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ME-EM eNewsBrief, June 2022

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ME-EM

Michigan Tech eNewsBrief

Vol. 18 | Issue 2 | JUNE 2022

Greetings from Dr. William (Bill) Predebon, J.S. Endowed Department Chair and Professor, Department of Mechanical Engineering - Engineering Mechanics at Michigan Tech. For the latest news and info about our faculty, students and staff, please visit our website at www.mtu.edu/mechanical. Visit us on [Facebook](#), [Instagram](#) and [Twitter](#).



A Note from the Chair:

On June 30, 2022, I will retire after 25 years as the ME-EM department chair and nearly 47 years at Michigan Tech. As I look back on those years as department chair, I want to acknowledge that the progress we have made was on the shoulders of those that came before us and the great faculty and staff that have been a part of this journey with me. By hiring talented faculty and staff, together with our great students, our generous and supportive alumni, and with the support of the university administration, we have been able to innovate, push boundaries, be creative, take risks, and be entrepreneurs. None of our success would have happened without this team of people at all levels. I thank all of you from the bottom of my heart. It has been my pleasure and honor to serve as your department chair.

~ Sincerely, Dr. William W. Predebon, Ph.D.
J.S. Endowed ME-EM Department Chair and Professor

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Upcoming Events

Thursday, August 4. The College of Engineering (COE) will be hosting the annual **Boat Cruise on the Ranger III** during this year's alumni reunion. Boarding starts at 12:30 p.m. at the Isle Royale National Park Office dock in Houghton (*next to the Dee Stadium at 800 E Lakeshore Drive*) and leaves the dock at 1:00 p.m. sharp. Relax and enjoy the lake breezes aboard the Ranger III for a beautiful tour of the Keweenaw Waterway. The COE is providing catering services from the Bonfire at the Continental Fire Co., so you can expect a generous array of hearty appetizers, beer, wine, and soft drinks. This delightful event provides the perfect opportunity to catch up with fellow alumni and learn about the exciting research happening in the COE. The tour will last approximately 3 hours. \$20 of each ticket will be donated to a scholarship fund to lighten the financial load for several COE students each year. Max attendance: 95. Cost: \$50 (\$35 for children ages 1-15).

Register online [here](#) or contact Alumni Relations at 906-487-2400.



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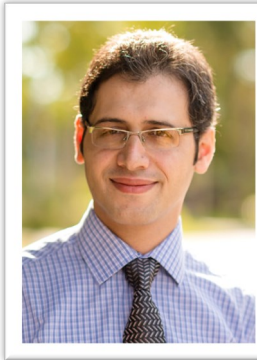
ME-EM Alumni Reunion Open House and Research Lab Tours

Friday, August 5. Meet the ME-EM interim department chair, Dr. Jason Blough, at 1:30 p.m. in the lobby of the R.L. Smith (MEEM) building for a guided tour of the ME-EM department research labs.

The Lagina Family Student Success Center (MEEM 201) will have refreshments at 2:30 p.m., after the tours.

Faculty/Staff Awards/Accomplishments

Dr. Sajjad Bigham (Assoc. Prof., ME-EM) was promoted from assistant



professor without tenure to associate professor with tenure at the Board of Trustees meeting held on April 29, 2022. Dr. Bigham is a heat transfer and energy systems specialist interested in scientific and engineering challenges that lay at the intersection of thermal-fluid, material and energy sciences.

Dr. Bigham was also named to the Lou and Herbert Wacker Professorship in Mechanical Engineering, which was created to attract and retain high-quality faculty who are at the top of their profession, can excite students to think beyond the classroom material and know how to integrate their research into the classroom.

Dr. Ana Dyreson (Asst. Prof., ME-EM) is co-author of an October 2021 Michigan Tech technical report that was mentioned in recent stories by [AP News](#) and [ABC News](#).

Dr. John Johnson (Prof. Emeriti, ME-EM) is co-author of an article published in [SAE Update, News & Insights for Mobility Professionals](#) titled "Regulatory CO2 emission standards are needed for BEVs. BEVs don't have tailpipes and, as a result, they erroneously register as zero CO2 under today's regulations."



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Dr. Stephen Morse (Asst. Prof., CE-GE/ME-EM) earned the Mechanical Engineering (ME) Teacher of the Year Award for 2021-22. The award is selected solely by mechanical engineering students and conducted by the Mechanical Engineering Student Advisory Committee (MESAC). Morse received a certificate and his name has been added to the ME Teacher of the Year plaque of past winners in the lobby of the R.L. Smith Building (MEEM).

Dr. Jeff Naber (Prof., ME-EM; Director, APS Labs) was selected to receive the [2022 Michigan Tech Research Award](#) due to the tremendous impact his research has had on Michigan Tech over the years.

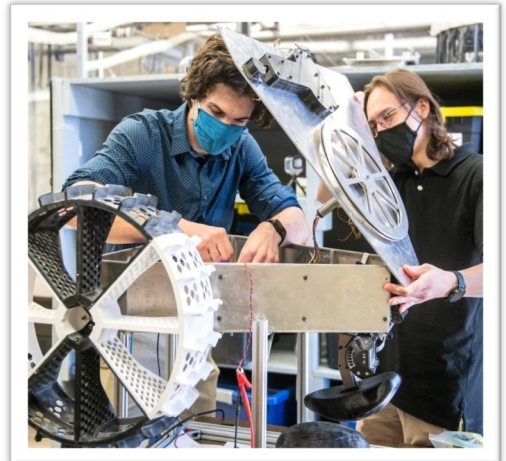
Dr. Naber was also named a Michigan Tech University Professor. The title recognizes faculty members who have made outstanding scholarly contributions to the University and their discipline over a substantial period of time. Read more about Dr. Naber's remarkable career in the [Tech Today award announcement](#) by the Office of the Provost and Senior Vice President for Academic Affairs.

Dr. Myoungkuk Park (Res. Asst. Prof., ME-EM) was one of three principal investigators awarded a research seed grant for Michigan Tech's Spring 2022 Research Excellence Fund (REF) awards.

Dr. Gordon Parker (Prof., ME-EM) was listed by [MLive](#) as Michigan Tech's nominee for the state of Michigan's Distinguished Professor of the Year awards. One faculty member was nominated from each of the state's public universities.

Rachel Store (Res. Eng. Scientist I, ME-EM) earned her MIOSHA Level One Certificate for completing the training MTI Level One: Safety & Health General Industry.

Dr. Paul van Susante (Asst. Prof., ME-EM) and his Planetary Surface Technology Development Lab (PSTDL), aka Huskyworks, were featured in the COE Blog. Check out the article titled "[To the Moon—and Beyond](#)." The Huskyworks lab is dedicated to prototyping, building, testing, and increasing the technology readiness level of technology being developed for lunar and Mars missions.



Student researchers work on a rover in the Planetary Surface Technology Development Lab.

Dr. Wayne Weaver (Prof., ME-EM) and **Dr. Rush Robinett** (Res. Prof., ME-EM) were mentioned in a [Sandia LabNews](#) story about the Sandia National Laboratory's partnership with NASA to design a reliable and resilient microgrid for the moon. The story also ran in [Bioengineer.com](#).

Dr. Yongchao Yang (Asst. Prof., ME-EM) was selected to receive the 2022 [Achenbach Medal](#), annually awarded by Stanford University to recognize a young researcher who has made an outstanding contribution to the advancement of the field of Structural Health Monitoring. The award will be given during the 2022 European Workshop on Structural Health Monitoring in Palermo, Italy in July, 2022.

Student Competitions and Team Awards

Behnam Ahmadi (PhD student, ME-EM), **Behzad Ahmadi** (PhD student, ME-EM), **Masoud Ahmadi** (PhD student, ME-EM), **Kelsey Brinks** (so./ME), and **Gracie Brownlow** (so./ME) won the ASME/K16 and IEEE/EPS Student Design Challenge! Behzad Ahmadi presented the team's heat sink design on behalf of Michigan Tech at the [2022 ITherm conference](#) in San Diego, CA, where Michigan Tech was selected as the winner. The other finalists were from Berlin Institute of Technology, Purdue University, and the University of Arkansas. The team was advised by **Dr. Sajjad Bigham** (Assoc. Prof., ME-EM). Read more about the Heat Sink challenge in [Tech Today](#).

Brian Halonen (sr./ME), **Blake Pietila** (sr./ME), and **Logan Pietila** (sr./ME) were among the eight Huskies honored for the Michigan Tech [Hockey 2021-22 Team Awards](#). Brian was named the Merv Youngs Most Valuable Player, and he also received the Gary Crosby Memorial Award for being the team's leading scorer. Blake received the Rick Yeo Unsung Hero Award. Logan was named the Elov Seger Memorial Most Improved Player.

Luis Hernandez (sr./ME) and Olivia Zinser led the team, Supermileage Systems Enterprise, that tied for second place in the Enterprise category of the [2022 Design Expo Awards](#). Their project was advised by Rick Berkey (Prof. of Practice, MMET) and sponsored by General Motors, Aramco Americas, A&D Technology, Dana Inc., SAE International, Halla Mechatronics, Meritor, Oshkosh Corporation, Ford Motor Company, John Deere, Caterpillar, Henkel, BRP Inc., RapidHarness, Wetherington Law Firm, Danaher, Watermark, Top Flight Automotive, Shipley Energy, TEAMTECH, Gamma Technologies, Velocity USA, and the Enterprise Manufacturing Initiative funded by General Motors.

Valerin Hernandez (sr./ME), **Erin Goff** (sr./ME), **Andrew Ervin** (sr./ME), **Jared Jarvis** (sr./ME), and **Erik Pitcher** (sr./ME) comprised the team, Returning Samples of Hypothesized Surfaces, that earned Honorable Mention in the Senior Design category of the [2022 Design Expo Awards](#). Their project was advised by **Mary Zadeh** (Asst. Teaching Prof., ME-EM) and sponsored by Arizona State University and NASA.

John Herr (sr./ME) and **Luke Quilliams** (sr./ME) led the team, Formula SAE, that earned Honorable Mention in the Enterprise category of the [2022 Design Expo Awards](#). Their project was advised by **James DeClerck** (Prof. of Practice, ME-EM) and sponsored by General Motors, Aramco Americas, A&D Technology, Dana Inc., SAE International, Yamaha, Halla Mechatronics, Meritor, Oshkosh Corporation, Ford Motor Company, John Deere, Caterpillar, Henkel, BRP Inc., RapidHarness, Wetherington Law Firm, Danaher, Watermark, Top Flight Automotive, Shipley Energy, Superior Graphics, TEAMTECH, Gamma Technologies, and the Enterprise Manufacturing Initiative funded by General Motors.

Seth Jensen-Young (sr./ME), **Sam Barwick** (sr./ME), **Matt Krause** (sr./ME), **Nick Sand** (sr./ME), and **Stephen Mleko** (sr./ME) comprised the team, Locomotive Pinion Cutter Feed System, that earned Honorable Mention in the Senior Design category of the 2022 Design Expo Awards. Their project was advised by **Cameron Hadden** (Asst. Teaching Prof., ME-EM) and sponsored by Dr. Pasi Lautala in Civil, Environmental, and Geospatial Engineering.

Nolan Pickett (sr./ME) and **Kyle Bruursema** (sr./ME) led Michigan Tech's Aerospace Enterprise team that tied for second place in the Enterprise category of the [2022 Design Expo Awards](#). Their project was advised by **L. Brad King** (Prof., ME-EM) and sponsored by Auris: Air Force Research Laboratory, Stratus: NASA.

Katy Pioch (sr./ME) and **Daniel Prada** (sr./ME) led the team, Clean Snowmobile Challenge, that placed third in the Enterprise category of the [2022 Design Expo Awards](#). Their project was advised by **Jason Blough** (Prof., ME-EM) and **Scott Miers** (Assoc. Prof., ME-EM) and sponsored by General Motors, Aramco, A&D, Dana, Milwaukee Tool, Caterpillar, Meritor, Oshkosh, Ford, John Deere, BRP (Ski-Doo), Kohler, Mahle, Yamaha, Castle, Gamma Technologies, Quincy Compressor, Shipley Energy, Top Flight Automotive, and Superior Graphics.

Edwin Yazbec (BSME '21, MS student, Mechatronics) was one of five winners of the NoiseCon Best Student Paper Competition. Edwin presented his Senior Design team's project to design, build and test an improved device for testing floor-ceiling vibration in mid-rise buildings. He was also selected as a winner of two travel awards for his presentation. The Senior Design team included now-ME graduates **Dylan Kiefer**, **Jacob Marchi**, **Matt Spreck**, and **Ryan Harrington** (BSME '21), and was advised by **Dr. Jim De Clerck** (Prof. of Practice, ME-EM). The project was sponsored by **Sunit Girdhar** (PhD candidate, ME-EM) and **Dr. Andrew Barnard** (Adj. Prof., ME-EM). The paper was titled "Investigation of an alternative force input method for impact sound rating." It is notable that this was the only undergraduate project to win an award, and there was talk amongst industry members at the conference asking how soon they could get the prototype!

Student Competitions and Team Awards (cont.)

Jorge Povich (sr./ME) and **Eamon McClintock** (sr./ME) led the team, Velovations, that tied for first place in the Enterprise category of the [2022 Design Expo Awards](#). Their project was advised by Steve Lehmann (Staff Engineer II, BME) and sponsored by Cleveland Cliffs, Senger Innovations, Enterprise Program.



Matt Zambon (sr./ME), **Kyle Clow** (sr./ME), **Luke Schloemp** (sr./ME), and **Gabby Sgambati** (sr./ME) were on the team, Britten Water Filtration System, that placed third in the Senior Design category of the [2022 Design Expo Awards](#). Their project was advised by Tony Pinar (Asst. Teaching Prof., ECE) and sponsored by BoxPop powered by Britten, Inc.



ENTERPRISE AWARDS:

Student and Faculty/Staff Awards:

Rookie Award:

Brian Geiger (sr./ME) Multiplanetary Innovation Ent. (based on nominations)

Behind the Scenes Award

Tania Demonte Gonzalez, (PhD student researcher, ME-EM) (based on nominations)

Image Contest - First Place

106: **Aerospace Enterprise** (based on image submitted by the team)



Portage Lake Bridge: the Keweenaw's very own National Historic Civil Engineering Landmark.

Student Accomplishments and Awards

Zbigniew Bell (sr./ME and EMSE) and **Paul Kovacic** (sr./ME) received the Award for Bravery and Service to Others at the university's 28th Annual Student Leadership Awards.



Christopher Briar (sr./ME) received the Student Employee of the Year award at the university's 28th Annual Student Leadership Awards.



Jacob Chizek (sr./ME) was featured in an article in the University's research blog [Unscripted](#) written by Dr. Tim Scarlett (Assoc. Prof., SS; Archaeology & Anthropology). Jacob made a 3D model of the iconic Mather B Mine in Negaunee, which a team of Michigan Tech researchers is using to visualize and measure the energy storage potential in abandoned hard-metal mines across the nation. His model facilitated a detailed design and analysis of a pumped underground storage hydro (PUSH) system—mapping out a future for old mines and clean energy storage.



Ezequiel Cuellar (sr./ME) received the Percy Julian Award at the university's 28th Annual Student Leadership Awards.



Brian Halonen (sr./ME), Michigan Tech hockey forward, was named a [CCM/AHCA All-American](#). Halonen was named to the West Second Team.



Carter Johnston (sr./ME) was selected as the recipient of the 21-22 Basketball Coaches Association of Michigan (BCAM) TEAM FIRST Award. This award is given to one member per team, chosen by their BCAM Member Coach, who most exemplifies putting team before self, teamwork, commitment, service and sacrifice.



Matt Sheeran (sr./ME) was one of seven students quoted in a [Daily Mining Gazette](#) article about the Tau Trot 5K, an event organized by Michigan Tech fraternity Phi Kappa Tau and sorority Alpha Sigma Tau.



Owen White (sr./ME), Michigan Tech men's basketball player, received the [GLIAC Commissioner's Award](#) for Winter 2021-2022. Owen was also named to the 2021-22 [Men's College Academic-Athletic Team](#) by the BCAM.



Stephanie Yeager (sr./ME) and **Gabby Sgambati** (sr./ME) were among the nine students recognized with [Michigan Tech Soccer team awards](#) for the 2021-2022 fall season. Yeager earned Offensive Most Valuable Player, and Sgambati was a Scholar Athlete Award winner.



The Great Lakes Intercollegiate Athletic Conference (GLIAC) announced the Academic Excellence Teams for the 2021-22 Academic Year. Listed below are the ME student-athletes who earned a spot on either the All-Academic Teams (cumulative GPA of 3.0-3.49) or the Academic Excellence Team (GPA 3.5-4.0).

Men's Basketball

Academic Excellence Team:

Eric Carl (jr.), **Kyle Clow** (sr.), **Tyler Robarge** (so.), and **Owen White** (sr.)

Academic Team:

Carter Johnston (sr.)

Outdoor Track & Field

Academic Excellence Team:

Kenny Abraham (sr.), **Toby Bonner** (sr.), **Stanley Elder** (sr.), **Katelyn Feldpausch** (sr.), **Sam Lange** (sr.), **Stephen Loparo** (jr.), **Nathan Luczak** (jr.), **Sam Marshall** (jr.), **Cade Meyer** (sr.), **Jacob Pilon** (sr.), **Kyle Samluk** (sr.), **Eric Smith** (sr.), **Mady VanWieren** (sr.)

Academic:

Trae Larson (jr.), **Max Messina** (sr.)

Women's Tennis

Academic Excellence:

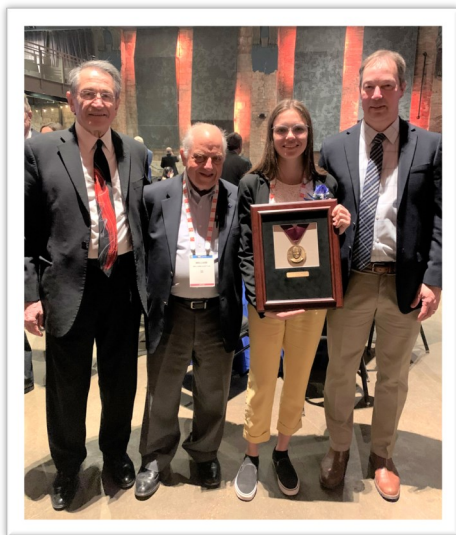
Marina Fernandez (jr.), **Neva Manas** (sr.)

Department Accomplishments

The Mechanical Engineering undergraduate program was featured in a recent [Newsweek](#) article regarding leading engineering programs of 2022. Tech's Civil, Environmental, and Geospatial Engineering undergraduate program was also featured.



Five ME-EM alumni, students, and faculty were recognized at the SAE World Congress in Detroit from 4 - 7 April 2022. **Cora Taylor** (PhD student, ME-EM / Advised by Dr. Jason Blough) received the Rambaugh Outstanding Student Leader Award; **Denise M. Rizzo** (PhD '14) received the Rodica Baranescu Award for Technical & Leadership Excellence; and **Athanasios Konstandopoulos** (MS ME '87) received the SAE John Johnson Award for Outstanding Individual Research in Diesel Engines. Additionally, **Jason Blough** (Prof., ME-EM) and **Darrell Robinette** (Assoc. Prof., ME-EM) were recognized for awards that were selected in 2021 but were not presented last year due to COVID-19. Blough received the SAE Fellow Award and Robinette received the Ralph R. Teetor Educational Award.



Dr. Bill Predebon (Chair, ME-EM), **Dr. Bill Shapton** (Prof. Emeritis, ME-EM), **Cora Taylor** (PhD student, ME-EM) and **Dr. Jason Blough** (Prof., ME-EM), co-advisor, attended the 2022 SAE World Congress Awards Ceremony. **Dr. Jim De Clerck** (Prof. of Practice, ME-EM) is also co-advisor (not pictured).

Mechanical Engineering in Research Expenditures of \$20.255 million (fiscal year 2020) at Michigan Tech was ranked 18th among all Mechanical Engineering Departments in the United States, per the National Science Foundation. This is a direct result of the impactful research conducted by our faculty and graduate students with the support of our staff.

University News/Awards

Janet Callahan (Dean, CoE) was mentioned in an [American Ceramic Society](#) announcement as a member of its 2022 Class of Fellows.



Michigan Tech was one of only three Michigan universities identified by [Bridge Michigan](#) to have shown enrollment increases over the past decade.



[Online Master's Degrees](#) ranked Michigan Tech's online master's program in engineering 18th in the nation for 2022.



Michigan Tech was mentioned in a [Daily Mining Gazette](#) story reporting that suspicious activity has been ruled out as a cause of the June 4 fire at the Lambda Chi Alpha fraternity house on College Avenue.



Michigan Tech was mentioned by the [Michigan Chronicle](#) and [WJMN Local 3](#) as a destination being visited by representatives from Finland during their trip to the Upper Peninsula.



Michigan Tech was ranked 61st in the United States for value by [Money.com](#), which places Tech among the top 10% of colleges in the nation and as the second-best valued college in Michigan.



For the fifth straight year, [a record number](#) of prospective undergraduate students applied to Michigan Tech, including significantly more underrepresented minority students. Tech has received more than 8,800 applications for fall 2022, which is up 30% from the former all-time high set in 2019.



[Crain's Detroit Business](#) and [WJMN Local 3](#) mentioned Michigan Tech as one of two Upper Peninsula recipients of a \$40,000 grant from the Michigan Department of Environment, Great Lakes, and Energy (EGLE).



[Yahoo! News](#) and the [Traverse City Record-Eagle](#) ran stories on an entrepreneurial partnership between startup incubator 20Fathoms and Michigan Tech. Jim Baker, Michigan Tech's Associate VP for Research, was quoted in the stories.



The Portage Lake Bridge is being recognized as one of the most significant historic civil engineering works in the country thanks to three Michigan Tech researchers. The American Society of Civil Engineers (ASCE) [dedicated the Portage Lake Bridge](#) as a National Historic Civil Engineering Landmark at 10 a.m. Friday, June 17, in a ceremony at Houghton's Bridgeview Park. Read the article in [Michigan Tech News](#).



[Online Master's Degrees](#) ranked Michigan Tech's online master's program in engineering 18th in the nation for 2022.



The [Alpena News](#) mentioned Michigan Tech in a story about a research project using autonomous underwater robots to search for shipwrecks in Thunder Bay National Marine Sanctuary. MTU researchers are collaborating with two other universities on the project.



University News/Awards (con't)

Michigan Tech's [Master of Business Administration program](#) (TechMBA®) will soon include three delivery options, the newest of which provides a hybrid option for Grand Traverse area students.

Beginning in fall 2022, students who opt for the 30-credit hybrid program will complete most of their coursework online in a synchronous fashion with once-per-week Zoom meetings where they interact in real time with fellow classmates and their instructor. University representatives were on hand for [Northern Michigan Startup Week](#) (May 9-15) in Traverse City to provide more information.

MTU has also revamped and will soon relaunch its fully online TechMBA® program, which allows students to complete the degree's requirements on their own schedule (referred to as asynchronous learning). Students will still have the option to earn their TechMBA® the traditional way via in-person courses on campus.

The [TechMBA®](#) is offered through Michigan Tech's [College of Business](#) (COB), and both the hybrid and asynchronous options are delivered in partnership with the University's [Global Campus](#) initiative.

Read more at [Michigan Tech News](#).



[Build in Digital](#) and [Parabolic Arc](#) listed Michigan Tech, with **Dr. Paul van Susante** (Asst. Prof., ME-EM) as PI, as one of four universities awarded research and development funding by NASA for proposed lunar projects. The funds were awarded under NASA's Small Business Technology Transfer (STTR) program. Michigan Tech and its partner, LunarOutpost, will receive \$150,000 to develop analytical tools to analyze a lunar site and recommend optimal structures and building strategies.



[Newsweek](#) mentioned [Michigan Tech's earthquake magnitude scale](#) in a story on a series of quakes that hit Yellowstone National Park on Sunday (June 12) ahead of unprecedented flooding.

Alumni & Friends, News Accomplishments & Awards

Christine Andrews (BSME '06, MBA '12) was featured in a profile story posted on [GE Aviation's blog](#). Andrews is a leader in a cooperative project between GE Aviation and NASA to develop a technology demonstration of a hybrid electric engine for commercial aircraft.



Dr. Nancy Barr (ME-EM Prof. of Practice; MS RTC '11, PhD RTC, '16) is leaving the UP and Michigan Tech to take a faculty position with the University of South Florida's Department of English.



Anurag Kamal (MSME '18) was one of ten standouts featured by [Forbes](#) in this year's list of 30 Under 30 who are leading the green energy transition. Kamal co-founded ElectricFish, the company behind a containerized combination battery backup system and EV charger that can connect into existing, ubiquitous electrical infrastructure.



Dr. Sheryl Sorby (ME-EM PhD '91) was selected to receive the ASME Johnson & Johnson Consumer Companies, Inc. Medal. The award "recognizes outstanding contributions by an individual, company, government entity, school, or other organization toward developing and implementing practices, processes, and programs that value and strategically manage diversity and inclusiveness." The award includes an honorarium, bronze medal, certificate, and travel supplement to receive the award.



Current Contracts and Grants

Bar-Ziv, Ezra (PI, Prof., ME-EM); "Rheology Study on Paper (Fiber) Waste"; sponsor: Anellotech, Inc.; total award: \$3,200.

Barnard, Andrew (Co-PI, Adj. Prof, ME-EM); Mary Raber (PI, Pavlis Honors College); "NSF-I Corps HUB - Midwest Region"; sponsor: University of Michigan; total award: \$325,657.

Van Susante, Paul (PI, Asst. Prof., ME-EM/MARC); "Thermal Control in Lunar Rovers and Structures with Novel Electrochromic Variable Emissivity Skins"; sponsor: Ashwin-Ushas Corp.; total award: \$22,923.

Van Susante, Paul (PI, Asst. Prof., ME-EM/MARC); "Autonomous Lunar Landing Pad Site Preparation"; sponsor: Colorado School of Mines; total award: \$320,000.

Van Susante, Paul (PI, Asst. Prof., ME-EM/MARC); "Lunabotics Competition Robot"; sponsor: University of Michigan/ Michigan Space Grant Consortium; total award: \$5,000.



Welcome Dr. Jason R. Blough, Michigan Tech Distinguished Professor and incoming ME-EM department Interim Chair