

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

Ruijia Feng, 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:

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| Ph.D. | 2015 | Industrial and Operations Engineering, University of Michigan, Ann Arbor, MI |
| M.S. | 2009 | Mechanical Engineering, Tsinghua University, Beijing, China |
| B.E. | 2006 | Automotive Engineering, Tsinghua University, Beijing, China |

Professional Record:

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| 2018-present | Assistant Professor, University of Michigan-Dearborn, Dearborn, MI |
| 2015-2018 | Post-doctoral Research Fellow, University of Michigan Transportation Research Institute, Ann Arbor, MI |

Summary of Evaluation:

Teaching: Professor Feng's teaching ability and effectiveness are rated excellent. He has taught two different industrial and manufacturing systems engineering (IMSE) lecture courses; a graduate course of IMSE 586: Big Data Analysis and Visualization, and an undergraduate course of IMSE 317: Engineering Probability and Statistics. Professor Feng also developed an undergraduate course in engineering statistics (IMSE 440: Applied Statistics Models in Engineering). The overall instructor evaluation for the last five years is 4.17/5.0.

In IMSE, senior design teams have increasingly chosen the course developed by Professor Feng, IMSE 440, as the foundation for their project and design work. This course enables them to showcase their skills in data analysis and interpretation, coupled with employing engineering judgment to reach conclusions, thereby fulfilling the Accreditation Board for Engineering and Technology sixth outcome. In addition, Professor Feng upholds rigorous standards for academic integrity. Beyond his classroom instruction, Professor Feng is highly engaged in student advising across different academic levels. Since his arrival in the IMSE department, he has supervised three doctoral students, three master's students, and five undergraduates on their major projects.

Research: Professor Feng is rated excellent in research. Professor Feng's primary research focuses on sustainable, active, and equitable modes of transportation, such as cycling and walking, by leveraging data-driven insights. Following his affiliation with the IMSE department, he has broadened his research horizons, employing diverse methodologies including

observational studies, laboratory experiments, applied statistics, causal inference, machine learning, human factors, and computational modeling and simulation.

Since 2018, Professor Feng has secured competitive research funding totaling \$1,423,226. This sum encompasses an external grant of \$1,336,424 and an internal grant of \$86,802. Within this funding landscape, he has served as the principal investigator for six projects, including four internal grants, with a cumulative value of \$788,631. Notably, the majority of his research endeavors have garnered support from prominent sources, including federal agencies such as the National Science Foundation (NSF), as well as leading automotive industries like Toyota, Ford, and Honda.

Professor Feng's scholarly endeavors have resulted in the publication of 27 technical works since 2008. This body of work comprises 10 journal articles, 19 conference proceedings, and two book chapters. Notably, seven journal articles have been published since his affiliation with the IMSE department in 2018. Furthermore, a substantial proportion of these journal articles have found their place in highly ranked leading scholarly journals, within his research domain, including *Transportation Research Part C: Emerging Technologies*, *Transportation Research Record*, and *Accident Analysis & Prevention*.

Recent and Significant Publications:

- Dania Ammar, Aditi Misra, Fred Feng, and Shan Bao. "Identifying Factors Related to Crash Injury Levels Involving Bicyclists at Different Locations Through Crash Data Analysis." *Transportation Research Record* (2023).
- Lilit Avetisyan, Chengxin Zhang, Sue Bai, Ehsan Moradi Pari, Fred Feng, Shan Bao, and Feng Zhou. "Design a sustainable micro-mobility future: trends and challenges in the US and EU." *Journal of Engineering Design* 33.8-9 (2022), pp. 587–606.
- Wenbo Sun, Matthew Aguirre, Jionghua Judy Jin, Fred Feng, Samer Rajab, Shigenobu Saigusa, Jovin Dsa, and Shan Bao. "Online distraction detection for naturalistic driving dataset using kinematic motion models and a multiple model algorithm." *Transportation Research Part C: Emerging Technologies* 130.103317 (2021).
- Bo Yu, Shan Bao, Fred Feng, and James Sayer. "Examination and prediction of drivers' reaction when provided with V2I communication-based intersection maneuver strategies". *Transportation Research Part C: Emerging Technologies* 106 (2019), pp. 17–28.
- Fred Feng, Shan Bao, Robert C Hampshire, and Michael Delp. "Drivers overtaking bicyclists-An examination using naturalistic driving data." *Accident Analysis & Prevention* 115 (2018), pp. 98– 109.
- Fred Feng, Shan Bao, Judy Jin, Wenbo Sun, Shigenobu Saigusa, Amin Tahmasbi-Sarvestani, and Jovin Dsa. "Estimation of lead vehicle kinematics using camera-based data for driver distraction detection." *International Journal of Automotive Engineering* 9.3 (2018), pp. 158–164.
- Fred Feng, Yili Liu, and Yifan Chen. "Effects of quantity and size of buttons of in-vehicle touch screen on drivers' eye glance behavior." *International Journal of Human-Computer Interaction* 34.12 (2018), pp. 1105–1118.

- Fred Feng, Shan Bao, James R Sayer, Carol Flannagan, Michael Manser, and Robert Wunderlich. "Can vehicle longitudinal jerk be used to identify aggressive drivers? An examination using naturalistic driving data." *Accident Analysis & Prevention* 104 (2017), pp. 125–136.
- Fred Feng, Yili Liu, and Yifan Chen. "A computer-aided usability testing tool for in-vehicle infotainment systems." *Computers & Industrial Engineering* 109 (2017), pp. 313–324.
- Bo Cheng, Wei Zhang, Yingzi Lin, Ruijia Feng, and Xibo Zhang. "Driver drowsiness detection based on multisource information." *Human Factors and Ergonomics in Manufacturing & Service Industries* 22.5 (2012), pp. 450–467.

Service: Professor Feng is rated excellent in service. He has demonstrated this proactive engagement through his membership in respected research-centered organizations, such as the Transportation Research Board and the international Association for Computing Machinery conference proceedings, reflecting his professional integrity. Moreover, Professor Feng's community outreach initiatives, highlighted by guest lectures at Purdue University and the University of Michigan-Dearborn, and local community involvement, underscore his profound commitment to academia and community service. His ongoing contribution as a reviewer for scientific journals and conferences on transportation safety further underlines his essential role in this field. Professor Feng has served on five departmental and college committees and four university committees. He has held the position of faculty secretary in the IMSE department for four years and currently serves on the faculty senate. His engagement extends to public communication about the department, including managing its Twitter account. In addition to his teaching duties, Professor Feng has enriched the academic community by delivering short courses and workshops on both the Dearborn and Ann Arbor campuses to diverse audiences, including undergraduate and graduate students, and K-12 students and teachers. His engagement with industry is also evident in his work with Ford Motor Company.

External Reviewers:

Reviewer A: "Professor Feng has developed a strong reputation for his work in transportation safety, primarily through the lens of human factors analysis. At this stage in his career, he has achieved significant milestones toward becoming an internationally recognized scholar in these areas, from high impact journal publications to the most recent CAREER award, often deemed as the ultimate validation of one's approach. In short, his collective work puts him in a class of faculty that is deserving of tenure and promotion."

Reviewer B: "These research activities are motivated by Professor Feng's vision to advance sustainable, active, and equitable modes of transportation through data-driven insights. I expect that Professor Feng will continue to contribute substantially to this vision throughout the course of a successful academic career. Professor Fred Feng has met or exceeded all expectations for promotion to professor at the University of Michigan-Dearborn."

Reviewer C: "Professor Feng's potential is outstanding, as evidenced by his research and scholarship, educational achievements, and service contributions. I see a bright future ahead for


Professor Fred Feng, especially as a recipient of the NSF CAREER Award. I wholeheartedly support Professor Fred Feng in receiving tenure at your prestigious department and University.”

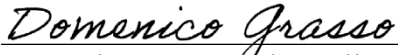
Reviewer D: “In summary, the evidence of the quality of his work is clear in that he has earned competitive external funds, published in rigorous journals, and recruited and advised graduate and undergraduate students. His work demonstrates mastery of advanced statistical methods, and his research methods and skills tackle important topics. I see a trajectory in Professor Feng’s work for continued success by defining a research space where he can be a recognized scholar in the field. I would recommend promotion to Associate Professor.”

Reviewer E: “In summary, Professor Feng has shown an excellent record in scholarly activities and has great potential to contribute to the research community. Only with his research performance, I believe he deserves to be promoted to the rank of associate professor with tenure.”

Reviewer F: “In summary, Professor Feng’s research focuses on human factors and bicyclist safety, incorporating data mining and emerging technologies. His research is of excellent quality and well-supported by competitive grants. His work shows great potential to impact the field of sustainable infrastructure significantly. Additionally, he excels in teaching and mentoring students. Regarding service activities, his level of involvement is outstanding for his career stage. Given his impressive accomplishments, I am confident that Professor Feng will continue to thrive and make lasting contributions to research and education.”

Summary of Recommendation: Professor Feng has established himself in the field of human factors and sustainable transportation, and his research endeavors have been supported by the prestigious NSF Faculty Early Career Development Program (CAREER) program award. Meanwhile, he has made significant service and teaching contributions to his department, college, and the Dearborn campus. We are very pleased to recommend, with strong support of the College of Engineering and Computer Science Executive Committee, Ruijia Feng for promotion to associate professor of industrial and manufacturing systems engineering, with tenure, Department of the Industrial and Manufacturing Systems Engineering, College of Engineering and Computer Science.


Ghassan Kridli, Dean
College of Engineering and Computer Science


Domenico Grasso, Chancellor
University of Michigan-Dearborn

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