Approved by the Regents
May 15, 2008

PROMOTION RECOMMENDATION

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

Jie Shen, 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. 2000	University of Saskatchewan, Computer Science, Saskatoon, Saskatchewan, Canada
M.S. 1997	University of Saskatchewan, Computer Science, Saskatoon, Saskatchewan, Canada
Ph.D. 1988	China Agriculture University, Vehicle Engineering, Beijing, China
M.S. 1985	Jiansu University, Vehicle Engineering, Zhenjiang, China
B.S. 1982	Jiansu University, Vehicle Engineering, Zhenjiang, China

Professional Record:

2002 to present	Assistant Professor, Department of Computer and Information Science, College of Engineering and Computer Science, University of Michigan-Dearborn, Dearborn, Michigan
2000 to 2001	Computer Scientist, Altair Engineering, Irvine, California

Summary of Evaluation:

Teaching: Jie Shen's teaching is rated as significantly capable. He has taught a wide range of undergraduate courses, along with his graduate course in computer graphics. His philosophy of teaching embodies a balance between knowledge acquisition, skill development, enthusiasm, and professionalism. Professor Shen's belief is that the purpose of education is not only to convey knowledge to students, but also to teach them how to solve problems by emphasizing skill development, and to inspire students' passion in science and engineering. Realizing that it is impossible to pass all relevant knowledge to the students during the limited lecture hours, he emphasizes fundamental skills of problem solving and knowledge acquisition, so that students can self-learn. Professor Shen also devotes part of his lectures to inspire his students' passion and natural curiosity, while adapting his teaching to the background of the students in front of him, a truly student-oriented approach. He incorporates research results into his teaching. Professor Shen has often made his teaching seem more real by showing the students solutions to cutting-edge, real-world problems. Such activities also work their way into his extracurricular interests as well. Professor Shen has demonstrated the equipment in his Virtual Engineering Laboratory to many high-school students, to whet their interests in science and engineering. Along these lines, he has also supported an undergraduate research student. Since joining UM-Dearborn, he has shown steady improvement in his student evaluations.

Research: Professor Jie Shen's research is rated as excellent. The main focus of his research activities is on innovative computational methodologies for solving both fundamental and

applied problems in engineering. Over his entire professional career, he has published three books and ninety five technical papers. Since joining the Department of Computer and Information Science, he has published two books and twenty five journal papers. He has received five external grants, including two NSF MRI grants, and seven internal research grants. Jie Shen's research is characterized by multidisciplinary team efforts from computer science, sensor technology, nano/microscale technology, and engineering. The philosophy of his research work follows the principle of being unique, creative and explorative with a focus on critical unsolved problems in precision measurement, nondestructive evaluation, multidisciplinary optimization, modeling and simulation

Recent and Significant Publications:

Shen, J., "Synthesization of edge noises for touch probes and laser sensors," *Computer-Aided Design and Applications*, vol. 4, nos. 1-4, 2007, pp. 247-256.

Shen, J. and Yoon, D., "A fast and accurate denoising algorithm for two-dimensional curves," *Computer-Aided Design and Applications*, vol. 4, nos. 1-4, 2007, pp.199-208.

Shi, Z. and Shen, J., "Convergence of Liu-Storey congregate gradient method," *European Journal of Operational Research*, vol. 182, no. 4, 2007, pp. 552-560.

Shen, J., Yoon, D., Shou, H., Zhao, D., "A set of denoising algorithms for two-dimensional closed curves," *Computer-Aided Design and Applications*, vol. 3, nos. 1-4, 2006, pp. 1-10.

Shi, Z. and Shen, J., "A New Class of Super-Memory Gradient Methods," *Applied Mathematics and Computation*, vol. 183, 2006, pp. 748-760.

Shou, H., Shen, J. and Yoon, J., "Robust plotting of polar algebraic curves, space algebraic curves and offsets of planar algebraic curves," *Reliable Computing*, vol. 12, no. 4, 2006, pp. 323-335.

Service: Professor Jie Shen's service to the department, the college, the university, and the field is rated as excellent for one at this stage in his academic career. He has served on numerous departmental committees and on several campus-wide committees, including groups concerned with improving the research footprint of this campus. He is on the editorial boards of two journals and on numerous conference program committees. As expected, he has also chaired conference sessions and reviewed many journal and conference papers.

External Reviewers:

Reviewer A: "Overall, Dr. Shen has done a nice job of contributing to this field – both in his research and in the service he has provided. He has published a good number of papers in both journals and conferences, and has obtained external funding to support this research. I believe he has the ability to continue to do good research, and to move his publication record to the next level."

Reviewer B: "Following thorough consideration of Dr. Shen [sic] scholarly achievements and related documentation, I conclude that the applicant makes a compelling case for being promoted to Associate Professor Rank with Tenure."

Reviewer C: "Overall, Dr. Shen has made a certain number of useful contributions to the field, and has a respectable number of new grants recently started. He is unlikely to be a leader within the field, but I feel he could make a competent academic if encouraged to focus on a narrower level, and to concentrate on quality at the expense of quantity of output."

Reviewer D: "Jie is a man of integrity, an academic with enormous potential for becoming the next generation of high-impact researchers, a scientist of world-class caliber, and a loyal and supportive colleague. … All of his papers I processed have been top quality, thought provoking, and some of them marked the beginning of a new era in research. … I rank Jie in the top 10% world-wide in just about all the categories relevant for being an Associate Professor at the University of Michigan. … He has high visibility, he is very well connected internationally, and has the vision and the experience to move any university in the right direction."

Reviewer E: "Dr. Shen published 40 papers, more than six papers annually, and has a steady, focused, and expanding research program. A careful examination of Dr. Shen's papers shows that the quality is very good, and some ideas are useful with a potential to be developed further in the future. Dr. Shen's standing in relation to his peers in general geometric modeling is very good to excellent, and is excellent in his very specialized areas. Dr. Shen also served as a reviewer/editor for a number of journals and conferences, and on many conference and technical committees. My conclusion is that Dr. Shen is a promising researcher with a strong research record and a solid research program, and served the modeling community well."

Reviewer F: "The quality [of publications] is comparable to others in the technical field of computational point/mesh analysis, and at the stage of being considered for tenure and promotion to Associate Professor. … There are other academic researchers working in the same field, but Dr. Shen has above average success in contributing results that improve on currently available offerings … and in working with relevant industry partners..."

Reviewer G: "As a summary of my evaluation, I think Dr. Shen's scholarly accomplishment, based on the publication and funding record, and his professional service and contribution, were outstanding. I am also pleased to see his research activities on assessment of damage and failure of engineering materials were recently funded by NSF MRI grant. I believe this new grant will leverage some of his other existing research activities as well as new research initiative, for example, in nanocomposites. I believe that Dr. Shen will be a promising and valuable faculty to your department, and strongly recommend for consideration of promotion and tenure."

Summary of Recommendation:

Professor Jie Shen is an excellent researcher, a very good teacher, and a valued colleague. His teaching is good in all his courses, whether undergraduate or graduate, including courses in areas different from his research expertise. His service to the field, the campus, the college, and the department has also been excellent. We are very pleased to recommend, with strong support of the College of Engineering and Computer Science, Jie Shen 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

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