

PROMOTION RECOMMENDATION  
The University of Michigan - Dearborn  
College of Engineering and Computer Science  
Department of Computer and Information Science

Shengquan Wang, assistant professor of computer and information science, Department of Computer and Information Science, College of Engineering and Computer Science, is recommended for promotion to associate professor of computer and information science, with tenure, Department of Information and Computer Science, College of Engineering and Computer Science.

Academic Degrees:

Ph.D.	2006	Texas A&M University, Computer Science, College Station, Texas
M.Sc.	2000	Texas A&M University, Mathematics, College Station, Texas
M.Sc.	1998	Shanghai Jiao Tong University, Applied Mathematics, Shanghai, China
B.Sc.	1991	Anhui Normal University, Mathematics, Wuhu, China

Professional Record:

2006 - present	Assistant Professor, Department of Computer and Information Science, College of Engineering and Computer Science, University of Michigan-Dearborn, Dearborn, Michigan
2000 - 2006	Teaching/Research Assistant, Department of Computer Science, Texas A&M University, College Station, Texas
1998 - 2000	Teaching Assistant, Department of Mathematics, Texas A&M University, College Station, Texas
1998 - 1998	Software Engineer, Huawei Technologies, China
1995 - 1998	Teaching Assistant, Department of Mathematics, Shanghai Jiao Tong University, Shanghai, China

Summary of Evaluation:

Teaching: Professor Wang is rated significantly capable in teaching. He believes that truly effective teaching requires mastering course content, having state-of-the-art course content, focusing on themes and key points, having a diverse set of teaching methods, teaching critical thinking skills, and overcoming the various problems that one meets along the way. In all the courses he teaches, besides the details, he gives the students the big picture of the entire field. This certainly helps the students tie disparate topics together into a cohesive, consistent template of the area, helping them to learn. Through his diverse teaching methods, he shows students how to apply critical thinking to course topics. Finally, he goes out of his way to overcome any difficulties arising in the class. For example, he personally mentored a handicapped student in one of his classes. Professor Wang has taught graduate courses as well, including Master's and Ph.D. courses. Besides teaching, Professor Wang has contributed to the department by significantly revising several courses, participating in other curriculum reviews, and contributing to the development of our proposed B.S. in digital forensics degree.

Research: Professor Wang is rated excellent in his research. His main research is in the areas of real-time systems, computer networks and distributed systems. Research topics under this umbrella include thermal management, reliability management, and energy management. He has been studying a wide scope of problems, defined in three dimensions: quality of service (hard real-time vs. soft real-time), system complexity (single-processor systems vs. multi-processor systems), and power/thermal/ reliability model (simple model vs. complex model). After he joined the University

of Michigan-Dearborn, he founded the Research Laboratory for Sustainable Systems in 2006. He received the prestigious NSF CAREER award for his work on Timing-Aware Dynamic Thermal Management in High-Performance Embedded Systems in 2008. According to Harzing's Publish or Perish tool, there is a total of 572 citations for all his papers (45 papers tracked by Harzing), with an average of 47.67 citations/year and 12.71/paper. Professor Wang has published journal articles and conference papers with his current Ph.D. student, and has submitted research papers for publication with his latest Masters student.

#### Recent and Significant Publications:

- N.W. Fisher, J. Chen, S. Wang, and L. Thiele, "Thermal-Aware Global Real-Time Scheduling and Analysis on Multicore Systems," *Journal of Systems Architecture (JSA)*, 57(5), 2011, pp. 547-560.
- S. Wang, J. Chen, J. Liu, and X. Liu, "PowerSleep: A Smart Power-Saving Scheme with Sleep for Servers under Response Time Constraint," *IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS)*, 1(3), September 2011, pp. 289-298.
- Z. Shi and S. Wang, "Modified Nonmonotone Armijo Line Search for Descent Method," *Numerical Algorithms (NA)*, 57(1), 2011, pp. 1-25.
- S. Wang, Y. Ahn, and R. Bettati, "Schedulability Analysis in Hard Real-Time Systems under Thermal Constraints," *Real-Time Systems Journal (RTSJ)*, 46(2), October 2010, pp. 160-188.
- S. Wang and J. Chen, "Thermal-Aware Lifetime Reliability in Multicore Systems," *Proceedings of the IEEE International Symposium on Quality Electronic Design (ISQED)*, San Jose, California, March 2010, pp. 399-405.
- J. Chen, S. Wang, and L. Thiele, "Proactive Speed Scheduling for Real-Time Tasks under Thermal Constraints," *Proceedings of the IEEE Symposium on Real-Time Technology and Applications (RTAS)*, San Francisco, California, April 2009, pp. 131-140.
- S. Wang and R. Bettati, "Reactive Speed Control in Temperature-Constrained Real-Time Systems," *Real-Time Systems Journal (RTSJ)*, 39(1-3), August 2008, pp. 73-95.

Service: Professor Wang is rated excellent in his service. He has participated as a program committee member in 24 conferences and workshops related to his research areas. He also has participated in seven conference organization committees, comprising such tasks as publicity chair and webmaster. He has reviewed numerous papers for 19 different journals. Finally, he has participated in several NSF grant review panels. He has also participated in several committees at the department level, most notably the Search Committee and the committee which helped to formulate our new B.S. degree in digital forensics.

#### External Reviewers:

Reviewer (A): "I strongly recommend that Professor Wang be granted tenure. ... What I like about Professor Wang's approach to research is that he builds a theoretical foundation in addition to performing simulation. ... By comparison, I think Professor Wang's approach to this problem and his results are superior to those of my own group."

Reviewer (B): "He has made significant contributions on thermal-aware real-time computing. ... In summary, Dr. Wang has made significant contributions in the area of real time systems and applications."

Reviewer (C): "Dr. Wang is a very active and productive researcher and has made significant contributions in the areas of real-time processing, multicore systems, and computer networks. ... He has an outstanding publication record... His record in research is outstanding."

Reviewer (D): "I have found that he is very independent and reliable, with strong leadership qualities. Besides, I have been quite impressed by his research achievements. ... He is well recognized in his field for his pioneering work on thermal-aware real-time computing. His research work in this area is not only very productive, but also of high quality."

Reviewer (E): "In my opinion, this paper created a new area of research that is still being explored with the real-time community. ... I am impressed by the number of papers he has been able to publish over the past five years, with most of these papers in top-tier venues."

Reviewer (F): "His publication record would clearly put him over the threshold for tenure at my university."

Reviewer (G): "Dr. Wang has a solid funding record. ... I have no doubt that his future contributions to the field will be significant."

Reviewer (H): "An important indication of his maturity and contribution to scientific research is the quality of his work in addition to his high productivity. ... In summary, both his research achievement and future potential are above par for his career stage with limited PhD student resource."

Reviewer (I): "His funding record shows his growing research scope with peer-recognized visions and well-organized research plans."

Summary of Recommendation: Professor Wang is an excellent researcher, a significantly capable teacher, and a valued colleague. He has published many well-cited papers in journals and conferences, has been successful in acquiring very competitive NSF funding, and has served on numerous journal and conference committees. His teaching is very good in all of his courses, whether undergraduate or graduate, and his course development efforts are excellent. His service to the field and to the department has also been excellent. We are pleased to recommend, with the strong support of the College of Engineering and Computer Science Executive Committee, Shengquan Wang for promotion to associate professor of computer and information science, with tenure, Department of Information and Computer Science, College of Engineering and Computer Science.



Subrata Sengupta, Dean  
College of Engineering and Computer Science



Daniel Little, Chancellor  
University of Michigan-Dearborn

May 2012