



Professor Haitao Liao
The Endowed Systems Integration Chair

Department of IE,
University of Arkansas, Fayetteville

Date: Friday, Nov. 03, 2023

Time: 1:00 -- 1:50 pm

Location: Melcher 180

Assisting Practitioners in Handling Complex Reliability Engineering Problems

Abstract: Reliability assessment and maintenance logistics are essential to the reliable, economical, and safe operation of engineering systems. So far, many reliability models, statistical methods, signal processing approaches, and optimization tools have been used successfully in reliability analysis and improvement of new components and complex systems. Meanwhile, maintenance planning and scheduling based on different sources of data and mathematical tools continue to improve. In the talk, I will first address several interesting reliability and maintenance problems and highlight some important works that benefit practitioners in the related fields. As engineering systems become more complex, more effort beyond traditional statistical methods and optimization approaches is needed to surmount technical hurdles in data processing, system modeling, and decision making. I will introduce how we use machine learning methods to overcome some of these technical challenges in our recent works and address some future opportunities for students and researchers.

Biography: Dr. Haitao Liao is a Professor and the John and Mary Lib White Endowed Systems Integration Chair of Industrial Engineering at the University of Arkansas – Fayetteville. He received his Ph.D. in Industrial and Systems Engineering from Rutgers University in 2004. He also earned M.S. degrees in Industrial Engineering and Statistics from Rutgers University, and a B.S. degree in Electrical Engineering from Beijing Institute of Technology. His research interests include: 1) reliability, 2) maintenance, 3) service logistics, 4) probabilistic risk assessment, and 5) data analytics. His research has been sponsored by the U.S. National Science Foundation, Department of Energy, Department of Transportation, Nuclear Regulatory Commission, and industry. The research findings of his group have been published in *IISE Transactions*, *European Journal of Operational Research*, *Naval Research Logistics*, *IEEE Transactions on Reliability*, *IEEE Transactions on Automation Science and Engineering*, *Reliability Engineering & System Safety*, etc. In 2014, he served as Chair of INFORMS Quality, Statistics and Reliability (QSR) Section, and President of IISE Quality Control and Reliability Engineering (QCRE) Division. He received a National Science Foundation CAREER Award in 2010 and several best paper and tutorial awards.