DEPARTMENT of INDUSTRIAL ENGINEERING
UNIVERSITY of HOUSTON

FRIDAY SEMINAR SERIES
BROADEN HORIZONS | EXTEND MINDS

Prof. Shiyu Zhou
the David H. Gustafson Chair
and Vilas Distinguished Achievement Professor
Department of ISE
University of Wisconsin at Madison
WI

Date: Friday, Feb. 7, 2025

Time: 1 - 1:50 pm

Location: D2 Lect2

Predictive Analytics for Internet of Things Enabled Smart Systems

Abstract: The Internet of Things (IoT) technology enables the collection and sharing of relevant data across a wide range of devices. This capability, combined with real-time decision-making, creates unprecedented opportunities for system modeling, monitoring, prognosis, and decision-making. In this talk, new data analytics techniques tailored for industrial IoT systems will be introduced, including modeling and prognosis of condition monitoring signals using multivariate Gaussian convolution processes and a hidden Markov model with deep emission network. The advantageous features of the developed methods are demonstrated through numerical studies and real-world case studies. Thoughts on potential research and education opportunities exploiting the ever-growing data-rich engineering environment will be shared as well.

Biography: Shiyu Zhou is the David H. Gustafson Chair and Vilas Distinguished Achievement Professor of the Department of Industrial and Systems Engineering at the University of Wisconsin-Madison. His research focuses on data-driven modeling, monitoring, diagnosis, and prognosis for engineering systems with particular emphasis on manufacturing and after-sales service systems. He has established methods for modeling, analysis, and control of Internet-of-Things (IoT) enabled smart and connected systems, variation modeling, analysis, and reduction for complex manufacturing processes, and process control methodologies for emerging nano-manufacturing processes. He is a recipient of CAREER Award from the National Science Foundation and multiple Best Paper Awards. He is a fellow of IISE, ASME, and SME.