Approved by the Regents
May 20, 2010

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Zhuoqing Morley Mao, assistant professor of electrical engineering and computer science, Department of Electrical Engineering and Computer Science, is recommended for promotion to associate 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, Computer Science, Berkeley, CA
M.S.	2000	University of California, Computer Science, Berkeley, CA
B.S.	1998	University of California, Electrical Engineering and Computer Science, Berkeley, CA

Professional Record:

2004-present	Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan
2003	Postdoctoral Researcher, ICSI Center for Internet Research, Berkeley, CA
1998-2003	Research Assistant, University of California, Berkeley, CA

Summary of Evaluation:

Teaching: Professor Mao has taught courses at all levels, from an introductory undergraduate course on data structures (EECS 280) to a senior-level course on computer networks (EECS 489) and small seminars on advanced topics in networking (EECS 589). Professor Mao has made substantive contributions in all aspects of teaching including undergraduate curriculum development, graduate student advising and student mentoring. Students consider her a dedicated, engaging and inspiring teacher. EECS 280, an introductory programming course on data structures, is considered one of the most challenging required courses for EE, CE and CS students with very diverse backgrounds. Professor Mao has established an excellent record of graduate student teaching and mentoring. Her teaching scores for graduate courses have been consistently at or above average. She is also noted for training graduate students, providing them with a healthy mix of independence and support. She graduated one Ph.D. student in 2009 and is currently advising seven students at various stages in the CSE doctoral program including three Ph.D. candidates.

Research: Professor Mao is one of the leading researchers of her generation in the field of computer networks. She has demonstrated an impressive breadth in her research not often found in a junior faculty member. Her research contributions have spanned three interrelated areas: inter-domain routing, Internet measurement, and network security. Professor Mao has established a stellar reputation in the research community, as documented by external letters from prominent researchers in her field of specialty. She is considered to be "part of a small, successful cohort of researchers who deeply understand how the Internet works and how to fearlessly dive into complex measurement data to extract useful information." External reviewers are unanimous in their assessment of Professor Mao as one of the leading networking experts in the world. Her research impact is characterized as wide-ranging, deep, insightful and of practical importance. Professor Mao is a prolific collaborator. In addition to publishing more than 30 research papers with her graduate students, she has co-authored dozens of papers with many of the top scholars in the field of computer networks.

Professor Mao has been very successful in attracting external support for her research including five competitively awarded NSF grants. She has established a stellar record of publication in the most prestigious and selective networking and security conferences. Professor Mao is the recipient of a National Science Foundation CAREER Award and a prestigious fellowship in computer science from the Alfred P. Sloan Foundation.

Recent and Significant Publications:

A. Pathak, F. Qian, Y. C. Hu, Z. M. Mao, and S. Ranjan, "Botnet Spam Campaigns can be Long Lasting: Evidence, Implications, and Analysis," *Proceedings of SIGMETRICS*, 2009.

Z. Zhang, Y. Zhang, Y. C. Hu, Z. M. Mao, and R. Bush, "iSPY: Detecting IP Prefix Hijacking on My Own," *Proceedings of ACM SIGCOMM*, 2008.

Y. Zhang, Z. M. Mao, and M. Zhang, "Effective Diagnosis of Routing Disruptions from End Systems," *Proceedings of Symposium on Networked Systems Design and Implementation*, 2008.

X. Hu, and Z. M. Mao, "Accurate Real-time Identification of IP Prefix Hijacking," *Proceedings of IEEE Security and Privacy* (Oakland), 2007.

J. Wu, Z. M. Mao, J. Rexford, and J. Wang, "Finding a Needle in a Haystack: Pinpointing Significant BGP Routing Changes in an IP Network," *Proceedings of 2nd Symposium on Networked systems Design and Implementation*, 2005.

A. Feldmann, O. Maennel, Z. M. Mao, A. Berger, and B. Maggs, "Locating Internet Routing Instabilities," *Proceedings of ACM SIGCOMM*, Portland, OR, August 2004.

N. Hu, L. Li, Z. M. Mao, P. Steenkiste, and J. Wang, "Locating Internet Bottlenecks: Algorithms, Measurements, and Implications," *Proceedings of ACM SIGCOMM* 2004.

Z. M. Mao, R. Bush, T. Griffin, and M. Roughan, "BGP Beacons," Internet Measurement Conference, *Proceedings of Internet Measurement Conference*, 2003.

Service: Professor Mao has established an exemplary record of external service including more than twenty technical program committees associated with the most prestigious conferences in her areas of research. She has also served on the editorial boards of the two top journals in networking – the *IEEE/ACM Transactions on Networking* and ACM Transactions on Internet Technology.

Professor Mao's primary internal service has been on the CSE Graduate Committee. This committee is responsible for reviewing graduate applications, assigning financial aid and fellowships, and recruiting students once they are admitted. Professor Mao has represented the software area on the graduate committee for four years. Professor Mao also has made contributions in the recruitment of a diverse population of graduate students with an outreach to female candidates in particular.

External Reviewers:
Reviewer A: "...Morley has made wide-ranging and significant contributions, primarily in techniques to improve our ability to measure interesting properties of the Internet."

Reviewer B: "Morley's research...is thoughtful, strong, and of practical importance. In my opinion, she is one of the top five researchers in the Internet routing area regardless of seniority."

Reviewer C: "Morley enjoys a high standing in the international community. Her enthusiasm as well as her successful research have also made her a highly demanded member of technical program committees for top conferences in networking."

Reviewer D: "Her work has demonstrated a deep commitment to rigorous experimentation backed up by solid analysis. Her record easily puts her among the top three researchers in her cohort, and I consider her to be the top junior researcher in the area of inter-domain routing."

Reviewer E: "Morley's research on BGP routing instabilities [is] … an outstanding piece of work that has received considerable attention and showcases Morley's incredibly deep understanding of how real computer networks work, particularly from the Internet Service Providers (ISPs) point of view."

Reviewer F: "Morley's research is intellectually challenging and can significantly improve the way IP networks are managed--achieving the ultimate goal of making the Internet a communications infrastructure worthy of society's trust."

Reviewer G: "She is now in the top tier of [her cohort] networking faculty and is making substantial contributions to the field. … Morley has established herself as one of the most prolific and insightful network researchers."

Summary of Recommendation: Professor Mao is considered to be one of world's leading scholars in the areas of Internet routing and network security. Through her research, prolific collaborations, mentoring of graduate students and active engagement in the research community, Professor Mao is bringing prominence to Michigan's computer science and engineering programs. She is a dedicated teacher and mentor. Through her service, she has made significant contributions to her profession. It is with the support of the College of Engineering Executive Committee that I recommend Zhuoqing Morley Mao for promotion to associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

David C. Munson Jr.

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

May 2010