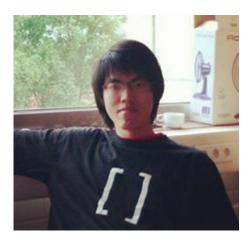# UC San Diego News Center

June 29, 2017 | By Doug Ramsey

UC San Diego Ph.D. Candidate Accepts Tenure-Track Faculty Position at University of Illinois

Soon-to-be-alumnus accepts tenure-track faculty position at University of Illinois

When he graduated from China's Nanjing University, Tianyin Xu was turned down by 24 graduate schools in the United States. The following year he applied and was accepted into the Ph.D. program at the University of California San Diego. Now, almost six years later, Xu is finishing his Ph.D. this summer, and top-notch schools were competing to offer him a tenure-track faculty position. In the end, Xu received five offers and accepted the one from the University of Illinois at Urbana-Champaign (UIUC), which he'll join as an assistant professor next January in the Department of Computer Science.

Computer science Ph.D. candidate and soon-to-be UC San Diego alumnus Tianyin Xu will start teaching at the University of Illinois at Urbana-Champaign next January.

"I loved all the schools that made offers, which made the decision-making process excruciating," observed CSE Ph.D. candidate Xu. "In the end, I had to follow my gut." While he had offers from Pennsylvania State, UC Santa Cruz, UC Santa Barbara and Canada's University of Waterloo, Xu selected UIUC partly because his advisor, CSE Prof. Yuanyuan (YY) Zhou, taught there for seven years before joining the UC San Diego faculty in 2009.

"Many of the senior students in Professor Zhou's group had previously studied at UIUC," added Xu, "and they have helped me tremendously in my graduate studies. All of them spoke highly of the Illinois program." Xu also thinks that UIUC had more confidence in his abilities because he had worked so closely with his "rock star advisor." "I believe part of the reason UIUC made me the offer is that Professor Zhou was so successful and truly respected there, and all of the faculty I met during the hiring process held her in very high esteem."

"I am very proud of him," observed Zhou, who holds the Qualcomm Endowed Chair in Mobile Systems in the Jacobs School of Engineering. "Tianyin Xu is joining an elite group of recent graduates from our operating systems group, including five of them who took tenure-track faculty positions at top schools. Those professors include UC San Diego CSE alumnus Ryan Huang (Ph.D. '16) who becomes an assistant professor of computer science at Johns Hopkins University this July after doing a postdoc at Microsoft Research.

"All of them are doing extremely well," added Zhou, "so they have paved the way for Xu and hopefully future Ph.D. graduates from our program who want to make careers in academia."

UIUC may also have been attracted to Xu's research into reliability and security of computer systems, including the reliability of large-scale software systems deployed in the cloud and in datacenters. "My Ph.D. work focuses on tackling one dominant cause of cloud and datacenter failures in the real world – configuration errors," said Xu. "These errors are notoriously fatal and hard to deal with using traditional fault-tolerance techniques. Currently we lack neat techniques that can work with these gigantic systems to prevent catastrophic failures, so research in this area is critically important and in demand."

Hardening cloud and datacenter systems against configuration errors is the topic of Xu's doctoral dissertation, which he expects to defend in early August.

Xu received CSE's 2017 Doctoral Award for Research at the end of the academic year. Among other honors, last November he received the Jay Lepreau Best Paper Award at the 12th USENIX Symposium on Operating Systems Design and Implementation (OSDI 2016) for his paper on "Early Detection of Configuration Errors to Reduce Failure Damage." Xu was first author on that paper as well as another in May 2017, which he presented to the 35th Conference on Human Factors in Computing Systems (CHI 2017). The topic: "How Do System Administrators Resolve Access-Denied Issues in the Real World." Xu has also presented at research reviews of UC San Diego's Center for Networked Systems (CNS) in 2016 and 2013, and he did summer research internships in 2013 and 2015 at NetApp, Inc., where he researched storage products and observed system users.

Xu has been a teaching assistant in both graduate and undergraduate courses at UC San Diego, serving a variety of CSE faculty including his advisor as well as Geoffrey Voelker, Leo Porter, Stefan Savage, Mohan Paturi and Sanjoy Dasgupta. In the three most recent courses he TA'd, Xu happily notes that he finished with recommendations from 98.6 percent of students (75 percent with "strong" recommendations). In his teaching statement intended for the universities where he interviewed for faculty jobs, Xu said one of his primary goals was to

stress relevance as the key to engaging students in learning. "I strive to relate OS concepts to real-world, everyday problems beyond OS kernels," he explained. "I talk about how Google manages resources and schedules jobs at a massive scale, how Spark drives its huge success based on the disk-memory trade-off, and why Android does not swap but kills app processes when running out of memory. Students enjoy such discussions and become more engaged." At UIUC, Xu expects to teach operating systems and software engineering, and he plans to incorporate interactive and hands-on projects along with regular coursework.

Prior to starting the Ph.D. program at UC San Diego, from 2003 to 2010, Xu studied Computer Science at Nanjing University, where he completed B.S. and M.S. degrees.

With his faculty job search now over, Xu is particularly thankful to the many people in CSE who provided help, support and encouragement throughout the "exhausting and sometimes frustrating" process. "Professor Voelker revised every single slide of my job talk and gave me countless tips and advice, while professors Savage and Victor Vianu did mock interviews with me," recalled Xu. "Professors Sorin Lerner, Philip Guo, Alex Snoeren, Aaron Schuman and Bill Griswold and others helped me with my job talk or allowed me to practice delivering my talk in their research seminars, while professors Zhou, Voelker, Savage and Scott Klemmer wrote recommendation letters for me."

"Above all, I owe much to my advisor, Professor Zhou," stressed Xu. "She believed in a student who had been rejected by most of the schools he applied to for graduate school, and transformed him into a Ph.D. candidate capable of receiving faculty offers from major schools and computer-science programs."