

OTHER FACULTY ACTIVE IN COMPUTER SCIENCE

James Allen
John H. Dessauer Professor Emeritus

Christopher M. Brown
Professor Emeritus of Computer Science

Zhiyao Duan
Assistant Professor of Electrical and Computer Engineering and of Computer Science

George Ferguson
Associate Professor of Computer Science (Instruction); Codirector of the Undergraduate Program

Gourab Ghoshal
Assistant Professor of Physics, of Mathematics, and of Computer Science

Ralf Haefner
Assistant Professor of Brain and Cognitive Sciences and of Computer Science

Wendi B. Heinzelman
Dean of the Hajim School of Engineering & Applied Sciences; Professor of Electrical and Computer Engineering and of Computer Science

Thomas Howard
Assistant Professor of Electrical and Computer Engineering, of Computer Science, and of Biomedical Engineering

Michael Huang
Professor of Electrical and Computer Engineering and of Computer Science

Gonzalo Mateos-Buckstein
Assistant Professor of Electrical and Computer Engineering and of Computer Science

Thaddeus Pawlicki
Associate Professor of Computer Science (Instruction)

Adam Purtee
Assistant Professor of Computer Science (Instruction)

Joel Seiferas
Professor Emeritus of Computer Science

Gaurav Sharma
Professor of Electrical and Computer Engineering, of Computer Science, of Biostatistics and Computational Biology, and of Oncology

Aaron White
Assistant Professor of Linguistics and of Computer Science

Eustrat Zhupa
Lecturer, Computer Science

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Department of Computer Science
University of Rochester
2513 Wegmans Hall
Box 270226
Rochester, NY 14627-0226



HAJIM
SCHOOL OF ENGINEERING
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UNIVERSITY OF ROCHESTER

Research Faculty 2021-22

DEPARTMENT OF COMPUTER SCIENCE AT THE UNIVERSITY OF ROCHESTER



Researchers demonstrate “TIPS,” an AR system to support playful ASL communication between hearing parents and deaf children.



Zhen Bai
Assistant Professor of Computer Science

Zhen Bai’s research focuses on designing playful and intelligent interfaces that improve learning and social interaction for people with diverse abilities (e.g., autism, deafness) and backgrounds. Bai’s research spans human-computer interaction, augmented and virtual reality, embodied conversational agent, computer-supported collaborative learning, and assistive technologies. Her most recent work includes accessible learning technologies for K–12 AI education and augmented reality in supporting face-to-face communication. Bai received the honorable mention best paper award at the ISMAR, AIED, and EC-TEL conferences. She received her PhD from the University of Cambridge and was a postdoctoral fellow at Carnegie Mellon University before joining the University of Rochester.



John Criswell
Associate Professor of Computer Science

John Criswell’s research focuses primarily on computer security, using compiler techniques to protect commodity software and low-level systems code. His previous work, the Secure Virtual Architecture (SVA), hardens operating system kernels from attack and protects applications from direct and side-channel attacks launched by kernel-level malware. Criswell is the lead maintainer of the SAFECode memory safety compiler and has contributed to the open-source LLVM Compiler Infrastructure.



Chen Ding
Professor of Computer Science

Chen Ding’s research seeks to understand the composite and emergent behavior in computer systems, in particular in dynamic parallelism and data usage, and develop programming techniques for automatic and suggestion-based locality optimization, memory management, and program parallelization. He received the inaugural DOE Young Investigator award and the NSF CAREER award; held visiting/faculty positions at Microsoft Research, MIT, and the IBM Center for Advanced Studies; and was a cochair of the ACM SIGARCH International Conference on Supercomputing in 2019 and the ACM SIGPLAN Symposium on Memory Management in 2020.



Sandhya Dwarkadas
Professor of Computer Science, Albert Arendt Hopeman Professor of Engineering, Professor of Electrical and Computer Engineering

Sandhya Dwarkadas’s research lies in the areas of computer architecture and parallel and distributed systems. Her research currently focuses on developing novel techniques for resource and data sharing efficiency at both hardware and software layers. In addition to numerous publications that cross areas within systems, she is coinventor on 12 granted US patents. She is an ACM and IEEE fellow and a board and steering committee member of the Computer Research Association’s Committee on the Status of Women in Computing Research. She has spent sabbaticals at IBM Research, HPC Links, and EPFL.



Daniel Gildea
Professor of Computer Science

Daniel Gildea’s research investigates various aspects of natural language processing, including machine translation, language understanding, analysis of multimodal data, and the computational complexity of parsing and translation problems. He has authored one book and more than 100 papers, serves as reviewer for numerous publications, has been awarded an NSF CAREER grant, and is the recipient of a Google Faculty Award.



Lane A. Hemaspaandra
Professor of Computer Science

Lane Hemaspaandra studies complexity theory and its uses in protecting elections from manipulation. His work has determined the computational complexity of Lewis Carroll’s 1876 election system, built election systems that computationally resist all standard attacks, and collapsed the strong exponential-time hierarchy. He has authored two books and hundreds of publications; has coauthored with more than 50 students; has won his school’s best-teacher award, SIGACT’s Distinguished Service Award, and the Humboldt Foundation’s Bessel Research Award; and serves on eight editorial/advisory boards.



Kaave Hosseini
Assistant Professor of Computer Science

Kaave Hosseini’s research is in computational complexity, pseudorandomness, and combinatorics. He works on the role of randomness in computation and deterministic construction of objects with random-like behavior. He uses pseudorandomness as a tool in combinatorics and algorithm design. Hosseini received his PhD from the University of California, San Diego and was a postdoctoral associate at Carnegie Mellon University before joining the University of Rochester.



Robert A. Jacobs
Professor of Computer Science and of Brain and Cognitive Sciences

Robert Jacobs’s research combines computational modeling and behavioral experiments in order to develop and evaluate theories of human perception and cognition. He uses machine learning and statistical techniques to develop models of optimal performance for natural tasks. He then uses these models to evaluate people’s performance on these same tasks to understand when and why people behave optimally, as well as to understand the “bottlenecks” that often prevent people from behaving optimally. He also uses machine learning techniques to implement theories of human visual and multisensory perception in domains such as object recognition and classification and visual attention and memory. He has authored more than 100 papers, serves as a reviewer for several publications, and has mentored numerous students interested in the interdisciplinary study of machine and human intelligence.



Henry Kautz
Professor of Computer Science

Henry Kautz leads research projects in social media analytics, applications of AI to health care, and probabilistic logics. He is a fellow of the AAAS, ACM, and AAAI and has served as president of AAAI. He is on leave serving as division director for Information and Intelligent Systems at the National Science Foundation until 2021.



Jiebo Luo
Professor of Computer Science

Jiebo Luo joined the University of Rochester in 2011 after a prolific 15-year career at Kodak Research. His research spans computer vision, NLP, machine learning, data mining, social media, and digital health. He has authored more than 500 technical papers and more than 90 US patents. He has served as the program chair of ACM Multimedia 2010, IEEE CVPR 2012, ACM ICMR 2016, and IEEE ICIP 2017, as well as on the editorial boards of several IEEE Transactions and other journals. He is the editor-in-chief of the IEEE Transactions on Multimedia for a three-year term (2020–2022). He is a fellow of ACM, AAAI, IEEE, SPIE, and IAPR.



Fatemeh Nargesian
Assistant Professor of Computer Science

Fatemeh Nargesian’s research in data management focuses on the discovery and integration of data in very large repositories of heterogeneous and raw data. Her research applies probabilistic and learning techniques to data management problems. Her previous work studies automated machine learning, including feature engineering and model selection. Nargesian received her PhD from the University of Toronto.



Sreepathi Pai
Assistant Professor of Computer Science

Sreepathi Pai works on heterogeneous computer architectures in the areas of compilers, computer architecture, and performance modeling, aiming to simplify programming for these complex machines. His most recent work includes the IrGL compiler for high-performance graph computations on graphics processing units (GPUs) and the Operator Machine performance model. In 2017, his work was named an IEEE/Amazon/DARPA GraphChallenge Champion. Pai received his PhD from the Indian Institute of Science and was a postdoctoral fellow at the University of Texas at Austin before joining the University of Rochester.



Lenhart K. Schubert
Professor of Computer Science

Lenhart K. Schubert’s research focuses on the requirements for machines capable of commonsense reasoning, planning, language understanding, and conversation, enabling applications such as helpful, companionable agents. These requirements include expressively rich knowledge representations, mechanisms for deductive as well as uncertain inference, and methods for acquiring large amounts of propositional, script-like, and schema-like knowledge. Schubert is an AAAI fellow and was a professor of computing science at the University of Alberta before joining the University of Rochester in 1988.



Michael L. Scott
Professor and Chair of Computer Science, Arthur Gould Yates Professor of Engineering

Michael L. Scott’s research addresses systems software for parallel and distributed computing, with a particular focus on synchronization algorithms and concurrent data structures. He is also the author of *Programming Language Pragmatics*, the leading textbook on programming language design and implementation. He is a fellow of the ACM and the IEEE and a winner of the ACM’s Edsger W. Dijkstra Prize in Distributed Computing. Locally, he has received the University’s Goergen Teaching Award and the Hajim School’s Lifetime Achievement Award. He spent the 2014–15 academic year as a visiting scientist at Google.



Daniel Stefankovic
Associate Professor of Computer Science

Daniel Stefankovic’s research interests are graph drawing, counting and sampling, coding theory, mathematical modeling in biology, and learning theory. His most recent research improves our understanding of the complexity of sampling problems by developing and analyzing algorithms (Markov chain Monte Carlo and correlation decay techniques) and by proving general hardness results.



Chenliang Xu
Assistant Professor of Computer Science

Chenliang Xu’s research interests range from solving core computer vision problems to pushing the limits of their understanding in the broader AI contexts, including multisensory perception, cognitive robotics, and data science. He was the recipient of multiple NSF awards, including BIGDATA and CDS&E, the University of Rochester’s AR/VR Pilot Award, Tencent Rhino-Bird Award, a Best Paper Award at Sound and Music Computing Conference, and an Open Source Code Award in IEEE CVPR. He received his PhD from the University of Michigan in 2016.



Yuhao Zhu
Assistant Professor of Computer Science

Yuhao Zhu’s research focuses on software and hardware for visual computing (e.g., augmented/virtual reality). Zhu received his PhD from the University of Texas at Austin. Prior to joining the University of Rochester, he held researcher positions at Harvard University and ARM Research. Zhu received an Honorable Mention for the 2018 ACM SIGARCH/IEEE CS TCCA Outstanding Dissertation Award.