Recent Additions to the UW CSE Faculty

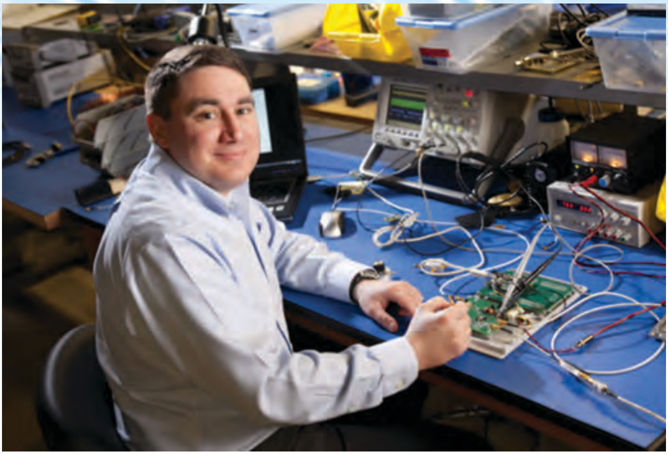
UNIVERSITY *of* WASHINGTON

University of Washington Computer Science & Engineering – long regarded as one of the top ten programs in the nation – is taking advantage of new investments by the State of Washington and the University of Washington to make game-changing faculty hires.

Located in one of the world's most vibrant high-tech regions, UW CSE is committed not only to leadership in core computer science, but also to leadership in research and education with direct impact on national and global challenges – challenges such as education, energy, biology, healthcare, transportation, scientific discovery, and the use of technology in developing regions. UW CSE has achieved great success and impact through activities that make technology better, and through activities motivated by how innovations are put to work.

Outstanding people are essential to fulfilling this commitment. This year CSE has made four new hires that add significant strengths in key areas. Our three junior hires – Maya Cakmak, Shayan Oveis Gharan, and Zach Tatlock – greatly add to our existing strengths in robotics, theoretical computer science, and programming languages and verification. Our senior hire, Matt Reynolds – the fourth hire in our joint ExCEL ("Experimental Computer Engineering Lab") initiative with Electrical Engineering – complements other recent additions to put us at the forefront of low-power and ubiquitous computing.

Our recent growth makes it an exciting time for Computer Science & Engineering at the University of Washington, and we expect to continue making significant additions over many years to come.



Matt Reynolds, Associate Professor

Formerly the Nortel Networks Assistant Professor in Electrical and Computer Engineering at Duke University, Matt Reynolds joins the University of Washington this fall with a joint position in Computer Science & Engineering and Electrical Engineering.

Matt's research, which has resulted in five best paper awards, focuses on ultra-low power sensing and computation, RFID, wireless power transfer, biomedical applications, and smart materials and surfaces. He is a Senior Member of the IEEE and has served as General Chair and Technical Program Committee Co-chair of the IEEE International Conference on RFID.

In addition to his academic pursuits, Matt is an accomplished entrepreneur, having co-founded three companies: ThingMagic (acquired by Trimble Navigation), Zensi (acquired by Belkin), and SNUPI Technologies. Matt holds fourteen patents, with more than 30 pending. He received his S.B., M.Eng., and Ph.D. degrees from MIT, where he was a Motorola Fellow at the MIT Media Lab.

Maya Cakmak,
Assistant Professor

Maya Cakmak received her Ph.D. in Robotics from the Georgia Institute of Technology in 2012. Since then, she has been a post-doctoral research fellow at Willow Garage – one of the most influential robotics companies in the world.

Maya's research interests are at the intersection of Human-Robot Interaction and Programming by Demonstration. Her research aims to develop functionalities and interfaces for personal robots that can be programmed by their end-users to assist everyday tasks. Maya's thesis developed algorithms and interaction methods to allow robots to ask questions as they learn from their users. Her work was evaluated with extensive user studies which involved real human-robot interactions. As a post-doctoral researcher she continued her work on making robot programing intuitive for end-users.

Maya's work has been published at major Robotics and AI conferences and journals, demonstrated live in various venues, and featured in numerous media outlets, including *National Geographic, New York Times,* and *NOVA Science.*

Shayan Oveis Gharan, Assistant Professor

Shayan Oveis Gharan received his Ph.D. from Stanford University in 2013. He is a recipient of several awards including a Stanford Graduate Fellowship, a Miller Fellowship, and best paper awards at SODA 2010 and FOCS 2011. Shayan will spend a year as a Miller Fellow at UC Berkeley before joining UW Computer Science & Engineering in the 2014-15 academic year.

Illustration: Robert Bosch

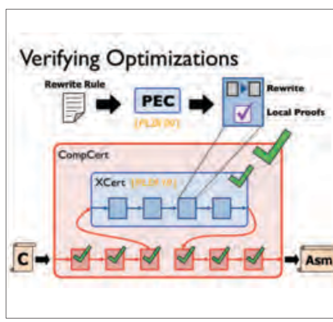
Shayan's work involves designing efficient algorithms for high-impact optimization problems. Many of the most important optimization problems seem intractable, and simple exhaustive search algorithms require trillions of years to compute an optimal solution even if they use all available computing power. The real challenge is to develop mathematical tools that help us in designing efficient algorithms to determine an optimal or a near-optimal solution.

Shayan has worked on a variety of classical optimization problems including the Traveling Salesman and Graph Clustering problems. He has introduced several new techniques, like maximum entropy rounding by sampling and the use of higher eigenvalues of graphs, that can be used to tackle an array of other computational tasks as well. His work on the Traveling Salesman problem yielded the first improvements in over 30 years.

Zach Tatlock, Assistant Professor

Zach Tatlock completed his Ph.D. at the University of California, San Diego in summer 2013 and joins UW Computer Science & Engineering this fall.

As our dependence on software grows, so too do the risks posed by programming errors. Broadly, Zach's research aims to mitigate these risks by improving software reliability and security. To address these challenges, he has developed several new techniques to ensure program correctness in domains ranging from web browsers and databases to compiler optimizations. In addition to providing new formal verification techniques, Zach's work leads to practical tools with the potential to help software developers in real settings.



His work on program verification has leveraged and extended a variety of technologies from the programming languages community, including mathematical theorem provers and type systems. He uses these techniques to build systems with proven guarantees, most notably Quark, a web browser with a formal, machine-checked proof guaranteeing several important security properties, e.g. that different browser tabs cannot negatively affect each other. A key technique in his work is identifying high-leverage interfaces at which to prove deep properties so that most of a system can remain untrusted while still providing strong guarantees.

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