IN THIS ISSUE

Meme of the Month!

LATEST NEWS

Spring 2023 Meeting, April 17 & 18

We cordially invite you to attend our Spring MDS-Rely Center Meeting on **April 17-18** in-person on the University of Pittsburgh Campus. Attend faculty project updates, a poster session, and network with PItt and Case faculty and graduate students and other industrial and government lab members. Find more information about the Spring 2023 meeting here.

Register Here!

FACULTY FEATURED PROJECTS

Effects of Aerosol Jet Printing Parameters on the Lifetime Performance of Additively-Manufactured Flexible Circuits

Janet Gbur, Research Assistant Professor, Case Western Reserve University, Investigator, Advanced Platform Technology (APT) Center, VA Northeast Ohio Health Care Center | Mitchell Melander – MS Student – Case Western Reserve University

Professor Janet Gbur, Roger French, and Satish Iyengar's project "Effects of Aerosol Jet Printing Parameters on the Lifetime Performance of Additively-Manufactured Flexible Circuits" focused on aerosol jet printing (AJP), which is an emerging additive manufacturing technology that can be used to fabricate flexible electrical circuits. The benefits of this approach allow for a wider variety of substrate materials, material shapes, less hazardous processing materials, lower cost, and less production time compared to traditional microfabrication approaches. The proposed work examines the effect of various printing parameters on the aerosol jet produced conductive traces. Applications for AJP flexible electronics can vary significantly; however, fundamental material and device-level understanding can be gained by considering a simple circuit. Circuits will be fabricated to study the effects of printing parameters on the mechanical and electrical behavior of the device. Data collected will be used to develop processing maps correlating with printing parameters to guide future development of the sensors, including final fabrication, mechanical testing, and functional testing.

Read the full article here!

UPCOMING EVENTS

Monthly Technical Seminar

"Introduction to MDS-Rely: A National Science Foundation Industry University Cooperative Research Center"

Laura Bruckman, Associate

Professor, Materials Science and Engineering, Case Western Reserve University | Paul Leu, Associate Professor, Industrial Engineering, University of Pittsburgh


Date: Thursday, March 16 4-5 PM
Location: *virtual (zoom)
Zoom Meeting Link Here

Abstract: This webinar introduces participants to the Materials Data Science for Reliability and Degradation (MDS-Rely) Center, a joint National Science Foundation (NSF) Industry University Cooperative Research Center (IUCRC) between Case Western Reserve University (CWRU) and the University of Pittsburgh (Pitt). The primary goal of MDS-Rely is materials data science and the application of data science-informed research to better understand the reliability and lifetime performance of essential materials, products, and devices.

In this talk we introduce the vision and core values of the Center as well as highlight the 5 current projects at the Center. The center currently consists of eight members and includes biannual meetings, biweekly project meetings, monthly technical seminars, monthly newsletters, and a members portal.

Biweekly Project Meetings Available To All Members

If you are interested in attending any biweekly project meeting, please visit our Members portal, which can be accessed via the link at the top right of our Center website. You can also go to a specific project and raise a request to get access to the Zoom links to attend any of these meetings. You can also access prior recordings and presentations of any biweekly meetings.

1. netSEM Modeling for Service Life Prediction of Polymers
Prof. Laura Bruckman
March 21, April 4... Tuesdays 1 - 1:30 PM

2. Achieving Reliable Laser Powder Bed Fusion based Additive Manufacturing via Machine Learning of in-situ Optical Profilometry Monitoring Data
Prof. Xiayun Zhao
March 24, April 7... Fridays 4:15 - 4:45 PM

3. Image Machine Learning of Printed Metal Films for EMI Shielding
Profs. Leu, French, Iyengar
March 15, 29, April 12...Wednesdays 1:30 - 2 PM

4. Comparative analysis of Machine Learning techniques in predicting structure property relationships for composite dielectric materials
Profs. Sehirlioglu, Martin
March 13, 27, April 10 ...Mondays 10:30 - 11 AM

5. Effects of Aerosol Jet Printing Parameters on the Lifetime Performance of Additively-Manufactured Flexible Circuits
Prof. Janut Gbur
March 17, 31, April 14…Fridays 1:00-1:30 PM

Check out our calendar with upcoming events here!

JOB OPENINGS AND OPPORTUNITIES

Research Experiences for Undergraduates

If you are an undergraduate interested in a research experience because you are interested in graduate school, going beyond classwork, and working with a faculty and graduate student mentors, please email David Ruvolo (david.ruvolo@pitt.edu) about which of our projects you might be interested in.

NNL Fellowship Opportunities

The Admiral Hyman Rickover Graduate Fellowship Program

Description: This program in Nuclear Engineering prepares graduate students for roles in the Naval Nuclear Propulsion Program as it supports the broader objective of advancing fission energy development through the research efforts of Fellows.

Department of Energy Computational Science Graduate Fellowship Program

Description: Computational Science Graduate Fellows are given opportunities to develop improved algorithms for parallel computer architectures, advanced visualization, advanced data management, etc, etc. You could be involved in new developments within several broad categories, including but not limited to reactor physics, materials science (including semiconductor applications), two-phase flow, and radiation shielding.

Learn more about both opportunities here. Feel free to contact the Fellowship Coordinator Dr. Jake Ballard (jake.ballard@unnpp.gov) with any questions.

Assistant Professor of Industrial Engineering, Tenure Stream

The Department of Industrial Engineering at the University of Pittsburgh invites applications for an open tenure-track faculty position at the assistant professor rank with an expected start date of Fall 2023.

“We are seeking candidates in all areas of industrial engineering with priority given to data science, simulation, AI/ML, and operations research applied to address challenges in health systems, manufacturing, materials, robotics, and quality/reliability. Applicants must hold a PhD in Industrial Engineering or a closely related field. Applicants should also have a strong methodological background and an ability to conduct impactful, cutting-edge, interdisciplinary research. Our primary search criterion is the potential to build and sustain a successful research program. Candidates should have evidence of, or potential for, teaching excellence.” For more information on how to apply, click here.

Member Summer Internship Opportunities

If you are a Center member interested in offering summer internship opportunities to our graduate or undergraduate students, please contact David Ruvolo (david.ruvolo@pitt.edu) and we will be sure to feature the opportunity in our next newsletter and distribute information to students.

Submit News

Fill out a news form here!

Submit Job Openings

*For MDS-Rely members only

Fill out a job opening form here!

Interested in partnering with Case Western or Pitt Professors?

Please contact Dr. Roger French or Dr. Paul Leu for more information!

CONNECT WITH US!

Our mailing address is:
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