MS)

DEPARTMENT PROJECT PRESENTATION AWARDS

Nieky Allen for Volt Compiler (Spring 2018)

Jesse Meza & Samuel Habte for MixJIT (Spring 2018)

John O'Sullivan & Catherine Litten for MiHome (Fall 2017)

Percy Soliz & Pinky Sindhu for QHIPA (Fall 2017)

STUDENT THESES

Using Natural Language Processing and Machine Learning for the identification of alcohol in trauma patients (Andrew Phillips, Aug 2018)

Toddler Activity Recognition using Machine Learning (Pinky Sindhu, Aug 2018)

A mobile app demonstrating sensory neural codes through an efficient coding of collected images and sounds (Anne Zhao, Aug 2017)

Real-time fall detection and response on mobile phones using machine learning (Ilona Shparii, Aug 2017)

FACULTY RESEARCH AREAS

Security, IoT, Distributed Systems, Machine Learning, Big Data, Programming Languages, Bioinformatics, and Computer Science Education

CS BY THE NUMBERS

582

UNDERGRADUATE
STUDENTS

50%

FEMALE FACULTY
MEMBERS

9
6
25

TENURE-
TRACK
TEACHING
AFFILIATED/
ASSOCIATED



6

UNDERGRADUATE
DEGREE INCLUDING
DATA SCIENCE &
CYBERSECURITY



1

MS DEGREE IN
COMPUTER
INFORMATION
SYSTEM



59%

STUDENT OF COLOR
POPULATION
(ASIAN, AFRICAN
AMERICAN & HISPANIC)

394

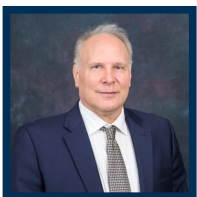
COMPUTER
SCIENCE MAJORS
(4 TRACKS)

188

INFORMATION
TECHNOLOGY
MAJORS



NEW FACULTY



**JAMES
NOVOTNY**
ROBOTICS



**YULIA
KUMAR**
ARTIFICIAL
INTELLIGENCE



**WAI-TAK
WONG**
ENTERPRISE
SYSTEMS

ISABEL MORAIS (CS'19)
RECEIVES 2019
UNDERGRADUATE RESEARCHER
OF THE YEAR AWARD

2 COMPUTER SCIENCE
STUDENTS PRESENT AT THE
NCUR POSTERS ON THE HILL
EVENT THIS SPRING

9 COMPUTER SCIENCE &
INFORMATION TECHNOLOGY
STUDENTS PRESENT THEIR
RESEARCH POSTERS AT THE
ANNUAL NCUR CONFERENCE

NEWS & HIGHLIGHTS



DR. AUSTIN HUANG
RECEIVES KEAN'S 2019
FACULTY MENTOR OF
THE YEAR AWARD



DR. PATRICIA
MORREALE HAS BEEN
NAMED A 2019 AAAS
FELLOW



MAYRA BACHRACH
WAS AWARDED A
GOOGLE COMPUTER
SCIENCE EDUCATION
RESEARCH GRANT

Computer Science Kansas State University 2018 • 2019

Our Four Core Focus Areas:



Cybersecurity



Cyberphysical Systems



High Assurance Software



Data Science

Research

Expenditures:

\$2.7M

Newly Awarded Grants:

\$1.3M



Other Facts:

81.8% Freshmen to Sophomore retention rate

56% 5 year growth in students

230% 5 year growth in female students

269% 5 year growth in Hispanic students

26% 5 year growth in PhD students



Students

Degrees Awarded:



104 Undergraduates

Number of Students:



564 Undergraduates

18 Masters

29 Masters

3 PhD

44 PhD

Faculty

New Faculty

360+ Publications **\$10M+** Grants **29+yrs** Faculty Experience



Pascal Hitzler
Professor
Lloyd T. Smith
Creativity Chair
in Engineering



Lior Shamir
Associate
Professor
Nick Chong
Keystone
Research Scholar



Francesco Maiorana
Instructor



Stats:

16 Tenure Track

10 Endowed Positions

7 Instructional

7 NSF Career Awards

**1 ONR Young
Investigator Award**

Facilities

New Building **2016**

New Data Science Center **2017**

New Robotics Laboratory **2018**

Expanded Data Science Laboratory **2019**



ABET Accredited Degrees

Computer Science (BS, MS, PhD)

Computer Science – Cybersecurity (BS)

Computer Science – Entrepreneurship (BS)

Computer Science (BS) + MBA

1969

50
YEARS

2019

IOWA STATE UNIVERSITY™

Department of Computer Science



50 YEARS AND GROWING

Department Overview



31

Tenured and
Tenure-track faculty

25%

TT faculty are women

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

{csrankings.org} Sept. 2019

#12 in Software Engineering
#16 in Embedded and Real Time Systems
#42 in Robotics
#48 in Artificial Intelligence

New Faculty

since Fall 2017



Forrest Bao

Borzoo
Bonakdarpour

Myra Cohen



Ali Jannesari



Jim Lathrop



Qi Li



Kevin Liu



Chris Quinn

More than

\$5 Million

of NEW external funding since 2018

CLUSTERS OF RESEARCH EXPERTISE:

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

MULTI-DISCIPLINARY RESEARCH IN:

- Computational biology
- Human computer interaction
- Information security

CELEBRATING THE PAST,

INNOVATING THE FUTURE

undergraduate

672

Computer
Science

48

Data
Science

825

Software
Engineering

graduate

173

M.S. and
Ph.D.1 of 17 land-
grant members of

Association
of American
Universities
Inquiry · Innovation · Impact

New Degree Programs (Fall 2019):

- Bachelor of Science in Artificial Intelligence
(First such degree in the Midwest!)
- Master of Artificial Intelligence
- Master of Cybersecurity

Student Numbers and Growth:

- Awarded 59 Bachelor's, 362 Master's, and 8 Ph.D. degrees in 2019
- CS department has doubled the number of students in the last 5 years to approximately 1,200 (16% of the total university enrollment)
- Master in Data Science program has grown to 113 students in its 5th year (Fall 2019), with 62 total alumni

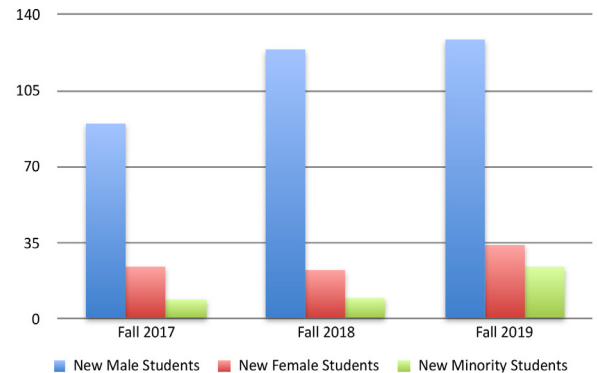
Student Stats (Fall 2019):

- Undergraduate majors: 511
- Master's students: 545
- PhD students: 74

Faculty Stats:

- Tenured/Tenure-Track: 18
- Research/Industry: 5
- Teaching: 7

Undergraduate Enrollment Trend:



Research Highlights:

- \$9.44M in active CS grants/projects, with 18 tenure-track faculty
- Funding sources include NSF, NIH, AFOSR, DoE, IARPA, ARL, and Industry
- 6 NSF CAREER/DoD YIP Awardees
- 3 best paper awards
- New interdisciplinary AI Initiative bringing together researchers from across campus for collaboration in education, research, and innovation
- Illinois Tech's Nikolich co-directing a \$20M NSF Midscale Research Infrastructure award to build the next generation Internet

Faculty Highlights:

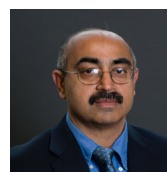
- Prof. Sanjiv Kapoor elected to National Academy of Inventors
- Prof. Cindy Hood serving on National Academies of Science, Engineering and Medicine Panel on Review of NIST's Communications Technology Laboratory
- Prof. Xian-He Sun leading \$3M project *Collaborative Research: Hermes: Extending the HDF Library to Support Intelligent I/O Buffering for Deep Memory and Storage Hierarchy Systems* funded by NSF
- Research Fellow Anita Nikolich co-directed the AI Village at DEFCON, showcasing Deep Fake technology and countermeasures

Department Highlights:

- Multiple summer sessions of Computer Discovery Camp, teaching middle-school girls to program robots
- CS Tech Programming Team Advances to World Finals
- CS student team ranked 6th in the Student Cluster Competition (SCC)
- CS undergrad on first-place team at Clinton Global Initiative Codeathon
- CS student members of STARS Computing Corps taught grade-school students coding over spring break at Holy Angels Catholic School
- 80% of CS Full Professors are Fellows of Professional Societies (IEEE/ACM/AAAS/etc.)

Organizational News:

- University committed to growth of CS and plans to increase the number of CS faculty significantly
- Ocident Computation and Data Center opened
- Global Cybersecurity Initiative Conference (GCSI 2018) held at Illinois Tech including AI in Data Privacy Hackathon



Sanjiv Kapoor



Cindy Hood



Xian-He Sun



Anita Nikolich

COMPUTER SCIENCE



Harvard John A. Paulson
School of Engineering
and Applied Sciences

Computer Science at the Harvard John A. Paulson School of Engineering and Applied Sciences is part of a dynamic hub with strong ties to engineering, economics, law, biology, physics, statistics, mathematics, business, government, and more. Harvard computer scientists pursue ground-breaking work in a wide range of areas including theoretical computer science, AI, the interface of economics and CS, adaptive and trustworthy systems, intelligent interfaces, computer graphics, computational linguistics, privacy and security, robotics, data-management systems, networks, energy-efficient architectures, program languages, and machine learning and visualization.

NEW SPACE

In Fall 2020, Harvard CS will occupy a new state-of-the-art, 500,000-square-foot Science and Engineering Complex.



NEW FACULTY

Recent hires - part of a plan to increase the size of the CS faculty by 50 percent, enabled by former Microsoft CEO Steve Ballmer AB '77 - include:



Milind Tambe
research interests: artificial intelligence and society



Cynthia Dwork
research interests: privacy, cryptography, and distributed computing



James Mickens
research interests: systems design and security



Nada Amin
research interests: ways of programming that are easier, faster, and safer



Elena Glassman
research interests: human-computer interaction



Minlan Yu
research interests: networked systems that make data centers inherently easier to manage

CENTERS & INITIATIVES

Harvard undergraduate, Masters, and PhD students and researchers are involved in interdisciplinary initiatives across the University, such as:

Center for Research on Computation and Society
brings together computer scientists and scholars from a range of fields to make advances in computational research that serves a public interest

Institute for Applied Computational Science
trains graduate students to solve real-world problems and conduct innovative research by using mathematical models, algorithms, systems innovations, and statistical tools

Berkman Center for Internet and Society
explores the development, dynamics, norms, standards, laws, and sanctions of cyberspace

Harvard Data Science Initiative
fosters collaboration in research and teaching, and catalyzes research to benefit our society and economy

BY THE NUMBERS

464 Undergraduates

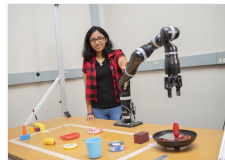
115 PhD

40 Master in Computational Science and Engineering

92 Master in Data Science

School of Interactive Computing

@ICatGT



Organizational News:

- IC Professor **Charles Isbell** was named Dean of Georgia Tech's College of Computing, beginning his term of service on July 1, 2019.
- School of IC Chair **Ayanna Howard** was selected for the 2019-20 Executive Leadership Institute of the University System of Georgia.
- IC Professor **Seth Hutchinson** was chosen as the new Director for Georgia Tech's Institute for Robotics and Intelligent Machines. He joins IC Professors **Beth Mynatt** (Institute for People and Technology), **Irfan Essa** (Machine Learning Center), and **Keith Edwards** (GVU Center) as center or institute directors at Georgia Tech. Hutchinson was also selected to be the next president of the IEEE Robotics and Automation Society

Other News:

- The School was awarded \$13.2 million in new research funding in FY19, bringing the total in its 13-year history to over \$80 million.
- IC Professor **Dhruv Batra** was named a PECASE Award winner, one of three at Georgia Tech.
- The School of IC launched its podcast, the Interaction Hour, focusing on broad societal impacts of computing, from mental health to ethics in AI to equity, and more. Find it on iTunes and Spotify.
- **Charles Isbell** and **Amy Bruckman** were named Fellows of the Association for Computing Machinery.

New Faculty Hires:

- **Diya Yang**, Assistant Professor, Computational Social Science; joined IC after receiving her Ph.D. from Carnegie Mellon.
- **Judy Hoffman**, Assistant Professor, Computer Vision and ML; joined IC after receiving her Ph.D. from the University of California, Berkeley.
- **Jessica Roberts**, Assistant Professor, Data Interaction and User Interface; joined IC after receiving her Ph.D. from the University of Illinois, Chicago.
- **Clio Andris**, Assistant Professor, Geovisualization; joined IC as joint appointment with the School of City and Regional Planning.

Research Highlights:

- IC Professors **John Stasko** and **Gregory Abowd** earned 10-year impact awards at IEEE VIS 2018 and Ubicomp 2018, respectively. Stasko earned his for Effectiveness of Animation in Trend Visualization and Abowd for Detecting Human Movement by Differential Air Pressure Sensing in HVAC System Ductwork: An Exploration in Infrastructure Mediated Sensing.
- New technology from the Robot Autonomy and Interactive Learning lab led by **Sonia Chernova** received national media attention for its breakthroughs in autonomous tool construction using reasoning about shape, function, and attachment. The lead author of the paper, titled Autonomous Tool Construction Using Part Shape and Attachment Prediction, was Ph.D. student **Lakshmi Nair**.
- **B. DiSalvo**, National Institutes of Health, Hemonauts – Interactive Digital Media for Increased STEM Learning Among Chronically Ill Children and Their Support Networks, \$1.5M
- **M. DeChoudhury**, National Institutes of Health, Leveraging Social Media Data and Machine Learning to Optimize Treatment Paradigms for Youth with Schizophrenia, \$2.6M
- **R. Arkin**, DARPA, Syrotheus: Cooperative Autonomous Mapping, \$1M
- **D. Batra**, Army, Towards Transparent Machine Perception Systems, \$1M

Student Highlights:

- IC FY20 enrollment numbers: 172 Ph.D. students, 121 Master's students; 206 total Ph.D. graduates to date



School of Computational Science and Engineering @gtcse



By the numbers:

- 19 tenure-track faculty
- Student enrollment numbers for FY19: 190 Master's Students, 71 Ph.D. Students
- 3 Regents' professors, 1 ACM Fellow, 3 IEEE fellows, 1 AAAS fellow, 1 AIMBE Fellow, 1 SIAM fellow, 1 TMS fellow, 1 ASM fellow, 1 ASME fellow, 1 PECASE award, 6 NSF CAREER awards, and 3 Gordon Bell awardees.

New Faculty Hires:

- Associate Professor **Elizabeth Cherry** joined CSE in August 2016. Cherry specializes in computational biology with a focus on cardiac electro physiology and arrhythmias.
- Assistant Professor **Xiuwei Zhang** joined CSE in August 2016. Zhang's research focuses on data science and computational biology with a specialization in studying mechanisms of cell differentiation using single cell data, and evolution of biological networks.
- Assistant Professor **Srijan Kumar** is set to join CSE in January 2020. Kumar studies machine learning and data science, social media, graph mining, cybersecurity, and social computing.

Research Highlights:

- CSE recently acquired a \$5.3M high performance computing (HPC) resource through an MRI NSF grant led by Professor **Srinivas Aluru**. The HPC system is now available in the Coda data center and will support data-driven research in astrophysics, biosciences, computational chemistry, and materials and manufacturing. It will also be used for numerous computational science projects and for the HPC research that underlies it all.
- Georgia Tech is now the recipient of a NVIDIA Artificial Intelligence Lab (NVAIL) grant as part of the NVAIL program focusing on graph analytics on graphics processing units (GPUs).
- Professor **Jimeng Sun** created an algorithm that can detect heart failure 6 months in advance and a deep learning method that enables automatic scoring of sleep tests for patients suffering from sleep disorders. Sun was also named in the top 100 AI leaders for health for 2019.

Faculty News

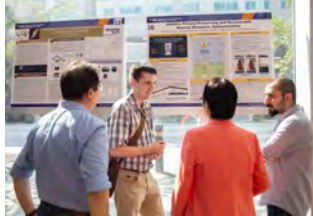
- Professor **Haesun Park** and Joint Professor **Surya Kalidindi** earned the designation of Regent's Professor.
- Regent's Professor **Richard Fujimoto** was chosen for the Class of 1934 Outstanding Interdisciplinary Activities Award which recognizes faculty that have made significant interdisciplinary contributions to teaching and research.
- The American Institute for Medical and Biological Engineering (AIMBE) announced the induction of **Mark Borodovsky**, Regents' Professor and Joint CSE and Biomedical Engineering professor, to its College of Fellows.
- Professor **Srinivas Aluru** will serve as the Executive Director for the Interdisciplinary Research Institute for Data Engineering and Science (IDEaS).

Organizational News:

- Professor **Srinivas Aluru** now serves as interim chair as CSE searches for a new leader.
- The entire CSE school moved locations from Georgia Tech campus to Tech Square at the multi-use building, Coda.

School of Computer Science

@gatech_scs



Innovations

- Ph.D. student **Samira Samadi** incorporated fairness into spectral clustering techniques for partitioning graph data.
- Associate Professor **Ada Gavrilovska** and Research Scientist **Ketan Bhardwaj** developed a tool called AppSlicer that lets users install only the portion of an app with the same performance capabilities.
- Cybersecurity researchers including Associate Professor **Taesoo Kim** made the first fuzzing framework specifically for file systems that finds memory corruptions better than any existing tool.
- Assistant Professor **Richard Peng** created the first vertex sparsification-based dynamic algorithm for general graphs undergoing edge insertions and deletions.
- Ph.D. student **Thaleia Dimitra Doudali** worked on Kleio, a hybrid memory management system that uses ML and more common historical methods to predict which data is most frequently accessed.

Accolades

- Professor **Eric Vigoda** was named an American Mathematical Society Fellow.
- Professor **Ellen Zegura** was elected chair of the Computing Research Association's Board.

By the numbers:

- 38 professors
- 174 Ph.D. students
- \$36 million in research funding

Faculty News

- Professor **Mostafa Ammar** is serving as interim chair as the school searches for its next leader.
- **Taesoo Kim** has been promoted to associate professor, and **Alexandra Boldyreva** is now a professor.
- **Jeffrey Young** and **Simon Chung** have been promoted to senior research scientist and research science II respectively.

We continue to grow our tenure-track faculty:

- **Ashutosh Dhekne** studies wireless networking and mobile computing with applications to RF sensing, 5G cellular networks, and cyber physical systems.
- **Alexey Tumanov** researches systems support and resource management for distributed machine learning frameworks and applications.
- **Paul Pearce** has officially joined us and brings his expertise in network security in politically and economically motivated attacks, such as cybercrime, censorship, and advanced persistent threats.

Upcoming Research

- Professor **Dana Randall** is leading a team using collective emergent behavior to achieve task-oriented objectives with a \$6.25 million grant from the Department of Defense.
- Professor **Ellen Zegura** is part of a team bringing better network coverage to Native American reservations with a \$2 million NSF grant.
- Associate Professor **Ada Gavrilovska** is a new principal investigator for the Applications Driving Architectures (ADA) Center, a research center creating scalable application-driven architecture design.



Georgetown University
Department of Computer Science

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

New tenured faculty in the past two years:



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



Nitin Vaidya
McDevitt Chair
*Distributed computing,
Fault-tolerance,
Wireless networks*

New instructional faculty in the past two years:



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



Raymond Essick
Assistant Teaching Professor
*Switched and hybrid systems
control, distributed
semidefinite programming*

Recent recognitions:

- Kobbi Nissim and co-authors received the 2019 Caspar Bowden PET award.
- Justin Thaler received a 2019 CAREER award from the National Science Foundation for research on "The Polynomial Method in Complexity and Cryptography".
- Cal Newport and co-authors received the Best Paper Award at the 22nd International Conference on Principles of Distributed Systems (OPODIS).

Highlights:

- Our PhD students are guaranteed 5 years of funding
- Computer science undergraduate class of 2018 was almost gender neutral, having approximately equal numbers of women and men.
- Our women coders group (guWeCode) focuses on building digital literacy and a community of technologists across campus.

Recent New Grants

- Prof. Micah Sherr leads a new DARPA project on reliable anonymous communication, and a NSF SaTC project with focus on expanding research frontiers with a next-generation anonymous communication experimentation framework.
- Prof. Lisa Singh and collaborators received a new NSF grant to explore the future of quantitative research in the social sciences. She also received a grant from the National Collaborative on Gun Violence Research to investigate the use social media posts to measure gun-related outcomes.
- Prof. Justin Thaler received the 2019 NSF CAREER award, and also leads a new NSF project on automatically parallelizing approximate data analysis with mergeable summaries.
- Georgetown University received a grant from the Mozilla Responsible Computer Science Challenge program to infuse ethics into the computer science curriculum.

George Mason University

Department of Computer Science

<http://cs.gmu.edu>

Fast Facts:

- Number of faculty: 54 (42 tenure-track)
- Undergraduate student enrollment: 1782 (25% growth per annum over last 5 years)
- Graduate student enrollment: 145 (Ph.D. program), 348 (in four M.S programs)
- Research Expenditures (FY 19): \$7.5M

Recent Faculty Hires:

- Foteini Baldimtsi, Ph.D. (Brown University), Postdoc (Boston University) – Area: Cryptography, Electronic cash, Bitcoin and blockchain technology
- Jonathan Bell, Ph.D. (Columbia University) – Area: Software engineering, Software systems
- Yue Cheng, Ph.D. (Virginia Tech) – Area: Distributed Systems, Storage Systems, Cloud Computing
- Dov Gordon, Ph.D. (University of Maryland), Postdoc (Columbia) – Area: Cryptography, Secure Computation
- Jonathan Katz, Ph.D. (Columbia University) – Area: Cryptography, Computer and Network security, and Complexity Theory
- Thomas LaToza, Ph.D. (Carnegie Mellon), Postdoc (UC Irvine) – Area: Software Engineering, Human-Computer Interaction
- Eric Osterweil, Ph.D. (UCLA): Area: Network Security
- Parth Pathak, Ph.D. (North Carolina State), Postdoc (UC Davis) – Area: Next-generation wireless networks, Cyber-physical systems
- Craig Yu, Ph.D. (UCLA) – Area: Computer Graphics, Virtual Reality



Professor Katz joins CS as an Eminent Scholar in Cyber Security and elected IACR Fellow.



Professor Jon wins the NSF Career Award.



Professor Latoza wins the NSF Career Award.



Professor Offutt wins the 2019 Outstanding Faculty Awards by the State Council of Higher Education for Virginia (SCHEV).

Recent Highlights:

- Commonwealth of Virginia provides infrastructure and faculty support for computing initiatives and increasing graduate/undergraduate tech. talent pipeline for Amazon and local Northern Virginia industry.
- \$4M DARPA award received by Angelos Stavrou for project “Democratizing DDoS Defenses Using Secure Indirection Networks”
- NSF provides funding for REU site at GMU focused on educational data mining (PI: Rangwala)
- NSF provides funding for multi-disciplinary graduate students via National Research Traineeship (NRT) Program on brain-body interactions. (PI: Sikdar, Co-PI: Rangwala)

Computer Science Emory University <http://cs.emory.edu>

Notable Honors:



Jinho Choi
Assistant Professor
Amazon Alexa Prize
Contributions to Conversational AI

Newly Promoted:



Davide Fossati
Senior Lecturer
Outstanding Teaching
Mentor for GWC

Selected Highlights:

- Emory Team one of 10 worldwide Selected for 2019 Amazon Alexa Prize Challenge: Prof Jinho Choi and students Han He, James Finch, Liyan Xu, Sarah Fillwock, Harshita Sajwani, Jiyang Lu, Jason Choi, Xiangjue Dong, Zihan Wang, Ruixiang Qi, Chenxi Xu, Ali Ahmadvand, and Sergey Volokhin.
- Prof Eugene Agichtein to be keynote speaker for SIGIR 2019 eCommerce Workshop
- Prof Li Xiong and team receives 3rd Place for 2018 IDASH Genome Privacy & Security Competition for “Blockchain-based immutable logging and querying for cross-site genomic dataset access audit trail.”
- Best paper runner-up award IEEE MDM 2018: Privacy Preserving Reverse k-Nearest Neighbor Queries, Layla Pournajaf, Farnaz Tahmesebian, and Profs Li Xiong, Vaidy Sunderam, and Cyrus Shahabi (USC)
- Prof Avani Wildani gives invited lecture at ACM Tapia Celebration of Diversity in Computing conference
- Prof Dorian Arnold selected as Association for Computing Machinery (ACM) Distinguished Speaker

Research Awards and Honors:

- Prof Joyce Ho receives NIH grant on “Re-envisioned chart assessment for real-time investigation of nursing and guidance” with SON Professor Vicki Hertzberg
- Prof Eugene Agichtein receives NIH grant for “Search & Social Media Data Mining to Predict Exposure to Air Pollution”
- Profs Ymir Vigfusson and Rebecca Mitchell receive CDC new bioinformatics contract
- Prof Avani Wildani receives NSF CRII grant for Workload Characterization project
- Prof Jinho Choi receives multiple research awards and gifts from industry for NLP research

Students and Education Programs:

- Robust interest continuing CS undergrad and grad courses: 1500 students enrolled, 260+ majors
- Awarded 71 Bachelors, 8 Honors, 14 Masters, and 5 Ph.D. degrees
- Prof Davide Fossati innovates teaching CS1 in group format and flipped classroom
- CS graduates joined leading universities and companies including Google, FB, Amazon, Microsoft
- Department launches “Towards Computing for All” curricular and co-curricular initiatives

Organizational News:

- CS continues to build on innovative and impactful research and teaching in Data Science and Systems
- Computer Science department growing with multiple faculty positions, 75 PhD 40 MS students

A few Emory CS research and student groups:



Department of Electrical, Computer, Software, and Systems Engineering

Embry-Riddle Aeronautical University

Daytona Beach, Florida

ecsse.net

Programs and Enrollment

Program	Fall 2019(Δ)	Program	Fall 2019(Δ)
BS Computer Engineering	56 (+4)	MS Cybersecurity Engineering	21 (-1)
BS Computer Science	67 (+8)	MS Electrical and Computer Engineering	24 (+1)
BS Electrical Engineering	77 (+1)	MS Software Engineering	15 (-2)
BS Software Engineering	65 (-6)	MS Systems Engineering	8 (-7)
Undergraduate	263 (+3)	MS Unmanned and Autonomous Systems Engineering	9 (-1)
		PhD in Electrical Engineering and Computer Science	21 (+6)
		Graduate	87 (-23)

Recent Grants and Contracts

- Wilson et al., Using Scrum to Develop an Agile Department, NSF, \$2M, five years
- Butka et al., Multi-Domain Approach to Increased USV [Unmanned Surface Vehicle] Capability for Future Naval Missions, ONR, \$900k, five years
- Jafer, ATC Scenario Training Technology, FAA Center of Excellence on Technical Training and Human Performance, \$350k with \$350k in-kind industry match (RTSync), 18 months
- Towhidnejad et al., Multi-level Model of Swarm Intelligence for Resilient Autonomous Systems, AFRL Information Directorate, \$544k, two years
- Yuan and Seker, REU Site: Cybersecurity Research of Unmanned Aerial Vehicles, NSF, \$288k, two years

Points of Note

- PhD in EE&CS started fall 2015, now 21 students
- Ongoing search, multiple positions: cybersecurity, data analytics/AI/ML, systems engineering
- Strategic research thrusts: Cybersecurity and assured systems engineering; modeling and simulation for aviation and aerospace; detect and avoid for unmanned systems
- Eighteen faculty members plus three open positions
- Faculty affiliated with ASSURE (FAA COE for UAS), TTHP (FAA COE for Technical Training and Human Performance), NEAR (Next-Generation Embry-Riddle Applied Research) Lab
- Hands-on undergraduate and masters programs; increasingly accurate approximation to engineering/computing practice
- Two-semester cross-disciplinary capstone (all ECSSE undergrad programs) uses Scrum, industry tools, for project development, management
- Near 100% placement
- Largest civilian employers of graduates, long term: Boeing, Lockheed Martin
- Employers of recent graduates: Same plus Amazon, Collins Aerospace, General Dynamics , Google, Harris, Intel, Microsoft, Northrop Grumman

Student Organizations and Projects

- Artificial Intelligence Club
- EcoCAR
- IEEE & IEEE HKN
- Robotics Association
- Tech Eagles (HackRiddle hackathon)
- UPE
- White Hat Eagles Cybersecurity Club

DEPAUL UNIVERSITY

SCHOOL OF COMPUTING

8 NEW FACULTY

Sean Bush

Information Technology

Michaël Cadilhac

Computer Science

Steve Dragon

Network Technology

Zhen Huang

Computer Science

Wael Kessentini

Software Engineering

Thiru Ramaraj

Data Science

Roselyn Tchoua

Data Science

Ilyas Ustun

Data Science

FACULTY HIGHLIGHTS

- Dr. Tanu Malik received a 5-year, \$498,888 NSF CAREER grant for "Advanced Containers for Reproducibility in Computational and Data Science."
- This year marked the fifteenth year of Medical Informatics Experiences (MedIX), an NSF Research Experiences for Undergraduates (REU) program. Co-founded by Dr. Daniela Raicu and Dr. Jacob Furst, the program has received over \$1.5 million in funding over the years.
- Dr. Enid Montague and Dr. Daniela Raicu received a \$300,000 grant from NSF for their project "CHS: Small: Feedback about Affect and Interaction to Patients and Providers to Increase Positive Interactive Behaviors."
- Dr. Rosalee Wolfe was selected for the Fulbright-Schuman European Union Affairs program for her project "Improving Deaf-Hearing Communication through a Multi-Lingual Avatar."
- Through its Academic Growth Initiative Fund (AGIF), DePaul is supporting Dr. Filipo Sharevski and Jean-Philippe Labruyere's "High School Outreach Program Using Cybersecurity Competitions."
- A new space, the first Internet of Things lab at DePaul (NexGeN), will be directed by Dr. Sharief Oteafy and is also AGIF-supported.

STUDENT HIGHLIGHTS

- Our Computer Science Society student organization planned and orchestrated their second annual student hackathon, DemonHacks. There were nearly 200 participants from more than 30 universities.
- Eight CDM students were selected for the Illinois Technology Foundation's "Fifty for the Future" list.
- Each year, CDM sponsors six undergraduate female students to attend the Grace Hopper Celebration.
- Undergraduate student Tim Gamble was named one of Chicago Inno's "25 under 25" rising entrepreneurs and technologists.
- Graduate student Sierra Sellman and her teammate Michelle Rodrigue, a student at Georgia Institute of Technology, won first place in the US Department of Energy's 2019 Geothermal Design Challenge.
- PhD students Badar Al Lawati and Redar Ismail received a \$100,000 credit grant via the Google Cloud Platform for Startups program. The team is using this credit, in addition to the technical support and mentoring opportunities accompanied by the monetary prize, to build out BridgeLink, their refugee-hiring platform.
- Our Security Daemons team won the Illinois Collegiate Cyber Defense Competition for the fifth consecutive year. The team won regionals from 2015-17 and placed in the top 5 nationally in 2016 and 2017.
- Undergraduate students Nathan Lorenzo and Jessica Oliveros were selected to be CME Group Foundation Scholars.

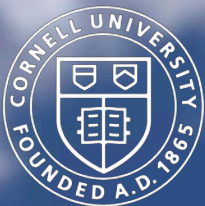


DEPAUL UNIVERSITY

cdm.depaul.edu/computing



Cornell is a private, Ivy League university and the land-grant university for New York state. Cornell's mission is to discover, preserve, and disseminate knowledge, to educate the next generation of global citizens, and to promote a culture of broad inquiry throughout and beyond the Cornell community. Cornell also aims, through public service, to enhance the lives and livelihoods of students, the people of New York and others around the world.



Cornell CIS

www.cs.cornell.edu

Computer Science

[f @cscornell](#) [@cs_cornell](#)

Six New Faculty

Nika Haghtalab



Fall 2019, Ithaca

Game Theory & Machine Learning
Ph.D. Carnegie Mellon

Sasha Rush



Fall 2019, New York City

Natural Language Processing
Ph.D. MIT

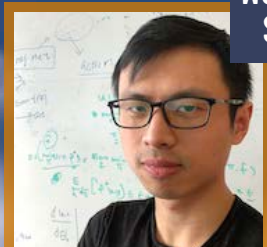
Volodymyr Kuleshov



Spring 2020, New York City

Computational Biology & ML
Ph.D. Stanford

Wen Sun



Fall 2020, Ithaca

Robotics & Reinforcement Learning
Ph.D. Carnegie Mellon

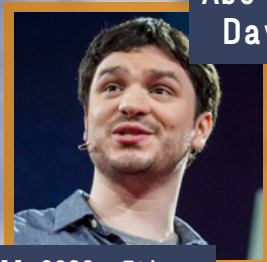
Owolabi Legunsen



Fall 2020, Ithaca

Software Engineering
Ph.D. Urbana-Champaign

Abe Davis



Fall 2020, Ithaca

Graphics & HCI
Ph.D. MIT

Faculty Highlights

Jon M. Kleinberg Receives Vannevar Bush Award from the U.S. Department of Defense

Joseph Halpern Elected to National Academy of Engineering (NAE)

Deborah Estrin Receives MacArthur Award

Éva Tardos Receives Jon von Neumann Medal

Carla Gomes' Computational Sustainability earns cover of *Communications of the ACM*

Adrian Sampson Wins National Science Foundation Career Award

David Gries Wins SIGCSE Top Ten CS Education Paper for Last Half-Century

David Bindal, Austin Benson, & Kun Dong Win "Best Research Paper" at SIGKDD conference

Graduate Students

Rediet Abebe Named *MIT Technology Review* 2019 Innovator Under 35

Yi Sun Wins Bloomberg Data Science Fellowship

Dylan Foster Receives Best Paper *and* Best Student Paper at COLT 19

PicNIC Paper Wins the ACM SIGCOMM 19 Best Student paper

By the Numbers

Faculty Members: **58**

Campuses: **2**

Undergraduate Students: **1,170**

Resident Ph.D. Students: **200**

Masters Students: **138**

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

Majors: 36.2% female, 9.9% URM
Incoming Ph.D. class: 27% female, 8% URM

One Department: Two Campuses. Ithaca and New York City



**CORNELL
TECH**

New Faculty



Elias Bareinboim

Bareinboim research focuses on causal inference and its applications to data-driven fields in the health and social sciences.



David Knowles

Knowles' interests lie in the interface between Bayesian inference and machine learning. He looks at how machine learning can be used in genomics.



Brian Smith

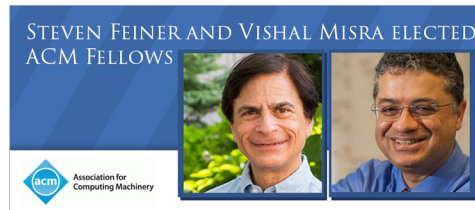
Smith's research combines computer vision, ubiquitous computing, and augmented reality to create the next generation of interactive systems.



Shuran Song

Song is an expert in computer vision and robotics, whose research is focused on data-driven scene understanding in 3D.

Major Faculty Awards



Test of Time Awards



Steven Bellovin

Encrypted Key Exchange: Password-based protocols secure against dictionary attacks (1992)

Award: Test of Time Award, IEEE Symposium on Security and Privacy

Authors: Steven Bellovin, Michael Merritt



Eugene Wu

WebTables: Exploring the power of tables on the web (2008)

Award: Test of Time Award, Very Large Databases (VLDB) conference

Author: Michael Cafarella, Alon Halevy, Zhe Daisy Wang, Eugene Wu, Yang Zhang

Best Paper Awards

SpatialNet: A Declarative Resource for Spatial Relations

Best Paper at NAACL-HLT SpLU-RoboNLP 2019

Authors: Morgan Ulinski, Bob Coyne, Julia Hirschberg

Virtual Wires: Rethinking WiFi networks

Best Paper at IEEE LANMAN 2019

Authors: Yudong Yang, Yuming Jiang, Vishal Misra, Dan Rubenstein

Department Numbers

CS@CU by the Numbers

#13 (tie), up from **#15** (tie), in *US News and World Report* ranking of US Computer Science Departments

1268 CS majors / **12,102** CS class enrollments

39.5% of CS majors are women (of 1,212 students reporting gender)
(all students stats from Spring 2019)

59 Faculty

- | | |
|--|--|
| 8 Elected to National Academy of Engineering | 6 Elected to American Academy of Arts and Sciences |
| 2 Elected to National Academy of Sciences | 1 Elected to National Academy of Inventors |
| 1 Elected to American Philosophical Society | 2 ACM/IEEE Knuth Prize Winners |
| 1 Elected to Internet Hall of Fame | 3 AAAI Fellows |
| 3 IEEE John von Neumann Medal Winners | 3 ACL Fellows |
| 5 AAAS Fellows | 3 Guggenheim Fellows |
| 16 Alfred P. Sloan Foundation Fellows | 3 Packard Foundation Fellowships |
| 16 ACM Fellows / 16 IEEE Fellows | NSF Awards: 3 PECASE, 31 CAREER, 2 NYI, and 4 PYI |

DEPARTMENT OF COMPUTER SCIENCE



FACULTY/DEPARTMENT HIGHLIGHTS

- ▶ CS@Mines was recognized by the National Center for Women & Information Technology for our work to increase the participation of women in computing. As the **NCWIT NEXT Grand Prize recipient**, CS@Mines received \$100,000 to continue our diversity efforts.
- ▶ Associate Professor Dejun Yang is the 2019 winner of the **William R. Bennett Prize** from the IEEE Communications Society, for a recent paper published in the IEEE/ACM Transactions on Networking. The Bennett Prize is awarded to an exceptional publication that year.
- ▶ Professor Qi Han won **Best Paper Award** at the 10th EIA MobiCASE Conference (China) and Best Student Paper at the 16th IEEE UIC Conference (UK).
- ▶ Assistant Professor Tom Williams has received a **NASA Early Career Faculty grant**.
- ▶ Associate Professor Bo Wu is a **Keynote** speaker at IEEE Cluster 2019.

ORGANIZATIONAL NEWS

- ▶ CS@Mines launched a new non-thesis master's degree in **Data Science** with Stats.
- ▶ Over **500 girls** participated in our outreach program during 2018-19: tech.mines.edu.
- ▶ **27 companies** (17% increase from a year ago) partnered with CS@Mines via our Computing-Mines Affiliates Partnership Program (mapp.mines.edu), which provided 61 scholarships to current CS students.

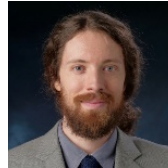
2019-20 DISTINGUISHED SPEAKERS

Doug Sicker (CMU)
Greg Morrisett (Cornell)
Bill Regli (UMD)
Jeff Mogul (Google)
Ayanna Howard (GATech)
Victoria Coleman (Wikimedia)
Thanks for visiting CS@Mines!

NEW FACULTY (WOOHOO!)



Mehmet Belvirani
Joined Fall 2019
Assistant Professor



Jedidiah McClurg
Joined Fall 2019
Assistant Professor

STUDENT ACHIEVEMENTS, NUMBERS, & GROWTH

- ▶ Four CS@Mines, who won a hackathon at M-Hack, were invited to attend the **Global Facebook Hackathon Finals** at Facebook HQ and took 1st place in a competition that had 20 teams from 10+ countries!
- ▶ Three CS@Mines students won our regional ACM International Collegiate Programming Contest last November, then competed in the **ICPC World Finals** in Porto, Portugal.
- ▶ Several CS@Mines students worked together to earn 10th place in the 2018 **NSA CodeBreaker Challenge** (which ended in January 2019). Over 375 U.S. universities participated in the challenge this year.
- ▶ Five CS@Mines won the **IEEE Region 5 Student Robotics Competition**, by designing a robot that could navigate obstacles, pick up small objects, and then sort the objects into separate container using computer vision.
- ▶ **681 Undergraduate Students** (29% increase from a year ago)
- ▶ **105 Graduate Students** (28% increase from a year ago)

We have faculty openings!
(like everyone else 😊)

CS@Mines



Colgate University

Hamilton, NY USA

Department of Computer Science

<https://www.cs.colgate.edu>

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.



Research Highlights

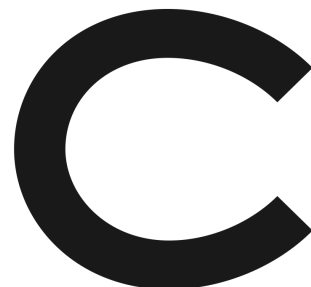
- The department averages 15-20 undergraduate summer research fellows hosted during the summer, mentored by faculty members
- Papers co-authored with undergraduates published in each of the last three years; students have presented work at regional, national, and international conferences
- Faculty have 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
- Faculty participate in a summer workshop at Camp Fiver in nearby Poolville, NY, part of a youth-development organization for children from underserved communities
- Students won scholarships from CRA-W and other organizations to attend the Grace Hopper Conference (GHC) in each of the last four years
- The department is sending 15 students to GHC and the Tapia Conference in 2019, and is committed to diversifying our student population

Student Numbers and Growth

- The department is committed to small class sizes; still, well over 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 about 45% of our majors
- We are hiring three new tenure stream faculty to start in 2020



SCHOOL OF COMPUTING CLEMSON UNIVERSITY

FALL 2019

FACULTY AND SCHOOL HIGHLIGHTS



FULBRIGHT SCHOLAR



NSF CAREER



CUHACKIT



ADA LOVELACE FELLOW

- Jacob Sorber was awarded a Fulbright U.S. Scholar and is spending a sabbatical year in Botswana
- Hongxin Hu won an NSF CAREER Award for the project "Towards Elastic Security with Safe and Efficient Network Security Function Virtualization"
- Ilya Safro's article on "A Hybrid Approach for Solving Optimization Problems on Small Quantum Computers" was featured on the cover of IEEE Computer
- Feng Luo's article was published in an article in Nature Methods, leading to a new NSF DBI grant
- Bart Knijnenburg won the Best Paper award at the 10th International Conference on Social Media & Society
- Clemson University is designated as an NSA National Center of Academic Excellence in Cyber Defense Research (CAE-R), an effort led by Hongxin Hu
- The Clemson Palmetto high performance computer is ranked 4th among public academic institutions in the US, an expansion funded in part by an NSF MRI award led by Amy Apon
- Sophie Joerg was an invited speaker at the ACM SIGGRAPH/Eurographics Symposium on Computer Animation
- Animation productions from School of Computing's Digital Production Arts Program appeared in 12 film and animated short festivals in 2018-19, with one "Best Animated Short" award and one honorable mention

STUDENT HIGHLIGHTS

- PhD student Robert Underwood won a DOE Office of Science Graduate Student Research Program award
- PhD student Daricia Wilkinson received a 2019 Facebook Fellowship award
- PhD student Divine Maloney was selected as a 2019 Microsoft Research Ada Lovelace Fellow
- PhD student Byron Lowens was among 200 young researchers from around the world selected to participate in the Heidelberg Laureate Forum in Heidelberg, Germany
- PhD student Brodrick Stigall received the Institute of International Education Graduate International Research Experiences (IIE-GIRE) Scholarship
- Hundreds of students participated in Clemson's all student-led hackathon, CUhackit, with premier sponsor Amazon Web Services, an event that will continue this year
- CU Cyber hosted CU Capture the Flag event for students throughout the Southeastern United States

New Director



AMY APON

C. Tycho Howle Endowed Chair and
Director of the School of Computing
Ph.D. Vanderbilt University
Cloud computing, parallel and
distributed computing, scalable data
analytics systems

4 New Faculty Members



NINA HUBIG

Assistant Professor
Ph.D. Technical
University of Munich
Machine learning, time-
series, neuroscience-hope



KAI LIU

Assistant Professor
Ph.D. Colorado
School of Mines
Machine learning, data
science, artificial intelligence
and optimization



LANA DRACHOVA

Lecturer
Ph.D. Clemson University



MITCH SHUE

Professor of Practice
M.S. George Mason
University
Former CTO, Morningstar

DEGREES OFFERED

3

Undergraduate



7

Graduate

BS Computer Science

BA Computer Science

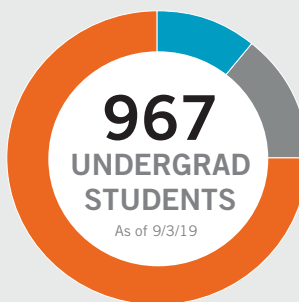
BS Computer
Info Systems

PhD/MS Computer Science

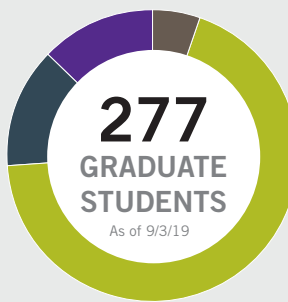
PhD/MS Biomedical Data
Science & Informatics

MFA/MS Digital Production Arts

PhD Human-Centered Computing



BS-CS BA-CS BS-CIS



PhD/MS CPSC PhD/MS BDSI MFA/MS DPA PhD HCC

FACULTY

49

Total

37

Tenure/
Tenure Track

NEWS A new department of Computer and Data Sciences was established in June 2019 (originally the CS division).

New Hires: three new faculty members joined the CDS dept in Fall 2019.



Associate Prof Fanny Ye (left) in Cyber Security and Data Mining

Assistant Prof Yinghui Wu (middle) in Databases and Data Analytics

Assistant Prof Shuai Xu in Algorithms and Theory

Associate Prof Harold Connamacher wins The Carl F. Wittke Award for Excellence in Undergraduate Teaching!



Professor Mehmet Koyuturk recently wins an NIH grant (\$1.35M) on "Construction, Analysis, and Utilization of Co-Phosphorylation Networks to Characterize Cellular Signaling"



CDS dept partners with the National Center for Women in Technology to implement inclusion plans to support underrepresented students in computing



Chair's Message

Welcome to the Department of Computer and Data Sciences!



While the origin of the Computer Science program goes back to many decades ago, with the establishment of the new CDS dept, a new chapter is about to begin. We thrive to provide outstanding educational experiences for both our graduate and undergraduate students, while performing cutting edge research in Algorithms, AI & ML, Bioinformatics, Data Science & Analytics, Databases & Data Mining, Networks, Security and Privacy, and Software Engineering.

We are delighted to invite you to explore our department further and to join our growing community as faculty, students, friends, and sponsors.

Jing Li, Professor and Interim Chair

Student attending Grace Hopper Conference

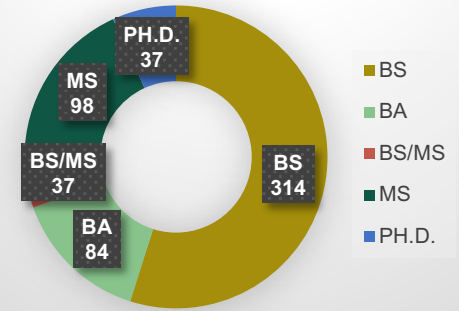


Department of Computer and Data Sciences

Degree programs:

- BS and BA in Computer Sci
- BS in Data Science and Analytics
- BS/MS, MS (thesis, project, and course-based), and PH.D. in CS

Students by the numbers



Faculty and Research Interests

Erman Ayday - Cryptography, Network Security

Harold S. Connamacher - Algorithms, Complexity

Mehmet Koyuturk - Bioinformatics, Algorithms

Michael Lewicki - Artificial Intelligence, Computational Perception

Jing Li - Bioinformatics, Data Mining

Vincenzo Liberatore - Networking

Andy Podgurski - Software Engineering

Michael Rabinovich - Networking

Soumya Ray - Artificial Intelligence

An Wang - Systems & Network Security

Yinghui Wu - Data Science

Xusheng Xiao - Software Engineering, Computer Security

Shuai Xu - Algorithms & Theory

Yanfang (Fanny) Ye - Cybersecurity, Data Mining

NEW FACULTY



VANESSA CHEN

RESEARCH

low-power circuits and systems, design of high-performance data converters, ubiquitous sensory interfaces, as well as hardware-based cybersecurity



MARC DANDIN

RESEARCH

low-noise photodetectors and CMOS VLSI readout circuits for portable fluorescence sensors, high-performance thinfilm optical filters, and packaging processes for integrated fluorometers



XU ZHANG

RESEARCH

enabling new paradigms of nano-devices and their system-level integration by leveraging the emerging nanomaterials

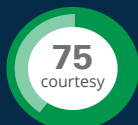


SIYANG ZHENG

RESEARCH

biomedical micro/nano technologies and their applications to cancer and infectious diseases

DEPARTMENT HIGHLIGHTS



- Larry Pileggi, Tanoto Professor of Electrical and Computer Engineering, named department head.
- Yuejie Chi received the prestigious Presidential Early Career Award for Scientists and Engineers for her research on extracting information embedded in a large amount of data.
- Qing Li received the 2019 Young Faculty Award from DARPA for his research proposal titled "Visible and mid-infrared frequency comb generation in wide-band gap photonic materials."
- Vijayakumar Bhagavatula appointed to the Technical Program Committee of the Globecom 2019: The IEEE Global Communications Conference and CVPR 2019 Biometrics Workshop, as well as the associate editor for the 2019 IEEE Intelligent Transportation Systems Conference.
- The undergraduate curriculum launched a concentration in security and privacy.

STUDENT HIGHLIGHTS

- Carnegie Mellon University's IEEE-Eta Kappa Nu (IEEE-HKN) Honor Society received the Outstanding Chapter Award.
- The university's competitive hacking team, the Plaid Parliament of Pwning (PPP) won its fifth hacking world championship at the DefCon security conference.

2017-18 STUDENT POPULATION: 1,195



2020 RANKINGS U.S. News & World Report

Undergraduate

Electrical: 8 Computer: 2

Graduate

Electrical: 8 Computer: 3

Carleton College

Department of Computer Science

Northfield, MN USA



Carleton College is a private, coeducational, highly selective, liberal arts college of 2,000 students. Nationally recognized as the nation's top college for undergraduate teaching, Carleton is known for its academic rigor, intellectual curiosity, and sense of humor.

Department Overview

- There are 9 tenure track full time faculty with a wide range of research interests. The department currently has an open position for a 10th tenure track faculty member.
- Computer Science is the largest major on campus and the department typically graduates between 55-65 majors annually.
- Many graduates of the department go on to industry jobs at companies such as Google, Amazon, and Target. Graduates have also gone on to graduate school at programs including Cornell, University of Washington, and University of Michigan.
- The department has a robust and active weekly seminar series (complete with tea!).

Student Experiences

- The department supports a large cohort of students that annually attend the Grace Hopper Conference with 18 attending in 2019, of whom 8 received external travel scholarships.
- Lovelace is an active student group whose goal is to increase gender diversity in computer science and technology.
- DevX is an active student group that provides a collaborative space for students interested in developing their computer science, design, or marketing skills, and using those skills to build projects together.

Research Highlights

- Faculty have active research programs across a wide range of areas including machine learning, algorithms, data visualization, and human computer interaction.
- Student researchers regularly present their research at top quality international conferences. A number of recent students have received prestigious awards including the Goldwater Scholarship and NSF Graduate Research Fellowships.
- Faculty have received external funding from the NSF (multiple grants), as well as from internal grants.

Contact Us

Web: carleton.edu/computer-science/

Email: cs@carleton.edu

Phone: (507) 222-5728



facebook.com/CarletonCollegeCompSci/



twitter.com/carleton_cs





<https://www.bradley.edu/academic/departments/csis/>

Student highlights

In Fall 2019, Computer Science and Information Systems had its largest incoming class.

Undergraduate students participated in two programming contests: the CCSC-MW (Consortium for Computing Sciences in Colleges: Midwest) on September 2018, at Ball State University, in Muncie, IN. and the ACM ICPC Midwest Region (ACM International Collegiate Programming Contest) on November 2018. Students received 3rd Place out of twenty teams at CCSC-MW.

Faculty research highlights

Tachun Lin co-authored “*Robust Virtual Network Function Provisioning Under Random Failures on Network Function Enabled Nodes*,” for the Proceedings of the 10th International Workshop on Resilient Networks Design and Modeling. He gave an invited talk “*5G Hierarchical Network Slicing with Uncertain Demands*,” at the INFORMS Annual Meeting in 2018. Dr. Lin started serving as an associate editor of IEEE Access in July 2019.

Young Park presented and published “Predicting Personalized Student Performance in Computing-Related Majors via Collaborative Filtering” at the ACM Conference on Information Technology Education and “Recommending Personalized Search Terms for Assisting Exploratory Website Search” at the ACM/IEEE Joint Conference on Digital Libraries.

Vladimir Uskov co-edited three books: Smart Education and e-Learning 2019, Smart Universities: Concepts, Systems, and Technologies, and Smart Education and e-Learning 2018. All books were published by Springer International Publishing. Dr. Uskov chaired a session on Smart Engineering Education at the IEEE World Engineering Education conference in Dubai, UAE.

Faculty updates

Scott Williams, who joined the department as a tenure track Lecturer in Fall 2018, won the first year teaching award for the entire university. **Adam Byerly**, who is also a Lecturer, won this same honor last year. **Owen Schaffer** accepted a tenure track Assistant Professor position; he is finishing his PhD degree in Computer and Information Sciences from DePaul University and has a MA degree in positive organizational psychology from Claremont Graduate University. **Sam Hawkins** accepted a tenure track Assistant Professor position; he has a PhD degree in computer science from the University of South Florida and a MS degree from Emory University. **David Brennan** is continuing as a Visiting Instructor position; he has a BS degree from Bradley and an MS degree from Carnegie Mellon University in Information Systems Management, Business Intelligence and Data Analytics. Owen and Sam started teaching in Fall 2019.



Degree Offered

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

Specializations Offered

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

Certificate Program Offered

- (Online) Software Engineering Certificate

Some of Recent Publications

- “srcDiff: A Syntactic Differencing Approach to Improve the Understandability of Deltas,” Journal of Software: Evolution and Process (Dr. Decker)
- “Contextualizing Rename Decisions using Refactorings and Commit Messages,” 2019 9th IEEE Int’l Working Conf. on Source Code Analysis and Manipulation (Dr. Decker)
- “An Open Dataset of Abbreviations and Expansions,” 35th IEEE Int’l Conf. on Software Maintenance and Evolution (Dr. Decker)
- “Open-Source Oriental Game and Endgame Database,” 3rd Int’l Conf. on Innovation in AI (Dr. Kresman)
- “Automated Object Tracking in Sterile Pharmacy Compounding,” WSCG’19 (Dr. Lee)
- “Fairness-Aware Auction Mechanism for Sustainable Mobile Crowdsensing,” Int’l Conf. on Wireless Algorithms, Systems, and Applications (Dr. Li)
- “Identifying Android Malware Using Network-based Approaches,” 2019 Int’l Sympo. on Foundations of Open Source Intell. and Security Informatics (Dr. Roy)
- “Experience of Incorporating NIST Standards in a Digital Forensics Curricula,” 7th Int’l Sympo. on Digital Forensics and Security (Drs. Roy, Wu)

Digital Forensics and Cybersecurity

NEW CURRICULUM FOR GOVERNMENT STANDARDS



bgsu.edu/digitalforensics

- Drs. Yan Wu and Sankar Roy are developing a digital Forensics curriculum designed to teach students to use techniques and equipment to identify cyber criminals and their methods, supported by a grant from the National Institute of Standards and Technology (NIST).
- New Digital Forensics Lab
 - Forensics Software & Hardware Tools
 - Dedicated Cybersecurity Servers
 - Configurable Networks

Current Grants

- NSF CRI: CI-P: Collaborative: Towards a Program Analysis Collaboratory (Dr. Dyer)
- NIST Incorporating Standards Education into Digital Forensics Curricula (Drs. Wu and Roy)
- NSF SaTC: Core: Small: Collaborative: Data-driven Approaches for Large-scale Security Analysis of Mobile Applications (Dr. Roy)

For more information

Department of Computer Science

419-372-2337 | Email: bgcs@bgsu.edu | Website: bgsu.edu/cs



3 NSF CAREER AWARDS



MICHELLE SANDER:
AN INNOVATOR IN FIBER
LASERS FOR CANCER RESEARCH



LEI TIAN:
BREAKING BARRIERS IN
OPTICAL TOMOGRAPHY



SAHAR SHARIFZADEH:
CHANGING THE WAY WE
LOOK AT SOLAR ENERGY

FACULTY HIGHLIGHTS



DAVID BISHOP:
ELECTED TO THE
NATIONAL ACADEMY
OF ENGINEERING



JI-XIN CHENG:
ELECTED FELLOW AND
RECEIVED LIPPINCOTT AWARD
FROM THE OPTICAL SOCIETY



SIDDHARTH RAMACHANDRAN:
ELECTED DOD VANNEVAR
BUSH FACULTY FELLOW

SAHAR SHARIFZADEH:
AMONG NATURE'S MOST
IMPACTFUL FACULTY

IEEE FELLOWS:
DAVID CASTAÑÓN
SIDDHARTH RAMACHANDRAN
VENKATESH SALIGRAMA

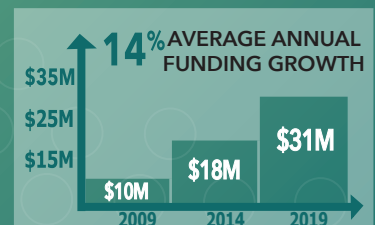
MAJOR RESEARCH FUNDING

\$7.5 MILLION

DOD MURI GRANT AWARDED TO
IOANNIS PASCHALIDIS TO
DEVELOP NEURO-INSPIRED
AUTONOMOUS ROBOTS

\$6 MILLION

NIH BRAIN INITIATIVE GRANTS
AWARDED TO JI-XIN CHENG AND
MICHELLE SANDER FOR
NON-INVASIVE STUDY OF THE
HUMAN BRAIN



ECE AT A GLANCE

STUDENTS

465 **↑ 11%**

BACHELORS

221 **↑ 13%**

MASTERS

144 **↑ 19%**

PHD

FACULTY

FULL PROFESSORS **32**

NATIONAL ACADEMY MEMBERS **3**

ASSOCIATE PROFESSORS **13**

SOCIETY FELLOWS **34**

ASSISTANT PROFESSORS **9**

EARLY CAREER AWARDS **27**

25%

**OF ECE FACULTY OVER
THE LAST 5 YEARS ARE
NEW HIRES**

New Hires

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



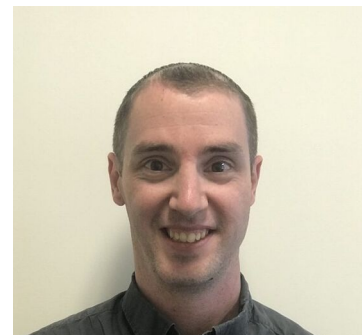
Marco Gaboardi
Assistant Professor
*Programming languages,
differential privacy, formal
verification*



Vasiliki Kalavri
Assistant Professor
*Distributed data
processing and streaming,
graph analytics*



Sarah Adel Bargal
Research Assistant
Professor
*Computer vision,
machine learning*



Bryan A. Plummer
Research Assistant
Professor
*AI, visual recognition,
scene understanding*

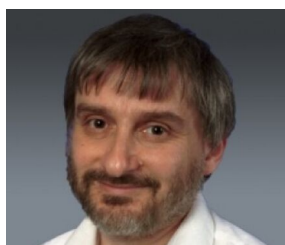
Department News



Professor **Margrit Betke** leads a group that applies a \$1M NSF grant to communication research. She also participates in a BU-led team using a \$7.5M MURI grant.



Assistant Professor **Emily Whiting** was named a 2019 Sloan Research Fellow for her research on computer graphics and computational fabrication.



Professor **Leonid Levin** was elected to the National Academy of Sciences for his lifetime contributions to the theory of computation.

The Department announced two interdisciplinary joint majors:
Statistics and Computer Science,
and **Linguistics and Computer Science.**

BU announced a new, 17-floor **Data Sciences Center** that will be the hub for data and computer science on campus.

BU was selected as one of five **2019 BRAID Affiliate School** for our commitment to diversity and inclusion in computer science.

Department of Computer Science
Binghamton University
<https://www.binghamton.edu/cs/index.html>

Faculty:

- 32 full-time faculty members: 9 professors, 6 associate professors, 12 assistant professors, 5 full-time lecturers, 1 part-time lecturer and 5 adjuncts.

Students

- 1,078 students: 558 undergraduates, 366 MS and 79 PhD students with an additional 75 students that are part of our Dual Diploma Program with Turkey.
- NEW Fall 2019 enrollments: 174 undergraduates, 180 MS and 14 PhD students

New Faculty Hire

Dr. Jeremy Blackburn, University of South Florida. Research interests include Measurements, Data science, Social media, and Social network analysis. Joined in Fall of 2019



Research Highlights:

- *A new university Organized Research Center (ORC): The Center for Information Assurance and Cybersecurity (CIAC) was established in Spring 2019 and will be directed by CS faculty Dr. Ping Yang as the founding director.*
- Selected recent grants and gifts
 - J. Turner, K. Ghose, T. Dhakal & M. Poliks, "Improved ECG Monitor with Capacitive Electrodes", funded by the AFRL with matching funds from Nextflex, \$550,000.
 - Yu David Liu, "CNS Core: Small: Language Runtime Support for Energy-Aware Applications", NSF, \$478,592
 - Hui Lu, "CNS Core: Small: Collaborative: Salvaging Commodity Operating Systems to Support Emerging Networking Technologies", NSF, \$250,000.
 - Shiqi Zhang, "NRI: FND: Knowledge-based Robot Sequential Decision Making under Uncertainty", NSF, \$351,374.
 - Jeremy Blackburn, "Monitoring Cross-Platform Trends in Hate Speech", Facebook, \$50,000
 - Shiqi Zhang: "AI for autonomous vehicle rider service", Ford University Research Program (URP), \$50,000
- Faculty continue to publish in top venues: *USENIX Security, ESORICS, CCS, ICDCS, MICRO, DAC, FSE, INFOCOM, ACM MM, TOMM, TOMPECS, MobiSys, TKDE, TLT, IJCAI, NIPS, EMNLP, AAAI, ...*

Other Highlights:

- Dr. Lijun Yin won Lois B. DeFleur Faculty Prize for Academic Achievement
- Dr. Ken Chiu won Chancellors Award for Excellence in Faculty Service



Computer Science

BARNARD COLLEGE

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

Through Barnard's partnership with Columbia University, Barnard students have been able to major in computer science. But Barnard has not had a program of its own until 2019. Computer Science at Barnard has grown dramatically in the last four years, from 8 majors in 2015 to 33 in 2019, making it one of the ten largest majors at Barnard.

January 2019: Barnard hires its first Computer Science faculty member

Rebecca N. Wright (previously on the faculty at Rutgers University) is the Druckenmiller Professor of Computer Science and the Director of the Diana T. and P. Roy Vagelos Computational Science Center. She is Barnard's first Computer Science faculty member.



July 2019: Barnard starts a faculty fellows program for new Computer Science PhDs

Sarah Morrison-Smith (Ph.D., University of Florida, 2019) joins Barnard as the inaugural Roman Family Teaching and Research Fellow in Computer Science. These 2-3 year positions contribute to the Barnard program in Computer Science and to the professional development of the fellows.



We're hiring! We are hiring one assistant professor and a second Roman Fellow to start in Fall 2020, and expect additional hiring in following year. More information at cs.barnard.edu.

