MDS-Rely

SEPTEMBER 2025

NEWSLETTER

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Fall Meeting

Fall Meeting Recap

The semi-annual MDS-Rely Fall meeting, hosted at CWRU last month, convened leaders from academia, national laboratories, and manufacturing industries to examine how data-driven methods are accelerating innovation within MDS-Rely. Through collaborative discussions, research presentations, and the selection of new projects for the coming year, the forum reinforced alignment between cutting-edge research and the practical priorities of the manufacturing sector. Highlighting the program, Adam Gripper delivered the keynote address on *Mission-Driven Innovation in Defense and Government Systems*, underscoring the impact of technical advancements on safety and reliability of the U.S. Navy's fleet.

Congratulations to our Fall project meeting winners:

- First Place: Aidan Selkirk, CWRU, PI: Janet Gbur, "Obtaining Optimal Process Parameters for Aerosol Jet Printing".
- Runner-Up: Naomi Saito, Oberlin College, PI: Janet Gbur, "Image Segmentation with ImageJ"

Explore the event's photo album here!

Read a short summary of the meeting here.

Featured Announcements

New Research Projects Lineup

Continuing Projects

1. **Enhancing Degradation Analysis and Failure Prediction through Modern Machine Learning Techniques**
   Prof. Satish Iyengar (Pitt)

2. **Quantitative characterization of chemical interaction of solutes with defects for predicting intergranular corrosion**
   Prof. Hyeji Im (Pitt)

3. **Effects of Aerosol Jet Printing Parameters on the Lifetime Performance of Additively-Manufactured Flexible Circuits**
   Prof. Janet Gbur (CWRU)

New Projects

1. **Multimodal ForMLation**
   Prof. John Kitchin (CMU)

2. **Electrodeposition of Protective Coatings for Harsh Environment**
   Prof. Jung-Kun Lee (Pitt)
3. **Good Vibrations: Developing a Standard for Time-Sonication Superposition to Accelerate Characterization of Aqueous Polymer Degradation**
   Prof. Gerald Wang (CMU)
4. **Explainable AI based Electrical Grid Fire Resilience Assessment and Predictive Analytics**
   Prof. YuAnn Li (Pitt)

Potential New Projects

1. **Development of Process Reliability Parameters for Dry Spray Coating Technique**
   Prof. Neamul Khansur (CWRU)
2. **Effect of deoxidizer additions on printing outcomes of refractory metals**
   Prof. Bryan Webler (CMU)
3. **Enhancing Data Management Practices with Ontologies & FAIR Pipelines**
   Prof. Erika Barcelos (CWRU)

Learn more about the upcoming projects from a brief proposal description here.

MDS-Rely + PyData Collaboration Event

Join us on Thursday, October 16th from 6 to 8 PM in Benedum Hall 102 as Dr. Satish Iyengar hosts an event sponsored by Pydata Pittsburgh on “Driving Materials Innovation with Data: The MDS-Rely Center for Industry-Academic Partnerships”. Learn how MDS bridges the gap between theory and practice regarding material reliability and degradation by partnering with data scientists, engineers and industry professionals alike.

Learn more about the event here!

Member Engagement Opportunities

Ongoing and Completed Research Projects

Our Project summary document provides detailed summaries of the ongoing and completed research projects. Some senior design projects are also highlighted. Please check it out here.

Biweekly Research Project Meetings

Stay engaged with the latest in research and development by joining our biweekly project meetings on Zoom. Each session offers updates and discussion, along with opportunities to mentor PhD students in advanced research. Can't make a session? Contact the lead professor to explore flexible options. Check the Center Calendar for dates and times. Check the Center Calendar for meeting dates and times.

1. Effects of Aerosol Jet Printing Parameters on the Lifetime Performance of Additively-Manufactured Flexible Circuits
Prof. Janet Gbur (CWRU)
Oct 2, 16, 30… every other Thursday 1:00 - 2:00 PM

2. Non-Invasive Detection of Defects during Coatings Manufacturing
Prof. Chris Wirth (CWRU)
Oct 10, 24 … every other Friday 11:45 - 12:15 PM

3. Enhancing Battery Degradation Analysis and Thermal Runaway Prediction
Prof. Satish Iyengar (Pitt)
Oct 15, 29 … every other Wednesday 7:30-8:00 AM

4. Machine Learning Methods for Optimizing and Innovating Structural Color Paints and Coatings
Profs. Paul W. Leu, Oliver Hinder, and Jungtaek Kim (Pitt)
Oct 7, 14, 21, 28 … every Tuesday 10-10:30 PM

5. Quantitative Characterization of Chemical Interaction of Solutes with Defects for Predicting Intergranular Corrosion
Profs. Hyeji Im (CWRU)
Oct 1, 15, 29 … every other Wednesday 2:30 - 3:00 PM

Job Openings and Opportunities

Member Job Openings

- Eaton's Career Page
- Lawrence Livermore National Laboratory Internships
- National Energy Technology Laboratory Career Page
- Parker Hannifin Career Page
- U.S. Army Devcom Student and Intern Opportunities
- National Institute of Standards and Technology Job Openings
- Naval Nuclear Laboratory Career
- Westinghouse
- PPG

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, Pitt or CMU Professors?

Please contact Dr. Laura Bruckman or Dr. Paul Leu or Dr. John Kitchin for more information!

CONNECT WITH US!

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