

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Electrical Engineering and Computer Science

Zhuoqing Mao, associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering, is recommended for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Academic Degrees:

- Ph.D. 2003 University of California, Electrical Engineering and Computer Science, Berkeley, CA
M.S. 2000 University of California, Electrical Engineering and Computer Science, Berkeley, CA
B.S. 1998 University of California, Electrical Engineering and Computer Science, Berkeley, CA

Professional Record:

- 2010 – present Associate Professor (with tenure), Department of Electrical Engineering and Computer Science, University of Michigan
2004 – 2010 Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan
2003 Post-doctoral Researcher, ICIR: ICSI Center for Internet Research, Berkeley, CA
1998 – 2003 Graduate Research Assistant, University of California at Berkeley, Berkeley, CA

Summary of Evaluation:

Teaching: Professor Mao is an effective instructor in undergraduate and graduate classes. Her broad teaching portfolio includes the junior-level elective on computer security (EECS 388) with per-semester enrollments exceeding 200 students, the upper-level elective on computer networks (EECS 489), the graduate-level course on computer networks (EECS 589), and the graduate-level course on distributed systems (EECS 591). Since 2010, her overall Q1/Q2 scores have averaged 4.22 and 4.02, respectively. Student letters highlight her commitment to the success of her students. She has graduated six Ph.D. students, and is currently supervising another ten at various levels of seniority.

Research: Professor Mao is a highly visible leader of international caliber in the area of networking and security, and her research is consistently published in the top forums of her discipline. Professor Mao has attracted a significant amount of research funding, establishing a well-supported research group. Professor Mao's research focuses on the performance and security of cellular networks and mobile systems. Since 2010, she has focused on the technology

of mobile devices, including smartphones, making a transition from her work on Internet network technologies to cellular networks. Her 2012 ACM MobiSys conference paper and subsequent papers in SIGCOMM 2013 and MobiCom 2014 are referred to by external reviewers as major contributions to understanding the performance of 4G LTE networking on mobile devices. Her 2012 MobiSys paper on 4G LTE network performance has been cited over 300 times, suggesting a strong impact on the field. Professor Mao is also well-known for her research on security mobile devices. Her work has already had an impact on Android security.

Since 2010, Professor Mao's publication record has been outstanding. She has published nearly 60 papers at top conferences such as IEEE S&P, Sigcomm, Mobisys, ACM CCS and SIGMETRICS, among others.

Recent and Significant Publications:

- “Static Detection of Packet Injection Vulnerabilities -- A Case for Identifying Attacker-controlled Implicit Information Leaks,” Qi Alfred Chen, Zhiyun Qian, Yunhan Jack Jia, Yuru Shao, Z. Morley Mao, *Proceedings of ACM Conference on Computer and Communications Security (CCS) 2015*.
- “Performance Characterization and Call Reliability Problem Diagnosis for Voice over LTE,” Yunhan Jack Jia, Qi Alfred Chen, Z. Morley Mao, Jie Hui, Kranthi Sontineni, Alex Yoon, Samson Kwong, Kevin Lau, *Proceedings of ACM Mobicom 2015*.
- “Discovering Fine-grained RRC State Dynamics and Performance Impacts in Cellular Networks,” Sanae Rosen, Haokun Luo, Qi Alfred Chen, Z. Morley Mao, Jie Hui, Aaron Drake, and Kevin Lau, *Proceedings of ACM MobiCom 2014*.
- “Peeking into Your App without Actually Seeing it: UI State Inference and Novel Android Attacks,” Qi Alfred Chen, Zhiyun Qian, and Z. Morley Mao, *Proceedings of Usenix Security Symposium 2014*.
- “RadioProphet: Intelligent Radio Resource Deallocation for Cellular Networks,” Junxian Huang, Feng Qian, Z. Morley Mao, Subhabrata Sen, and Oliver Spatscheck, *Proceedings of Passive and Active Measurement Conference (PAM) 2014*.
- “An In-depth Study of LTE: Effect of Network Protocol and Application Behavior on Performance,” Junxian Huang, Feng Qian, Yihua Guo, Yuanyuan Zhou, Qiang Xu, Z. Morley Mao, Subhabrata Sen, and Oliver Spatscheck, *Proceedings of ACM SIGCOMM 2013*.
- “PROTEUS: Network Performance Forecast for Real-Time, Interactive Mobile Applications,” Qiang Xu, Sanjeev Mehrotra, Z. Morley Mao, and Jin Li, *Proceedings of Mobisys 2013*.
- “How to Reduce Smartphone Traffic Volume by 30%?,” Feng Qian, Junxian Huang, Jeffrey Erman, Z. Morley Mao, Subhabrata Sen, and Oliver Spatscheck, *Proceedings of PAM 2013*.

Service: Professor Mao has a strong record of service. At the department level, several of her appointments have a very heavy associated service load. Professor Mao has served on the Faculty Search Committee, the CSE Graduate Committee, the Department Computing Organization Committee, and has been a faculty advisor to Girls in EECS (GEECS). Externally, she has served on the technical program committees of the major conferences in her field and has been a co-chair of ACM MobiSys and SecureComm.

External Reviewers:

Reviewer A: "...Professor Mao is a remarkable scholar with an impressive track record. She continues to produce important results with deep impact on our field."

Reviewer B: "Morley has made important contributions in the area of wireless cellular networks and has leveraged collaborations with service providers to further the applications and impact of her work."

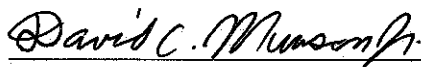
Reviewer C: "Prof. Morley Mao is one rare gem at your department, and she has done some amazing research work...she is a very productive and creative scholar, and I have no doubt that she will continue to show her scholarship and provide leadership in the research community."

Reviewer D: "Morley continues to have an outstanding funding record, with grants from NSF, DoD and the industry. I am also very impressed that several of her students have been offered tenure-track positions in very strong departments."

Reviewer E: "...Morley has made significant contributions to both the core networking and mobile computing research areas . . . her publication record at top conferences such as Sigcomm, MobiSys, Mobicom, IMC, NSDI, is phenomenal."

Reviewer F: "She is one of the world leaders in the mobile computing . . . She publishes in the top conferences and, according to Google Scholar has had a huge impact on her community . . . If she were coming up for promotion in my Department, she would be promoted without any hesitation."

Summary of Recommendation: Professor Mao has established a highly successful record of scholarly research, teaching, and service at the University of Michigan. It is with the support of the College of Engineering Executive Committee that I recommend Zhuoqing Mao for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.



David C. Munson, Jr.
Robert J. Vlastic Dean of Engineering
College of Engineering

May 2016