MDS-Rely

JANUARY 2026 NEWSLETTER

Advancing materials reliability through data-driven collaboration between academia, industry, and government

Data-Driven Material Development in the Tire & Rubber Industry
Seminar by Rocco Panella

Other Highlights

John Kitchin's Members-Only LLM-Enchanced Coding Workshop Recap

This issue highlights our seminar on data-driven material development in the tire and rubber industry coming up on Friday, January 9th, as well as a recap of John Kitchin's LLM-enhanced coding workshop from December.

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Featured Announcements

Seminar: Data-Driven Material Development in the Tire & Rubber Industry

Friday, January 9th, 2026 @ 12 PM EST

Over 300 million tires are produced each year in the U.S., and each tire relies on rubber compounds that must continuously evolve for performance, durability, and sustainability.

Machine learning and AI are increasingly being used to help design compounds that meet specific performance targets, but complex, nonlinear relationships and imperfect data make this a uniquely challenging problem at the intersection of materials science and data science.

Join us on Friday, January 9th at 12 PM EST for "Data-Driven Material Development in the Tire & Rubber Industry," a seminar where Rocco Panella, Lead Data Tools Developer at Bridgestone Americas, will discuss how data analytics and digital tools are transforming the way materials are developed and optimized for the tire and rubber industry!

This seminar is a great opportunity to deepen your understanding of how data-driven approaches are accelerating material breakthroughs.

Register here:
seminar-data-driven-material-development-in-the-tire-rubber-industry-tickets-1978293231309

Recap of the LLM-Enhanced Coding Members Technical Workshop

Thank you to everyone who joined Prof. John Kitchin's LLM enhanced coding seminar for a great overview of how large language models, such as Claude, ChatGPT, and Gemini, are reshaping modern coding workflows!

Kitchin walked through four practical levels of LLM use: from browser and desktop apps, to coding assistants like GitHub Copilot, to newer CLI tools such as Claude Code and OpenCode, and finally direct API integration. The real-world examples, including how these tools are being used to improve LitDB, offered an insightful and clear framework for how we can (and should!) be incorporating LLMs into our coding practices. It just takes trust and responsibility to learn the skills to use these LLMs.

We appreciate the insights and the engaging discussion, Prof. John Kitchin!

If you are a Center member, but missed the event, they are available on Google Drive. Please reach out to Jeff Piggot if you need access.

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 connected through our biweekly Zoom meetings for research updates and discussion. Contact the lead professor if you can't attend. Check the Center Calendar for meeting dates and times.

Project Title	Lead(s)	Schedule
Effects of Aerosol Jet Printing Parameters on the Lifetime Performance of Additively-Manufactured Flexible Circuits	Prof. Janet Gbur (CWRU)	Jan 7, 21 — every other **Wed 3:00–4:00 PM**
Non-Invasive Detection of Defects during Coatings Manufacturing	Prof. Chris Wirth (CWRU)	Jan 16, 30 — every other **Fri 11:45 AM–12:15 PM**
Enhancing Battery Degradation Analysis and Thermal Runaway Prediction	Prof. Satish Iyengar (Pitt)	Jan 8, 22 — every other **Thu 7:30–8:15 AM**
Quantitative Characterization of Chemical Interaction of Solutes with Defects for Predicting Intergranular Corrosion	Prof. Hyeji Im (CWRU)	Jan 21 – every other **Wed 2:30 - 3:00 PM**
Machine Learning Methods for Optimizing and Innovating Structural Color Paints and Coatings	Profs. Paul W. Leu, Oliver Hinder, and Jungtaek Kim (Pitt)	Jan 8, 15, 22, 29 — every **Thu 5:00–5:30 PM**

Job Openings and Opportunities

Member Job Openings

Explore current openings and internships from MDS-Rely member organizations.

- Eaton Careers
- LLNL Internships
- NETL Opportunities

- Parker Hannifin Jobs
- U.S. Army DEVCOM Student and Intern Opportunities
- NIST Jobs
- NNL Careers
- PPG Careers

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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 for more information!

CONNECT WITH US!

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