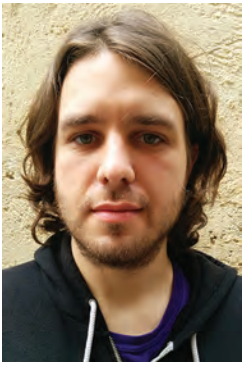
University of Washington
Computer Science & Engineering

Faculty Additions
2015





UNIVERSITY of WASHINGTON

Recent Faculty Hires

2015

Rastislav Bodik Programming Languages
Kurtis Heimerl Technology + Low-cost Communications for Developing Regions
Sham Kakade Theoretical + Applied Machine Learning
Sergey Levine Robotics + Machine Learning
Dan Ports Systems
Katharina Reinecke Human-Computer Interaction + Intelligent User Interfaces
Thomas Rothvoss Theoretical Computer Science
Zorah Fung Computer Science Education

2014

Alvin Cheung Data Management, Programming Languages + Systems
Yejin Choi Natural Language Processing
Franziska Roesner Security + Privacy
Noah Smith Natural Language Processing
Emina Torlak Programming Languages + Software Engineering
Xi Wang Systems, Programming Languages + Security
Ruth Anderson Computer Science Education
Adam Blank Computer Science Education

2013

Maya Cakmak Robotics
Shayan Oveis Gharan Theoretical Computer Science
Matt Reynolds Ultra-low Power Sensing + Computation
Zachary Tatlock Programming Languages + Software Engineering

2012

Ali Farhadi Computer Vision
Emily Fox Machine Learning (adjunct)
Shyam Gollakota Networking + Wireless Systems
Carlos Guestrin Machine Learning
Jeffrey Heer Data Visualization + Human-Computer Interaction
Ira Kemelmacher-Shlizerman Computer Vision
Ben Taskar Machine Learning (deceased 2013)

University of Washington Computer Science & Engineering

University of Washington Computer Science & Engineering educates tomorrow's innovators, conducts high-impact research, transfers new discoveries to society, and creates opportunities for faculty and students to push the boundaries of a rapidly expanding field while developing solutions to humanity's greatest challenges.

Computer science and computer engineering are changing the world. UW CSE is driving this revolution. Visit us online at www.cs.washington.edu.

Recent Awards

Departmental Recognition

NCWIT Extension Services Transformation (NEXT) Award for excellence in promoting women's participation in computing, from the National Center for Women & Information Technology

Best Paper + Related Awards

ASSETS 2014 Best Student Paper	*Accessible Computing*
CHI 2015 Best Paper	*Human-Computer Interaction*
CSCW 2015 Best Paper	*Social Computing*
CVPR 2015 Best Paper	*Computer Vision*
FSE 2014 Distinguished Paper	*Software Engineering*
IJCAI 2015 Distinguished Paper	*Artificial Intelligence*
ISSTA 2014 Distinguished Paper	*Software Testing + Analysis*
NSDI 2015 Best Paper	*Distributed Systems*
OSDI 2014 Best Paper	*Operating Systems*
PLDI 2015 Best Paper	*Programming Languages*
STOC 2015 Best Paper	*Theoretical Computer Science*
USENIX ATC 2015 Best Paper	*Computer Systems*
ACM SIGCOMM 2014 Test of Time	*Computer Networks*
UbiComp 2014 10-Year Impact	*Ubiquitous Computing*
VLDB 10-Year Best Paper	*Databases*
CACM Research Highlights 2014 Cover	*Computer Vision*

The Paul G. Allen Center for Computer Science & Engineering on the University of Washington's Seattle campus.

Message from the Chair

Hank Levy
Chairman + Wissner-Slivka Chair Computer Science & Engineering

University of Washington Computer Science & Engineering has enjoyed another banner year in faculty recruiting in 2015, announcing a total of eight outstanding new hires. Since 2012 we have added more than 25 faculty members, both senior hires and rising stars—demonstrating that UW CSE is a preferred destination for the brightest, boldest minds in our field.

We built upon our previous, game-changing hires in machine learning and added to our world-class programming languages and software engineering group with senior hires Sham Kakade and Ras Bodik, respectively. We also look forward to welcoming Sergey Levine and his pioneering expertise at the intersection of machine learning and robotics.

With the addition of Dan Ports, we expanded what was already widely recognized as one of the top systems research groups in the world, and we further strengthened our already stellar theoretical computer science group with the arrival of Thomas Rothvoss in January, following the addition of Shayan Oveis Gharan last year. We are excited to build expertise on the cutting edge of human-computer interaction research through Katharina Reinecke, an expert on intelligent user interfaces and cross-cultural usability of technology, and to welcome Zorah Fung to our stellar team of lecturers inspiring students to explore computer science as a potential career path. Last but certainly not least, we look forward to welcoming Kurtis Heimerl, who has garnered international attention for his efforts to bring low-cost communications technologies to the developing world.

This has been a standout year for UW CSE for reasons beyond faculty recruiting, as evidenced by the remarkable number of awards we have earned from top conferences across the field over the past 12 months. In May, the National Center for Women & Information Technology recognized us with its inaugural NEXT Award grand prize for being a national leader in promoting gender diversity in our field. The following month, we awarded more than 360 degrees—granting one-third of our CS bachelor's degrees to women. Finally, we are in the design process for a second building of approximately 130,000 square feet—nearly a doubling of our current space—to enable our continued expansion.

UW CSE holds the view that computer science can and should have a transformative impact on society's greatest challenges, both here at home and around the globe. We are deeply committed to our modern vision of the field and look forward to sharing many successes with you in the future.

Warm regards,

Rastislav Bodik

Programming Languages

Ras Bodik joins the University of Washington's world-class programming languages and software engineering group as a professor after spending more than a decade on the faculty at University of California, Berkeley.

Ras is widely known for his groundbreaking work in programming languages, compilations and program synthesis, and their application to a broad range of disciplines, including parallel programming, human-computer interaction and systems biology. His research focuses on making it easier to write computer programs by developing novel programming languages and tools that allow people to obtain a complete program from incomplete instructions. To this end, Ras pioneered the use of algorithmic program synthesis, a technique for computer-aided construction of software based on sketches (partial programs) and constraint solving. His work has led to the development of novel compilers for low-power computing, parallel layout engines for Web browsers, and new tools for generating explanatory hypotheses from biological experiments and for simplifying the creation of data visualizations.

Ras is a regular contributor to the top conferences in programming languages, software engineering and computer architecture. He has earned a number of awards for teaching and research, including an NSF CAREER Award, an ACM SIGPLAN Doctoral Dissertation Award, two IEEE MICRO Top Picks in Computer Architecture, and Best Paper at PLDI. He is a co-founder of SNAPL, the Summit on Advances in Programming Languages. With his students, he developed an undergraduate course, *Make Your Language!*, that teaches the foundations of languages and compilation by teaching design of domain-specific languages.

Before arriving at UC Berkeley, Ras was an assistant professor at the University of Wisconsin-Madison and an academic visitor at IBM's T.J. Watson Research Center in New York. He earned his Master's and Ph.D. in Computer Science from the University of Pittsburgh and a diploma in Computer Engineering from the Technical University of Košice, Slovakia.

Sham M. Kakade

Theoretical + Applied Machine Learning

Sham Kakade will arrive at University of Washington in the fall to take up a joint appointment with Computer Science & Engineering and Statistics as the Washington Research Foundation Data Science Chair. He completed his Ph.D. at the Gatsby Computational Neuroscience Unit at University College London, advised by Peter Dayan, and earned his B.S. in Physics at Caltech.

Sham comes to UW from Microsoft Research New England, where he was a principal research scientist. He works in the area broadly construed as data science, focusing on designing (and implementing) both statistically and computationally efficient algorithms for machine learning, statistics and artificial intelligence. His intent is to see these tools advance the state of the art on core scientific and technological problems.

Sham has made contributions in various areas, including statistics, optimization, probability theory, machine learning, algorithmic game theory and economics, and computational neuroscience. Notably, along with various collaborators, a line of his work has focused on developing computationally efficient estimation methods (based on spectral methods) for settings with hidden (or latent) structure; such problems involve estimating as topics in documents, clusters of points, or communities in social networks. Sham is also actively working on applied problems in both computer vision and natural language processing. Part of these latter efforts have involved empirical studies of deep learning methods.

Recently, Sham received the 2014 INFORMS Revenue Management and Pricing Best Paper Award, which is given for the best contribution to the science of pricing and revenue management, for a paper published in English in the last five years. Before joining Microsoft Research, Sham was an associate professor at the Department of Statistics, Wharton, University of Pennsylvania (2010-2012) and an assistant professor at the Toyota Technological Institute at Chicago (2005-2009). Before this, he completed a postdoc in the Computer and Information Science Department at the University of Pennsylvania under the supervision of Michael Kearns.

Kurtis Heimerl

Technology + Low-cost Communications for Developing Regions

Kurtis Heimerl joins the faculty of University of Washington Computer Science & Engineering after completing a postdoc in the Technology and Infrastructure for Emerging Regions (TIER) group at University of California, Berkeley, where he earned his Master's and Ph.D. He previously obtained his Bachelor's in Computer Engineering from UW CSE.

Kurtis' research interests span information and communication technologies and development (ICTD), human-computer interaction, and networks and systems. He was recognized by *MIT Technology Review* with a TR35 Award in 2014 for his work on Community Cellular, a low-cost, low-power system for providing small-scale, locally-owned cellular networks in rural communities that lack existing cellular coverage. After building the first network in a small village in Papua, Indonesia in 2013, Kurtis co-founded a startup company, Endaga, to bring the technology to more communities around the world.

Kurtis has worked on an array of projects, including Umati, the crowdsourcing vending machine; PANTS/NetAPI, a modern sockets implementation; mPhone, a message-oriented phone system; the Python implementation of the DTN bundle protocol; and Metamouse, a novel approach to multi-user sharing of existing educational applications.

Kurtis earned Best Paper Awards at DySPAN 2014 for his work on Nomadic GSM, a system for enabling dynamic spectrum sharing in GSM whitespaces by community cellular networks, and at CHI 2012 for his work on the Umati communitysourcing project. His research has been featured in *Ars Technica*, *Fast Company*, *Popular Science*, *Re/code* and many other media outlets.

Sergey Levine

Robotics + Machine Learning

Sergey Levine will join the University of Washington Computer Science & Engineering faculty next spring as an assistant professor upon completion of a postdoc at University of California, Berkeley. He earned his Ph.D., Master's and Bachelor's degrees from Stanford University.

Sergey's research focuses on the intersection of machine learning and optimal control, with the aim of developing algorithms and techniques that can endow machines with the ability to autonomously acquire the skills for executing complex tasks. He is particularly interested in how learning can enable robots and virtual characters to acquire behavioral skills for greater autonomy, intelligence and visual realism.

Sergey pioneered the use of deep learning to create neural network controllers for robots and animated characters. This work, which demonstrated a significant advance in both speed and accuracy of robot learning, earned him the Best Robotic Manipulation Paper Award at ICRA 2015—the IEEE's flagship robotics conference—and was featured in the *New York Times*.

Before joining UC Berkeley's Robot Learning Lab, Sergey was a member of Stanford's Virtual Worlds Group, conducting interdisciplinary research in machine learning and computer graphics. He also has worked with a number of leading-edge companies on a variety of projects, including robotics research at Google and character animation, physics simulation, and graphics at Adobe.

Dan R. K. Ports

Systems

Dan Ports joined the University of Washington faculty as a research assistant professor after receiving his Ph.D. from MIT in June 2012 and completing a postdoc at UW Computer Science & Engineering. Previously, he received his M.Eng. (2007) and S.B. degrees in Computer Science and Mathematics (2005) from MIT.

As a member of UW CSE's systems lab, which is widely recognized as one of the best systems research groups in the world, Dan takes a broad view of the field. He has worked in areas ranging from operating systems and distributed systems to networking, databases, architecture and security—and often finds interesting opportunities at the intersection of these areas.

Dan's ongoing research focuses on building distributed systems for modern data-center-scale applications, using a variety of techniques to build practical systems that are faster, more reliable, easier to program and more secure. His major projects aim to dramatically lower the cost of keeping data consistent in distributed systems, one of the principal challenges faced by developers of distributed applications. With a group of students at UW, Dan is developing a new class of systems by co-designing distributed algorithms with the data center network fabric. He is also investigating ways to optimize common combinations of distributed protocols by considering the entire application stack as a whole. Both approaches have demonstrated promising performance improvements.

Dan's work has been recognized by the distributed systems and operating systems communities. He earned a Best Paper Award at NSDI 2015 for demonstrating the benefits of co-designing distributed systems protocols with underlying datacenter networks, and was a co-author of the Jay Lepreau Best Paper Award winner at OSDI 2014 for Arrakis, a new operating system that removes barriers between increasingly sophisticated applications and the hardware on which they run. Dan was previously affiliated with VMware, where he developed the Overshadow research system for defending applications from compromised operating systems, and cache-aware scheduling algorithms for multiprocessors.

Katharina Reinecke

Human-Computer Interaction + Intelligent User Interfaces

Katharina Reinecke joins the University of Washington Computer Science & Engineering faculty as an assistant professor focused on human-computer interaction, intelligent user interfaces and cross-cultural usability of technology. She earned her Ph.D. in Computer Science from the University of Zurich in Switzerland and her diploma in Computer Science from the University of Koblenz in Germany.

Katharina researches how people of different cultural backgrounds interact with computers to develop technology that is "culturally intelligent," automatically adapting its look and feel to people's varying preferences and abilities to improve user satisfaction and performance. Based on her research, Katharina developed a culturally adaptive web application that composes personalized user interfaces based on a person's current and former countries of residence. To collect the large amounts of data needed to inform the design of these adaptive user interfaces, Katharina co-founded LabintheWild, a virtual lab launched in 2012 that has obtained data from nearly 3 million users from over 200 countries through online behavioral studies.

Katharina comes to UW from the University of Michigan, where she was an assistant professor in the School of Information and Computer Science. Before that, she was a postdoctoral fellow in the Intelligent and Interactive Systems Group in Harvard University's School of Engineering & Applied Sciences. Katharina has earned numerous awards for her work, including Best Paper Award and Best Paper Honorable Mention at CHI 2013 and CSCW 2015, a Best European Paper of the Year Award for her *MIS Quarterly* publication on culturally adaptive user interfaces, and a Best Paper Award at UMAP 2009.

Thomas Rothvoss

Theoretical Computer Science

Thomas Rothvoss joined the University of Washington Computer Science & Engineering faculty as an assistant professor in January 2015, as a joint appointment with the Department of Mathematics. He first arrived at UW Mathematics in 2014 after completing a postdoc at MIT.

Thomas' research interests include discrete optimization, linear and integer programming, and theory of computation. He is currently the Principal Investigator on a National Science Foundation grant to explore the theoretical power and limitations of using convex relaxations to solve various optimization problems. For example, Thomas has designed provably efficient approximation algorithms for classical problems such as the bin packing and Steiner tree problems. He also gave a proof that the solution space for the perfect matching problem cannot be represented as a small linear program—a question in combinatorial optimization that had been open for three decades.

Thomas was named a Sloan Research Fellow in 2015 and earned Best Paper Awards at STOC 2014, SODA 2014 and STOC 2010. He earned his Ph.D. from the École Polytechnique Fédérale de Lausanne following studies at the Universität Paderborn and the Technische Universität Dortmund in Germany.

Zorah Fung

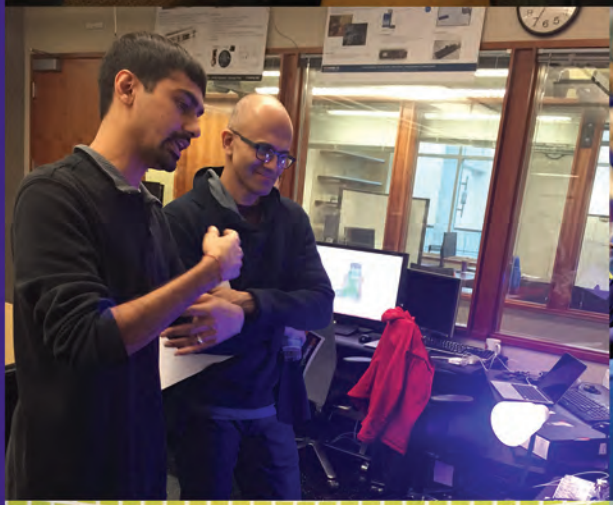
Computer Science Education

Zorah Fung will join University of Washington Computer Science & Engineering as a lecturer teaching courses in introductory programming in January. She earned her Bachelor's and Master's in Computer Science from UW CSE.

Zorah is currently a full stack software engineer at digital fraud protection company Sift Science, where she previously interned, designing and implementing user workflow and data visualization features to assist e-commerce fraud analysts. She also completed two internships at Google, where she built the front-end infrastructure for media sharing in Google Hangouts and for image layouts in Google Docs.

While studying at the UW, Zorah served as a teaching assistant, head teaching assistant and lecturer in UW CSE's popular introductory programming courses and as chair of the ACM-W (Association of Computing Machinery, Women's Chapter). She was recognized with the university's Bob Bandes Memorial Award for Excellence in Teaching in 2013. Zorah has been heavily involved in K-12 outreach programs in computer science, including volunteering her time and expertise to help develop lesson plans and work with students at the middle school level to get them excited about computing.





Clockwise from top left: Professor Rajesh Rao, an expert in brain-computer interfaces, is ready for his closeup during a video shoot for NBC Learn; Professor Linda Shapiro robes Nicola Dell, one of UW CSE's 25 new Ph.D. recipients in 2015; Faculty members enjoy UW CSE's graduation celebration in our new, larger venue at the Alaska Airlines Arena in Seattle; Department Chair Hank Levy recognizes Sunjay Cauligi with the award for Outstanding Computer Engineering Senior during UW CSE's graduation ceremony; Professor Ed Lazowska, Director of Student Services Crystal Eney, and lecturers Allison Obourn and Ruth Anderson accept the NCWIT NEXT Award recognizing UW CSE's efforts to promote gender diversity; Professor Shwetak Patel takes Microsoft CEO Satya Nadella on a tour of UW CSE's ubiquitous computing lab.

The atrium of the Paul G. Allen Center for Computer Science & Engineering.

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