

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Jionghua (Judy) Jin, associate professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering, is recommended for promotion to professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering.

Academic Degrees:

Ph.D. 1999 University of Michigan, Industrial and Operations Engineering
M.S. 1987 Southeast University, Nanjing, China, Mechanical Engineering
B.S. 1984 Southeast University, Nanjing, China, Mechanical Engineering

Professional Record:

7/05-present Associate Professor, Industrial and Operations Engineering, University of Michigan
7/00-6/05 Assistant Professor (promoted to Associate, with tenure, before moving to Michigan),
Department of Systems and Industrial Engineering, University of Arizona
1/99-6/00 Adjunct Assistant Professor/Research Investigator, Industrial and Operations
Engineering, University of Michigan

Summary of Evaluation:

Teaching: Professor Jin has taught three undergraduate courses (IOE 265-Probability and Statistics for Engineering, IOE 366-Linear Statistical Models and 466 Statistical Process Control) as well as a graduate course, IOE 591-Statistical Learning and Applications in Quality Engineering. She is developing a new 591 course on Green Energy Manufacturing. Initially, her Q1 and Q2 scores in 265 and 366 (large enrollment classes) were low and she worked with CRLT to improve her teaching. One student notes, "what really impressed me about her was her receptiveness to feedback." Another student comments, "She is well prepared for every class." Her subsequent scores improved considerably. Her scores in her 400 and 500 level classes average 4.59 and 4.71 for Q1 and Q2 respectively. Many students commented on her willingness to extend her office hours and to meet with them outside of the normal routine.

She has graduated six Ph.D. students (four at UM and two at Arizona) and is working with six additional Ph.D. students now. Three of her UM Ph.D. students have taken faculty positions (in Ecuador, University of Arizona and University of Iowa). She is clearly a devoted teacher who goes out of her way for her students.

Research: Professor Jin works in the area of quality engineering. While most of her work has been applied to manufacturing systems, she has also worked in healthcare, transportation, causal networks and decision making. Her work is characterized by a fusion of engineering knowledge and statistical modeling and theory. She has published 43 refereed papers (26 since promotion to associate professor) and has a healthy stream of papers under review. She has amassed nearly \$4.5M in research funding to date, from NSF (including CAREER, PECASE and GOALI awards), as well as industry.

Professor Jin has worked in the area of process monitoring and system diagnosis, merging complex product and process data. She was the first to introduce the use of wavelets in complex manufacturing contexts. This work is not only of theoretical or methodological interest, it has also been applied in a

number of industrial problems in GM, Ford, and OG Technologies. She has also contributed significantly to the literature on multistage manufacturing processes

In addition to her CAREER and PECASE awards, Professor Jin has received eight best-paper awards from leading journals, including *IIE Transactions* and *ASME*. She has also received a Forging Industry Achievement Award and was a finalist in the Pierskalla Award competition in healthcare.

Service: Professor Jin currently serves as the director of the Program in Manufacturing within the CoE and is a co-director of the Global Automotive and Manufacturing Program. Within the department, she has served on the Curriculum Committee, the Graduate Program Committee and the Faculty Search Committee (this year). At the university level, she serves on the Executive Committee of CSCAR. Nationally, she serves as a vice president of INFORMS (the Institute for Operations Research and the Management Sciences), was the chairperson of the Quality Statistics and Reliability Section of INFORMS, and has served as the President of the Quality Control and Reliability Engineering Division of IIE (the Institute of Industrial Engineers). She serves as a department editor of the *IIE Transactions on Quality and Reliability*, and is an associate editor of *Technometrics*, the *Journal of the Chinese Institute of Industrial Engineers*, and has served as an associate editor of the *Journal of Quality Engineering* and the *International Journal of Flexible Manufacturing Systems*. Clearly, her service record is outstanding.

External Reviewers:

Reviewer A: “She is clearly a leader in the field. Her research is of the highest caliber from a technical point of view. ... Her contribution to engineering is so substantial because of her ability to integrate knowledge and methodologies from a variety of fields including Operations Research, Statistics, and Mechanical Engineering.”

Reviewer B: “Dr. Jin is an extremely hard-working and productive faculty member. The scholarly quality of her work is impeccable... Her string of papers in this area over the past decade have identified her as a leader in this new approach to monitoring processes and identifying out of control conditions. ... Her service record is unparalleled for someone with her level of seniority and active research program.”

Reviewer C: “Let me state at the outset that I support her promotion strongly, enthusiastically, with no reservations. ...Professor Jin’s research quality and quantity are both outstanding, beyond any of her cohort that come to mind.”

Reviewer D: “...her work will have a long term impact on quality control of complex manufacturing systems.”

Reviewer E: “...she is today one of the world[s] leader[s] in this topic and she has still a lot to do in this direction.”

Reviewer F: “This research has a major impact on quality improvement and reduction of the product development time and ensuring the quality of the final products. ... This work is unique as it ties two areas that have been traditionally investigated independently.”

Reviewer G: “Her contributions to the field of industrial engineering are outstanding.”

Reviewer H: “Judy has established herself as a major contributor in several areas of quality engineering-related research. In particular, she enjoys a worldwide reputation for her work on data fusion for complex system improvement.”

Reviewer I: "Without a doubt, Dr Jin would be promoted to Full Professor at any major universities in the US."

Reviewer J: "She is a scholar whose work we will hear much about in the future. ...she has quickly become one of the key players in Process Control."

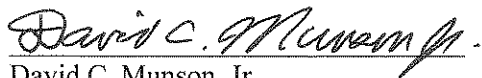
Reviewer K: "The distinguishing qualities of her work are the thoroughness and applicability that are included in her methodological developments. ... Dr. Jin meets or far exceeds the usual criteria for promotion to full Professor in terms of number and quality of her publications, funding, service accomplishments, and visibility for leadership as a scholar."

Reviewer L: "Judy is a complete package. She has a stellar record in research, education and funding, tireless energy, entrepreneurship, and professional visibility."

Recent and Significant Publications:

- Jin, J. and Shi, J. (1999), "State-Space Modeling of Sheet Metal Assembly for Dimensional Control," *ASME Transactions, Journal of Manufacturing Science and Engineering*, Vol. 121 (4), pp. 756-762.
- Jin, J. and Shi, J. (1999), "Feature-Preserving Data Compression of Stamping Tonnage Information Using Wavelets," *Technometrics*, Vol. 41, No. 4, pp. 327-339.
- Ding, Y., Kim, P., Ceglarek, D., and Jin, J. (2003), "Optimal Sensor Distribution for Variation Diagnosis in Multistation Assembly Processes," *IEEE Transactions on Robotics and Automation*, Vol. 19 (4), pp. 543-556.
- Chen, Y., Ding, Y., Jin, J., and Ceglarek, D. (2006), "Integration of Process-Oriented Tolerancing and Maintenance Planning in Design of Multistation Manufacturing Processes," *IEEE Transactions on Automation Science and Engineering*, Vol.3 (4), pp. 440-453.
- Jin, J. and Chen, Y. (2001), "Quality and Reliability Information Integration for Design Evaluation of Fixture System Reliability," *Quality and Reliability Engineering International*, Vol. 17, pp. 355-372.

Summary of Recommendation: Professor Jin is an outstanding researcher who has made significant and novel contributions to quality engineering. Her work has been recognized by numerous best-paper awards as well as an NSF CAREER and a PECASE Award. Her research program is exceptionally well-funded. By applying the principles of continuous improvement to her classroom teaching, she has become an effective high-quality teacher, particularly for higher-level courses. Her service record is phenomenal. It is with the support of the College of Engineering Executive Committee that I recommend Jionghua (Judy) Jin for promotion to professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering.



David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering
May 2011