Marcella E. Miller

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EDUCATION

University of Cincinnati; Cincinnati, Ohio

• Doctor of Philosophy – May 2024 (expected)
Mechanical Engineering • GPA 4.00

• Master of Engineering – May 2019
Mechanical Engineering • GPA 4.00

• Bachelor of Science – May 2019
Mechanical Engineering Major • Mathematics Minor • GPA 3.91

MEMBERSHIPS & AWARDS

Rindsberg Fellowship Recipient
Tau Beta Pi Engineering Honor Society
Pi Tau Sigma Mechanical Engineering Honor Society
Cincinnatus Excellence Scholar
National Society of Leadership and Success Cincinnati Chapter (Vice-President)

TECHNICAL SKILLS

MATLAB (including App Designer), Python, SolidWorks, MS Office (including VBA)

PUBLICATIONS

J. Lee, X. Jia, V. Pandhare, **M. Miller**. "Analyzing data obtained via wind farm Supervisory control and data acquisition" in *Utility-Scale Wind Turbines and Wind Farms*. 2021; Book Chapter.

V. Pandhare, X. Li, **M. Miller**, X. Jia, J. Lee. "Intelligent Diagnostics of Ball Screw Fault through Indirect Sensing using Deep Domain Adaptation" in *Transactions on Instrumentation and Measurement*. Dec. 2020; Journal Paper.

F. Zhu, X. Jia, **M. Miller**, X. Li, F. Li, Y. Wang, J. Lee. "Methodology for Important Sensor Screening for Fault Detection and Classification in Semiconductor Manufacturing" in *Transactions on Semiconductor Manufacturing*. Nov. 2020; Journal Paper.

J. Lee, C. Azamfar, **M. Miller**. "5G and Smart Manufacturing" in *Manufacturing Leadership Journal*. Oct. 2020; Journal Article.

P. Li, X. Jia, J. Feng, F. Zhu, **M. Miller**, L.-Y. Chen, J. Lee. "A novel scalable method for machine degradation assessment using deep convolutional neural network" in *Measurement*. Sep. 2019; Journal Paper.

WORK & RESEARCH EXPERIENCE

NSF I/UCRC for Intelligent Maintenance Systems; Cincinnati, OH

• Graduate Researcher • May 2019 – Present
Designed CNC machine monitoring system to determine current health status of various components.
Helped to develop ball screw test bed, comprehensive test procedures, and multi-faceted analysis approaches to monitor preload loss, backlash development, and position-specific degradation.
Created health assessment and fault detection metrics for robotic arm to identify and isolate faulty joints.
Provided PHM training to new students and members; gave lectures and offered small group instruction as TA for industrial AI course.

• Undergraduate Researcher (NSF REU) • May 2017 – May 2019
Led sports medicine project to predict athlete fitness and heart rate recovery patterns; modified analytics tool to facilitate cleaning and processing of patient data.

Power Solutions International; Itasca, IL

• Advanced Product Development Graduate Intern • Fall 2020
Developed MATLAB app for comprehensive engine fault analysis to reduce manual processing time and produce uniform, organized data structure for future use.

Lincoln Electric; Euclid, OH

• Plant Engineering Co-op • Fall 2017

Magna Electronics; Auburn Hills, MI

• Verification, Systems, Mechanical Engineering Co-op • Summer/Fall 2015, Summer 2016, Spring 2017