

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Industrial and Operations Engineering

Cong Shi, assistant professor of industrial and operations engineering, Department of Industrial and Operations Engineering, College of Engineering, is recommended for promotion to associate professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering.

Academic Degrees:

Ph.D. 2012 Massachusetts Institute of Technology, Operations Research, Cambridge, MA
B.S. 2008 National University of Singapore, Mathematics, Singapore

Professional Record:

2012-present Assistant Professor, Department of Industrial and Operations Engineering,
University of Michigan
2010-2010 Research Fellow, IBM Research Lab, IBM, Zurich, Switzerland
2007-2012 RA/TA, Operations Research Center, Massachusetts Institute of Technology,
Cambridge MA
2006-2006 Quantitative Analyst, Motorola Solutions Venture Capital, Motorola, Sunnyvale,
CA
2005-2005 Quantitative Analyst, Citigroup Global Markets, Citigroup, Singapore

Summary of Evaluation:

Teaching: Professor Shi has made significant contributions to teaching at the undergraduate and graduate levels. He regularly teaches a large section (typically well over 100 students) of IOE 265, the department's core course on probability and statistics. Professor Shi excels in this challenging assignment. He also teaches important graduate classes in stochastic processes and supply chain management (IOE 516, IOE 591). Students asked to comment on Professor Shi's didactic teaching and advising describe him as a dedicated teacher and mentor who is committed to their success and always willing to help. In recognition of his outstanding teaching, Professor Shi received the College of Engineering's Vulcans Education Excellence Award for AY18-19. He has graduated two Ph.D. students as co-chair and currently advises three more as chair or co-chair. He is also active in advising M.S. and undergraduate students.

Research: Professor Shi's research focuses on operations management with applications to business operations and supply chain engineering. His vita includes 15 archival journal publications to date with 12 of these in the top tier of relevant journals. He has published six articles in the journal *Operations Research*, which is extremely selective and viewed by many as the flagship journal of his field. He has a large body of work in review and is demonstrating strong momentum in his research. He has secured three grants from the National Science Foundation. He is building an excellent reputation among his peers as evidenced by his

uniformly positive external review letters and his many invited seminars at peer institutions including Columbia, Stanford, MIT, and Northwestern.

Recent and Significant Publications:

- C. Shi, Y. Wei, Y. Zhong, “Process Flexibility for Multi-Period Production Systems,” *Operations Research*, in press.
- H. Zhang, X. Chao, C. Shi, “Perishable Inventory Systems: Convexity Results for Base-Stock Policies and Learning Algorithms Under Censored Demand,” *Operations Research*, in press.
- Y. Xu, C. Shi, I. Duenyas, “Priority Rules for Multi-Task Due-Date Scheduling under Varying Processing Costs,” *Production and Operations Management*, 2017; 25(12): 2086-2102.
- H. Zhang, C. Shi, X. Chao, “Approximation Algorithms for Perishable Inventory Systems with Setup Costs,” *Operations Research*, 2016; 64(2): 432-440.
- V. Nagarajan, C. Shi, “Approximation Algorithms for Inventory Problems with Submodular or Routing Costs,” *Mathematical Programming Series A*, 2016; 160(1): 225-244.

Service: Professor Shi’s service includes a solid mixture of internal and external activities. Regarding internal service, he was elected to the Industrial and Operations Engineering Department Committee, which serves an executive decision making role for the department. He has been a member of two lecturer review committees, internal prize committees, organized the departmental seminar, and served on the graduate student admissions committee for five years. Regarding external service, he serves as an associate editor for journals in his field and as a judge of the student paper competitions for the POMS College of Supply Chains and the POMS College of Healthcare Operations Management. Professor Shi has also been active in conference organization, serving as a session chair at numerous national and international conferences.

External Reviewers:

Reviewer A: “...Dr. Shi has made significant contributions and established himself as a leading expert in inventory theory. He is among the best operations researchers at his stage, and his achievement and productivity meet the standards for tenure at peer institutions in the country.”

Reviewer B: “Cong has become the number one junior academic researcher (in the world, across multiple disciplines including OR, OM, ML, CS, etc.), and certainly one of the top two-or-three even including senior researchers, in combining tools from online learning and online convex optimization with newsvendor models and inventory control, where I believe this is a great direction to take these models due to the massive recent interest in such ML techniques.”

Reviewer C: “[His] work in non-parametric learning with optimal regret is truly in the spirit of data-driven inventory control and has the potential of significant impact in theory and practice.”

Reviewer D: “He has 6 papers published in *Operations Research* and 2 papers published in *Management Science*. He has 4 other papers in *Naval Research Logistics* and *Production and Operations Management*. This is an excellent research record. I would argue that this would be a tenurable record by any industrial engineering school or any business school, including my own institution.”

Reviewer E: “I often do not respond to the question of whether a candidate for tenure in another university would get tenure at [my institution]. However, Cong’s case is so strong that I can say, with confidence, that he would be promoted to Associate Professor with tenure in our department.”

Reviewer F: “He does deep, influential research and publishes it in top journals. If he were up for tenure here at [my institution], I would enthusiastically support his case, and I believe he is deserving of tenure at your institution.”

Summary of Recommendation: Professor Shi is an outstanding researcher and educator who is has a strong scholarly reputation among his peers at other institutions. He is making important contributions to service both at the department level and through external service to professional organizations. He shows all the promise of an outstanding scholar who will become a leader in the field of industrial and operations engineering. It is with the support of the College of Engineering Executive Committee that I recommend Cong Shi for promotion to associate professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering.



Alec D. Gallimore, Ph.D.
Robert J. Vlasic Dean of Engineering
College of Engineering

May, 2019