It's a wrap! This is the last issue of TeamMSE for the 2022-23 academic year. Before we break for the summer, we celebrate the always-amaizing final projects of our MSE365 and 482 courses and share the last (but not least) events, research, faculty and student news.

Thank you for your attentive readership these past several months. Have a wonderful, relaxing and/or productive summer, and we'll see you in August!

Sharing the wondrous world of MSE: (along the right side of the table, from bottom to top) Ellery Hendrix, Professor Katsuyo Thornton, Eymana Maria, Jason Landini and Associate Professor Liang Qi work an MSE informational table during the Washtenaw Elementary Science Olympiad at Huron High School on Saturday, May 13.

Upcoming Events

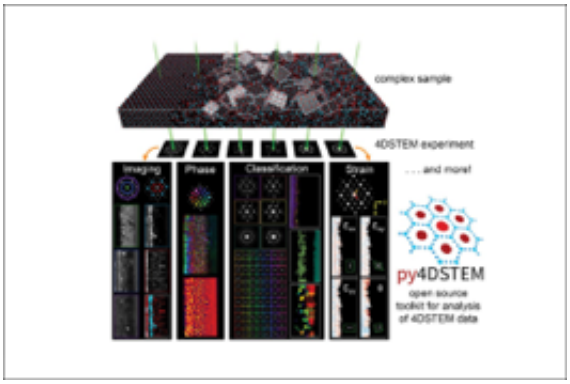
Upcoming special seminars

Davood Shahrjerdi
When: Tuesday, May 23/10:30 a.m.

Where: 1010 Dow
Davood Shahrjerdi of New York University will present: "Nano-Graphitic Carbon: Materials Innovation at the Intersection of Brain Science"
Zoom: umich.zoom.us/j/97765379162, passcode: 631296

Benjamin H. Savitzsky

When: Wednesday, May 24/1:00 p.m.
Where: 3158 Dow (Pod Room)
Ben Savitzsky of the National Center for Electron Microscopy at LBNL will present: "Four Dimensional Scanning Transmission Electron Microscopy for Multiscale and Multimodal Materials Characterization."



Joshua C. Agar

When: Friday, May 26/1:00 p.m.
Where: 3158 Dow (Pod Room)

Joshua C. Agar of Drexel University will present: "Practical Deployment of Machine Learning for High-Velocity Science."

Xiao-Dong Zhou

When: Monday, June 12/time TBD
Where: TBD
Xiao-Dong Zhou of the Institute of Materials Research and Innovation and Dept. of Chemical Engineering at the University of Louisiana at Lafayette will present: "On Non-equilibrium Thermodynamics in Electrochemical Systems." More details coming soon!

Upcoming PhD defenses

Nick Pant

Group: **Kioupakis**
When: **Tuesday, May 23/2:30 p.m.**
Where: **1013 Dow**
Dissertation title: "From atoms to devices: performance bottlenecks of nitride semiconductors using multi-scale quantum methods"

Zoom link:
umich.zoom.us/j/92448041859, passcode: Pant
Best wishes, Nick!

Kyle Bushick

Group: **Kioupakis**
When: **Wednesday, May 24/12:00 p.m.**
Where: **1014 Dow**
Dissertation title: "Development and Application of First-Principles Methods for Phonon-Assisted Quantum Processes."

Zoom link:
umich.zoom.us/j/95145019042, passcode: 225509
Best of luck, Kyle!

Ray Watkins

Groups: **Bassis/Thouless**
When: **Friday, June 2/12:15 p.m.**
Where: **2246 Climate & Space Research Bldg.**
Dissertation title: "Contribution of roughness to the comprehension of features on ice shelves and implications for ice shelf vulnerability"

Zoom link: umich.zoom.us/j/9314162259, passcode: 723383

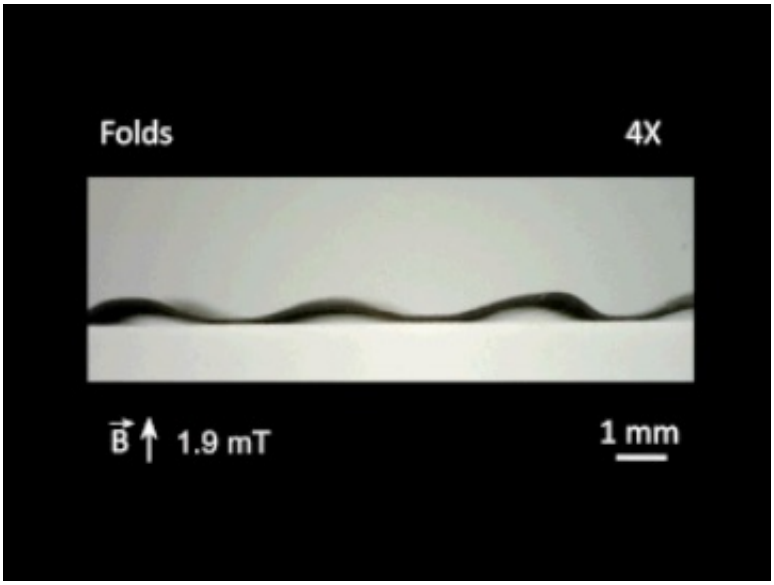
Good luck, Ray!

Save the date: MSE Welcome back picnic Aug. 31!

Save the date! Our annual Welcome Back Picnic will take place on **Thursday, August 31** at Gallup Park. There's no better way to kick off the year, so mark your calendars!

Research highlights

Loebel group publishes article on dynamic folding of magnetoactive hydrogels to mimic tissue patterns



The Loebel lab, in collaboration with the Pena-Francesch group, recently published "Programmable Tissue Folding Patterns on Hydrogels" in Advanced Materials. *Congratulations to both the Loebel and Pena-Francesch groups!*

Education Highlights

MSE 365 final projects display impressive breadth

This year's MSE 365 Reverse Engineering projects included the following topics:

Crocs footwear

Gaming dice
Medicine gelcaps
Silver jewelry
Marimba bars
Resistance band
Screen protector
Tennis string
Microwave containers

"Every year the juniors in MSE365 continue to impress me with the breadth of the projects they choose and their creativity in tackling the problems they encounter," commented instructor Tim Chambers. "And of course, it keeps the class interesting for me to teach because I learn something new every time right alongside the students! Some moments that blew me away included seeing a non-microwave-safe container visibly shrink in a microwave, cutting open a die to find it partly hollow inside, and watching slow motion video of a gelcap bursting in an acid bath. Great job, everyone!"

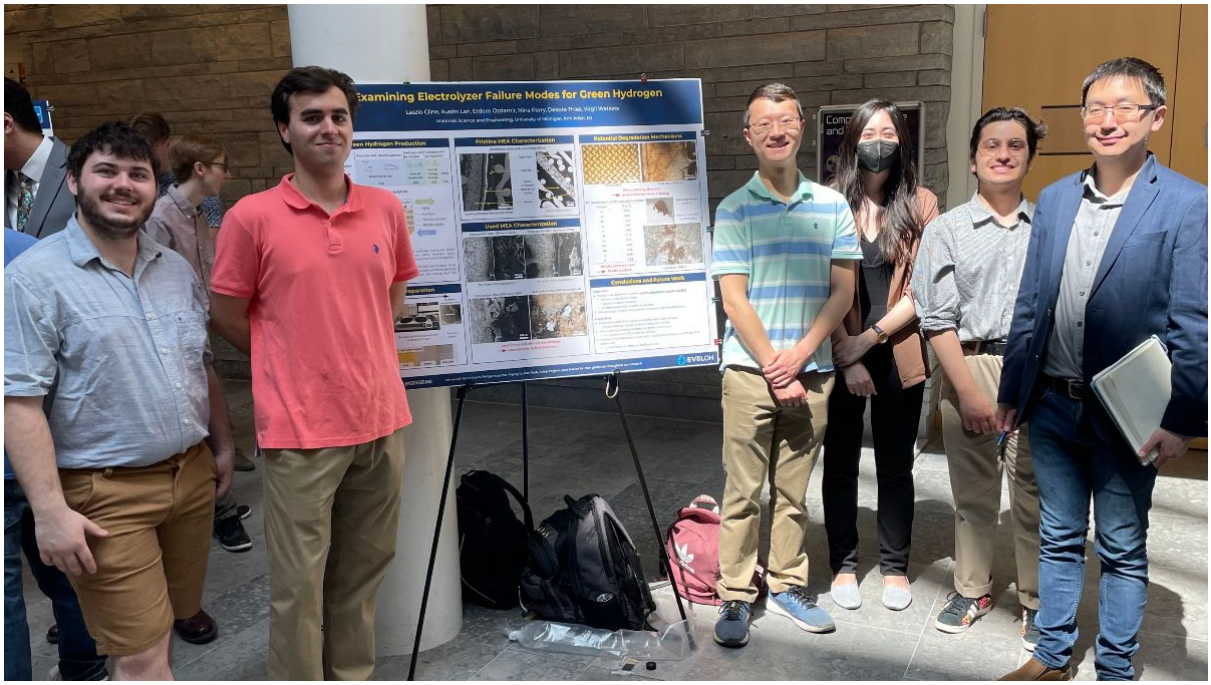
Senior design projects tackle important industry issues

This year eight teams worked with industry partners to design innovative solutions to problems ranging from product packaging to drooping eyelids.

"We are very excited that every MSE undergrad has the opportunity to work with an industry partner on their capstone design project," remarked course co-instructor Yiyang Li. "The students did a fantastic job that applies their knowledge across diverse industries, including automotive, semiconductors, energy, and consumer products."

Projects and team members are listed below:

Project: Examining Electrolysis Failure Modes and Making Green Hydrogen a Reality
Industry partner: EvolOH



EvoIOH team: Dekota Thies, Laszlo Cline, Austin Lan, Nina Perry, Erdem Ozdemir, Asst. Prof. Yiyang Li. Not pictured: Virgil Watkins

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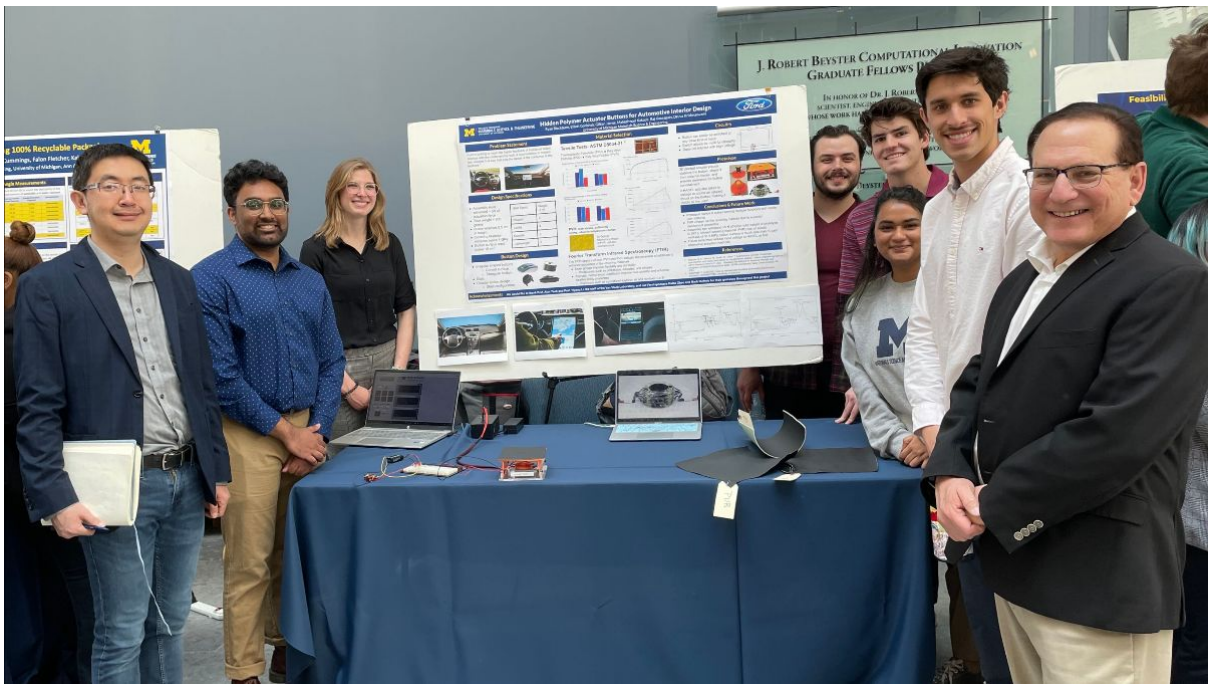
Project: Hidden Polymer Actuators for Automotive Interiors
Industry partner: Ford

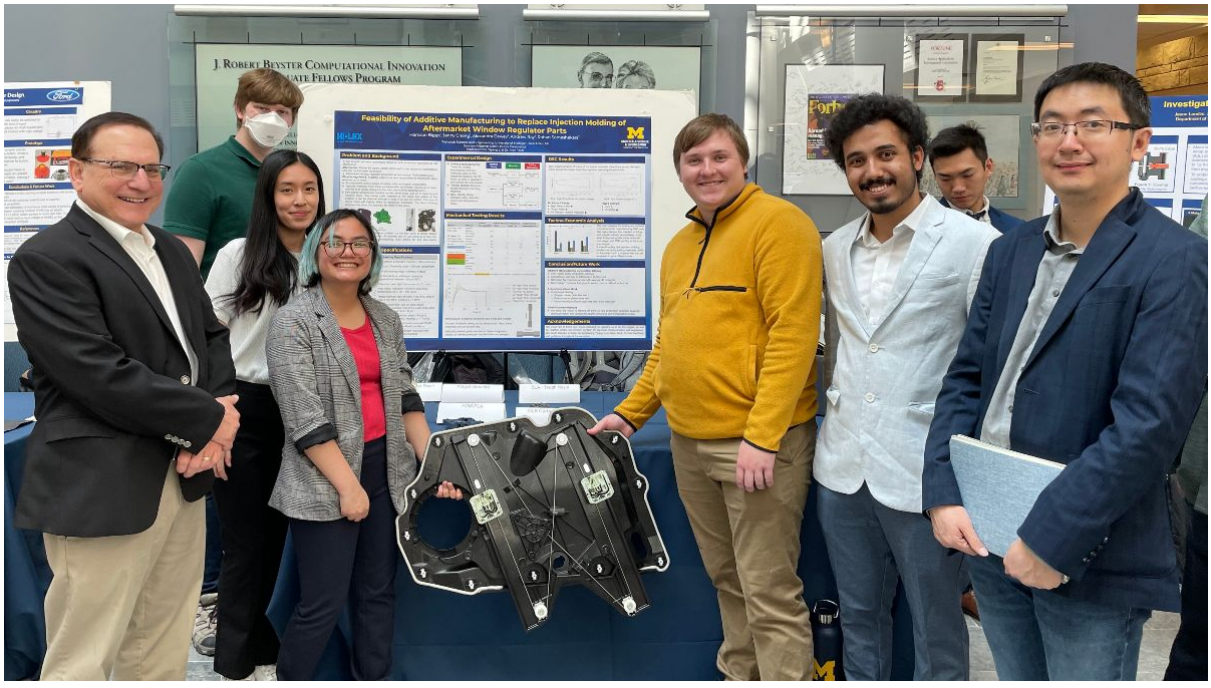


Ford team: Asst. Prof. Yiyang Li, Druva Krishnaswami, Gillian James, Elliott Gorishek, Ryan Blackburn, Maheshwari Kakade, Raj Koorapaty, Prof. Alan Taub.

Project: That's a Wrap: 100% Recyclable Packaging
Industry partner: General Mills

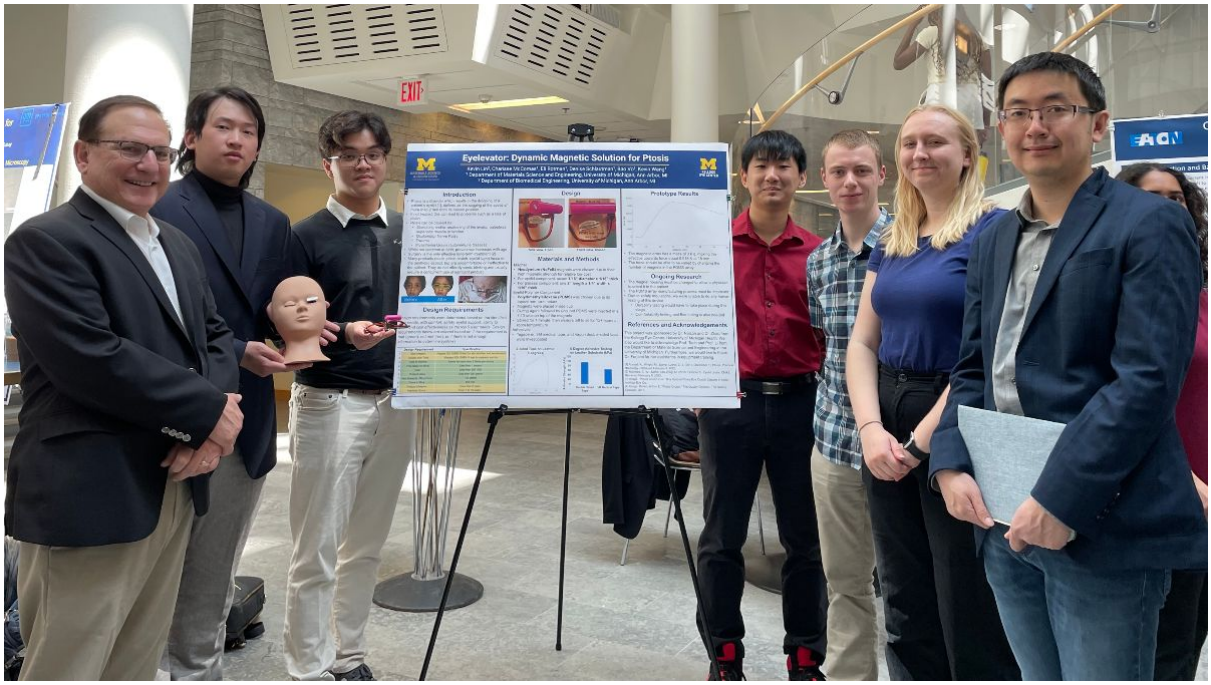
General Mills team: Asst. Prof. Yiyang Li, Kellie Chu, Alia Cummings, Kalyn Fuelling, Falon Fletcher, Jonah Berman, Prof. Alan Taub.

Project: Additive Manufacturing for Aftermarket Window Regulator Parts
Industry partner: Hi-Lex



Hi-Lex team: Prof. Alan Taub, Harrison Biggs, Jenny Chong, Alex Dewey, Andrew Ray, Rohan Somashakara, Asst. Prof. Yiyang Li.

Project: Eyelevator: Magnetically-Assisted Solution for Drooping Eyelids
Industry partner: Kellogg Eye Center



Kellogg Eye team: Prof. Alan Taub, Kevin Lin, Bao Vo, Kevin Wang, Eli Rotman, Denise Schlautman, Asst. Prof. Yiyang Li. Not pictured: Charisse McComas

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Project: Characterizing a Sustainable Polymer Composite Alternative for Automotive Interiors
Industry partner: Eaton
Team members: Mackenzie Darling, Leah Fleming, Caleb Phelan, Rachel Rajkumar, Robert Tubman, Katie Wei

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Project: Heat Treatment of High Strength Aluminum 7075 Sheets for Automotive Body Applications
Industry partner: General Motors
Team members: Aaron Cooke, Megan Klein, Drew McCreadie, Eddie Spengler, Isaiah Stokes, Gillian Tubay

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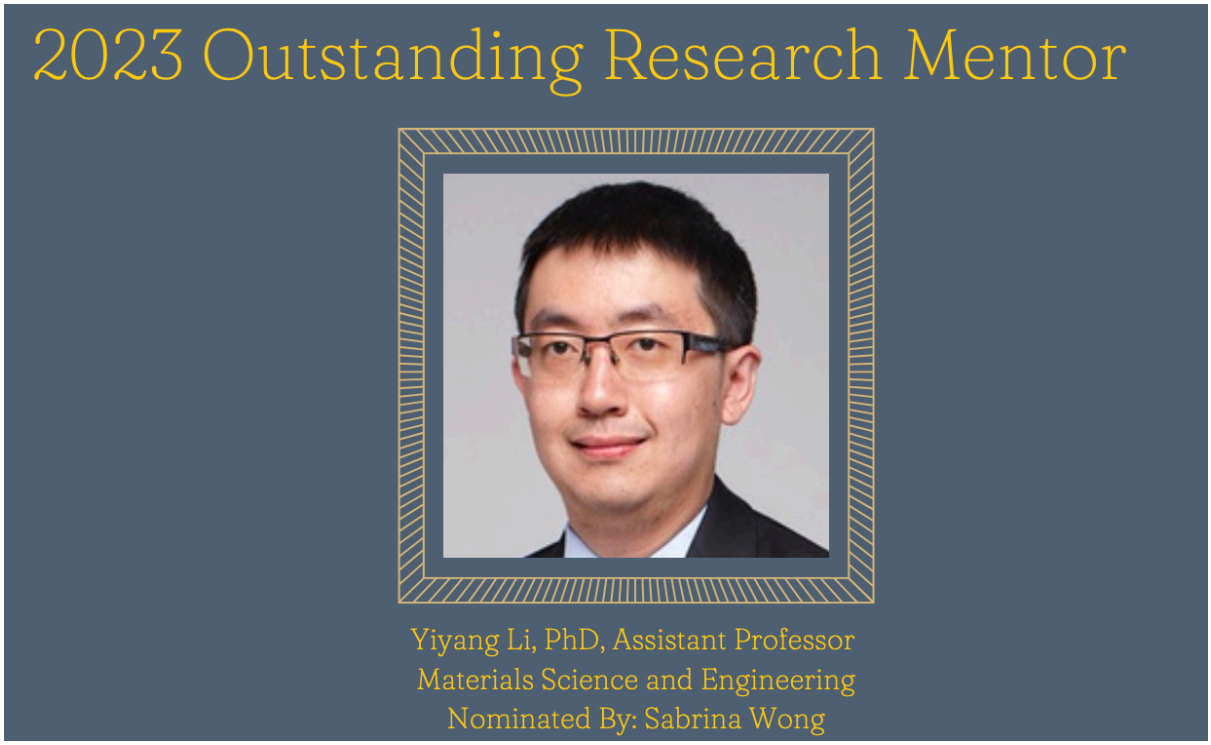
Project: Investigation of Aluminum ConFlat Flange Durability

Industry partner: KLA

Team members: Jason Landini, Xander Mensah, Matthew Walker, Konnor Walter, Josh Willwerth, Allen Zhou

Faculty News

Yiyang Li earns UROP Research Mentor recognition



Assistant Professor Yiyang Li was recently recognized with a 2023 Outstanding Research Mentor Award from LSA's Undergraduate Research Opportunity Program (UROP). In nominating Li, Sabrina Wong stated: "I will always be grateful that he was willing to take a chance on a first-year undergraduate student with no formal research experience and no background in battery science. Furthermore, he not only offered me the opportunity to join his research group, but also even had the confidence to allow me to operate independently in the laboratory on the chemical synthesis of lithium-ion battery particles. This trust means a lot to me and has helped me build up my confidence in my capabilities." *Congratulations, Yiyang!*

Student News

GSC announces 2023-24 officers

Congratulations to the newly elected GSC board!

President: **Hailey Lovelace**

Vice President: **Loulou Batta**

Treasurer: **Kyle Farmer**

Secretary: **Forrest Wissuchek**

2nd Year Master's Rep: **Maheshwari Kakade**

2nd Year PhD Rep: **Tiernan Baucom**

3rd Year PhD Rep: **Tolu Lawal**

4th Year PhD Rep: **Catherine Haslam**

5th Year PhD Rep: **Alex Moy**

DEI Liaison: **Marcel Chlupsa**

Outreach Chair: **Joshua Cooper**

Job opportunities

Pratt & Whitney looking for "curious" engineers

Pratt & Whitney, a world leader in aerospace engine manufacturing, currently has openings for a corrosion engineer and an elastomers/adhesives engineer. For questions about working for Pratt & Whitney, contact MSE PhD alum Aaron Gladstein.

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