



THE UNIVERSITY OF GEORGIA  
DEPARTMENT OF STATISTICS

## *Colloquium Series*

**Thursday, September 7th, 2023  
4:00 PM, Room 204, Caldwell Building**

### **Dr. HongYue Sun**

Associate professor with the College of Engineering at the University at Georgia

#### **DATA SCIENCE ENABLED DECISION-MAKING IN ADVANCED MANUFACTURING AND PERSONALIZED SAFETY**

The advancements of sensing and information technology have brought significant opportunities to engineering systems, where data containing rich streaming and heterogenous information are collected in manufacturing, occupational, and other systems. However, there is a lack of systematic methodologies to address these high dimensional, streaming, and heterogenous information and support engineering systems decision-making.

In this talk, I will present data science enabled decision-making to address the above challenge, with applications in advanced manufacturing and personalized safety. First, I will introduce the consideration of high dimensional and streaming data for inkjet printing additive manufacturing process modeling, monitoring and control. For instance, by addressing the parameter, spatial, and temporal relationships in network of tensor time series analysis, we accurately predict the droplet evolution in inkjet printing and save the experimentation efforts in material and process explorations. Second, I will introduce the work on occupational worker fatigue assessment based on wearable sensors, to model the personalized, dynamic and heterogeneous information of workers and inform the optimal system management. Finally, the future plans will be discussed.

#### **About the Speaker**

Dr. Hongyue Sun is an associate professor in Mechanical Engineering, University of Georgia. Before that, he was an assistant professor in Industrial Engineering, University at Buffalo. He has a multidisciplinary background with a B.E. in mechanical engineering, M.S. in statistics, and Ph.D. in industrial engineering, respectively. Dr. Hongyue Sun's research interests are data science for advanced manufacturing, occupational safety, and healthcare systems. His research has been broadly supported by NSF, NIOSH, DoD, MxD, etc. His research has been recognized by several best paper awards from INFORMS and IISE. He received the Outstanding Young Manufacturing Engineer Award from the SME and UB's Exceptional Scholar: Young Investigator Award from University at Buffalo in 2023. He is a member of IISE, INFORMS, IEEE, and ASME.



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