Approved by the Regents
May 17, 2018

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

Jian Hu, assistant professor of industrial and manufacturing systems engineering, Department of Industrial and Manufacturing Systems Engineering, College of Engineering and Computer Science, is recommended for promotion to associate professor of industrial and manufacturing systems engineering, with tenure, Department of Industrial and Manufacturing Systems Engineering, College of Engineering and Computer Science.

Academic Degrees:

Ph.D.	2011	Industrial Engineering and Management Sciences, Northwestern University, Evanston, IL, USA
M.Sc.	2006	Applied Sciences, University of Arkansas, Little Rock, AR, USA
M.Eng.	1999	Control Theory and Application, Chinese Academy of Sciences, Beijing, China
B.Eng.	1996	Electrical Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi Province, China

Professional Record:

2012 – present	Assistant Professor of Industrial and Manufacturing Systems Engineering, Department of Industrial and Manufacturing Systems Engineering University of Michigan-Dearborn, Dearborn, MI

Summary of Evaluation:
Teaching: Professor Hu's performance was rated as significantly capable in this category. He has taught five different undergraduate and graduate courses in operations research, two of which (IMSE 605, Advanced Optimization and IMSE 606, Advanced Stochastic Processes) he developed and two others he updated significantly. Professor Hu distinguished himself as dedicated educator who is committed to the success of his students. Students consider Professor Hu to be an effective and knowledgeable instructor who is always prepared for the class. Students had many positive comments about his concern on student learning and willingness to help. Beyond his contributions in the classroom, Professor Hu has distinguished himself as a very highly sought after graduate thesis advisor. He is an advisor of one Ph.D. and six M.S. thesis students. He also serves on two doctorial committees.

Research: Professor Hu is rated excellent in his research. He is an outstanding, creative and gifted researcher who has made significant original contributions to the field of multi-criteria optimization and decision making. His research develops novel optimization algorithms and models in the presence of uncertainty. He also made a series of significant contributions to risk management and risk-averse multi-criteria optimization under uncertainty and demonstrated its applications in finance, health care, transportation, and logistics. Professor Hu has proven his extraordinary ability through his strong publication record. His research on a budget allocation problem for the United States Urban Areas Security Initiative Program was selected for the NSF-

wide highlights in 2011, and awarded the Best Applied Paper Prize in Operations Engineering and Analysis by IIE Transactions in 2013. His research has been published in top-tier journals in the field of Operations Research including *SIAM Journal of Optimization*, *Operations Research*, *Mathematical Programming*, *IIE Transactions*, *Transportation Research*, and *European Journal of Operational Research*. He also developed a funded research program in the area of robust optimization and risk management. He received external research funding of over $333,000 including $233,000 from NSF as a PI.

Recent and Significant Publications:

Jian Hu, Gevorg Stepanyan. "Optimization with reference-based robust preference constraints," *SIAM Journal on Optimization*, 2017, Impact Factor: 1.968, Accepted.

Jian Hu, Sanjay Mehrotra. "Robust decision making over a set of random targets or risk-averse utilities with an application to portfolio optimization," *IIE Transactions*, 47:358-372, 2015. Impact Factor: 1.451.

Jian Hu, Tito Homem-de-Mello, Sanjay Mehrotra. "Stochastically Weighted Stochastic Dominance Concepts with an Application in Capital Budgeting," *European Journal of Operational Research*, 223(3):572-583, 2014. Impact Factor: 3.297.

Jian Hu, Yupo Chan. "Stochastic Incident-Management of Asymmetrical Network-Workloads," *Transportation Research Part C*, 27: 140-158, 2013. Impact Factor: 3.805.

Jian Hu, Sanjay Mehrotra. "Robust and Stochastically Weighted Multi-Objective Optimization Models and Reformulations," *Operations Research*, 60(4):936-953, 2012. Impact Factor: 1.779.

Jian Hu, Tito Homem-de-Mello, Sanjay Mehrotra. "Sample Average Approximation for Stochastic Dominance Constrained Programs," *Mathematical Programming Series A*, 133(1-2): 171-201, 2012. Impact Factor: 2.446.

Jian Hu, Tito Homem-de-Mello, Sanjay Mehrotra. "Risk Adjusted Budget Allocation Models with Application in Homeland Security," *IIE Transactions*, 43(12): 819-839, 2011. Impact Factor: 1.451.

Jian Hu, Tito Homem-de-Mello, Sanjay Mehrotra. "Risk Adjusted Budget Allocation Models with Application in Homeland Security," *IIE Transactions*, 43(12): 819-839, 2011. Impact Factor: 1.451.

Service: Professor Hu is rated significantly capable in his service. Within the department, he served as faculty secretary for one year. He is a member of the program committee for Ph.D. and M.S.E. in industrial and systems engineering programs. He also served on two different faculty search committees which were successful in hiring two new IMSE faculty members. He has also made good contributions to the professional community.

External Reviewers:

Reviewer A: "I feel the quantity and quality of this work is excellent overall and the publication venues such as Operations Research, and SIAM Journal on Optimization indicate particularly outstanding work."

Reviewer B: "Dr. Hu's work is deep, creative, and I expect will be highly impactful in the field of optimization under risk. He has made significant contributions to the modeling of decision

problems in the face of risk, and always accompanies the new models with analysis that demonstrates how the model can be solved or approximated. … I will highlight as outstanding his recent work, joint with his Ph.D. student… The paper is really exceptional in that it is a rare work that spans the spectrum between presenting novel and useful modeling approaches, providing deep analysis of approximation routines to solve it, and going the final step of providing a practical computational method for it."

Reviewer C: "I consider Jian Hu as a promising young researcher in the area of stochastic and robust optimization. The work is very high quality and defines new area in robust optimization for decision making under uncertainty. It differs from traditional ways of optimizing a weighted combination of multiple objective functions with fixed weights… instead the essential idea is to assume an unknown weight for each objective component and construct an uncertainty set of all the weights using historical data of decision preferences. This robust weighted multi-objective approach is novel and very suitable for applications with tradeoffs between multiple important objectives."

Reviewer D: "Dr. Hu's research activities place him among leaders in optimization theory and its applications."

Reviewer E: "Dr. Hu's research contributions are of fundamental importance to stochastic optimization research and applications. His work technically deep and rigorous.… I am convinced that he is an emerging star in stochastic optimization research …"

Reviewer F: "He published all his papers in very prestigious … flagship journals of our profession. Several of his publications are outstanding … he has demonstrated high potential for achieving excellence in research/creative activity."

Summary of Recommendation:
Professor Hu has established an excellent record of teaching, scholarly research and service at the University of Michigan-Dearborn. We are pleased to recommend, with strong support of the College of Engineering and Computer Science Executive Committee, Jian Hu for promotion to associate professor of industrial and manufacturing systems engineering, with tenure, Department of Industrial and Manufacturing Systems Engineering, College of Engineering and Computer Science.

Anthony W. England, Dean
College of Engineering and Computer Science

Daniel Little, Chancellor
University of Michigan-Dearborn

May 2018