

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

Bochen Jia, 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, College of Engineering and Computer Science.

Academic Degrees:

Ph.D.	2013	Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA
M.S.	2007	Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA
M.S.	2003	Engineering Mechanics, Beijing Institute of Technology, Beijing, China
B. S.	2000	Engineering Mechanics, Beijing Institute of Technology, Beijing, China

Professional Record:

2016 – present	Director, MSE Industrial and Systems Engineering program, Industrial and Manufacturing Systems Engineering, University of Michigan-Dearborn, Dearborn, Michigan
2013 – present	Assistant Professor, Industrial and Manufacturing Systems Engineering, University of Michigan-Dearborn, Dearborn, Michigan
2007 – 2013	Research Assistant, Department of Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA
2007 – 2007	Instructor, Department of Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA
2004 – 2006	Teaching Assistant, Department of Industrial and Systems Engineering, Virginia Tech, Blacksburg, VA

Summary of Evaluation:

Teaching: Professor Jia is rated excellent in teaching. Professor Jia has taught six different undergraduate and graduate courses in human factors and ergonomics, engineering probability and statistics, and design of experiments, two of which (IMSE 4425 and IMSE 501, Human Factors and Ergonomics) he updated significantly. He fully redesigned IMSE 548, Research Methods in Human Factors and Ergonomics course, which is offered as a core class in the Ph.D. ISE program. He also introduced a new popular ergonomics Jack simulation software into the BSE (Industrial and Systems Engineering) and BSE (Manufacturing Engineering) programs. Students consider Professor Jia to be an effective and knowledgeable instructor who is always prepared for the class. Students had many positive comments about his concerns on student learning and his willingness to help. He secured external funds to develop a comprehensive educational program to train undergraduate students at UM-D to work in small interdisciplinary and diverse teams and address practical design issues facing the automotive industry. Beyond his excellent contributions in the classroom, he has distinguished himself as an outstanding faculty mentor for student design teams participating in the Annual National Ergonomics Design Competition. He organized and advised 13 different student teams for this competition. In 2016, one of his teams that included students from three different undergraduate programs (industrial, manufacturing, and bioengineering) won the First Place Award among 46 teams.

Research: Professor Jia is rated as significantly capable in research. His published papers are in the top tier human factors and ergonomics journals and rigorously reviewed conference proceeding. Professor Jia developed a funded research program in occupational ergonomics and vehicle ergonomics. He received external research funding of over \$988,000, including \$481,788 as a PI.

Recent and Significant Publications:

- Jia, B., Nussbaum, M., "Influences of Continuous Sitting and Psychosocial Stress on Low Back Kinematics, Discomfort, and Localized Muscle Fatigue During Unsupported Sitting Activities," *Ergonomics*, 2018, 9:1-36.
- Kim, S., Nussbaum, M., Mokhlespour, M., Jia, B., Alemi, M., Rashedi, E., "Assessing the influence of a passive, upper extremity exoskeletal vest for tasks requiring arm elevation: Part II – 'Unexpected' effects on shoulder motion, balance, and spine loading," *Applied Ergonomics*, 2018, 70:323-330.
- Jia, B., Nussbaum, M., "Development and Evaluation of an EMG-based Model to Estimate Lumbosacral Loads during Seated Work," *International Journal of Industrial Ergonomics*, 2016, 55:96-102.
- Jia, B., Nussbaum, M., Agnew, M., "A Stimulation Method to Assess the Contractile Status of the Lumbar Extensors in a Seated Posture," *Human Factors and Ergonomics in Manufacturing & Service Industries*, 2015, 25(6):674-684.
- Kim, S., Nussbaum, M., Jia, B., "The benefits of an additional worker are task-dependent: Assessing low-back injury risks during prefabricated (panelized) wall construction," *Applied Ergonomics*, 2012, 43(5):843-9.
- Jia, B., Kim, S., Nussbaum, M., "An EMG-based model to estimate lumbar muscle forces and spinal loads during complex, high-effort tasks: Development and application to residential construction using prefabricated walls," *International Journal of Industrial Ergonomics*, 2011, 41(5):437-446.

Service: Professor Jia is rated as excellent in this category. He has served on various committees at different levels. At the department level, Professor Jia is the director of the MSE in Industrial and Systems Engineering program and a committee member of the Ph.D., ISE, and M.S. in HCDE programs. At the college level, he served on the Natarajan Collegiate Professorship Selection Committee and New ELB research and teaching laboratory committees. At the university level, he served on the University Budget Committee in 2015/16. He also serves as a reviewer for top tier archival journals in human factors and ergonomics.

External Reviewers:

Reviewer A: "I am impressed with his scholarly contributions in the area of lumbar spine biomechanics... He has demonstrated scholarly maturity in the continuing refinement of a three-dimensional, electromyography-based, biomechanical model of the trunk, which he developed to analyze seated tasks. I was particularly impressed with his clear delineation of the limitations of his work... Acknowledgment of the limitations and uncertainties of one's research is indicative of an individual who possesses academic maturity and a vision for future study in their domain."

Reviewer B: "Dr. Jia has received significant education grants to establish advanced lab and courses with the integration of advanced engineering tools and methods that could help students to expedite their career development ... He has received about 1 million in research funding, which is a substantial amount for a researcher at his career stage. Some of these grants were received from very competitive industry sponsors."

Reviewer C: “Dr. Jia’s research in the occupational sitting and sedentary lifestyle provides an important basis for solving the increasingly severe sedentary issues. He has made a significant contribution to quantifying the potential musculoskeletal risks associated with sedentary behaviors.”


Reviewer D: “His work in the area of using EMG-based models to evaluate sitting postures and work, is most interesting and potentially valuable for a wide variety of issues; for example, driving for extended time periods, truck driver comfort, and shift work for 8, 10, 12-hour days.”

Reviewer E: “...among his publication, the top cited articles based on Google Scholar is his paper on Ergonomics: ‘Low back injury risks during construction with prefabricated walls: effects of task and design factors.’ This paper led to an important finding in ergonomics that heavier panels significantly increased risks, although the magnitude of this effect differed with panel size and between tasks.”

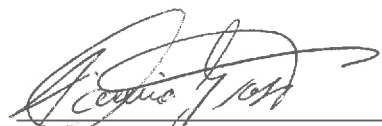
Reviewer F: “Dr. Jia has attracted research sponsorship from industries directly related to occupational ergonomics ... Such funding is an endorsement of Dr. Jia’s research. Dr. Jia has expanded his research beyond occupational ergonomics to systems safety. With the advance of autonomous passenger vehicles, emergent safety topics such as interactions between people and self-driving cars will garner more attentions from research sponsors.”

Summary of Recommendation:

Professor Jia has established an excellent record of teaching, scholarly research, and service at the University of Michigan-Dearborn. We are very pleased to recommend, with the support of the College of Engineering and Computer Science Executive Committee, Bochen Jia 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



Domenico Grasso, Chancellor
University of Michigan-Dearborn

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