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ME-EM eNewsBrief, March 2018

Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University

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Greetings from William (Bill) Predebon, Chair, 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, MEEM.

**Upcoming Events**

**2018 SAE World Congress Alumni Reception**

Join us for the MTU ME-EM department Alumni Reception being held on Wednesday, April 11 from 5:30 - 7:30 p.m. in the Cobo Hall Convention Center, Room 411 A/B. Meet with ME-EM faculty, Industry Relations, and our current students as they discuss their designs for the national vehicle competitions. Dr. Predebon will give an update on the latest research, enrollment, faculty, student, university and department accomplishments. Beverages, a cash bar and hors d’oeuvres will be served. Register here.

**ME-EM Alumni Reunion Scholarship Cruise - Early Bird Notification**

Thursday, August 2. Boarding at 12:30 pm. Tour the beautiful Keweenaw Waterway aboard the Ranger III while learning about the exciting research happening in the ME-EM department. Bonfire Steakhouse catering, beer, wine and soda will be provided by the ME-EM department. Tickets are $35, half of which will be your donation to a departmental scholarship fund, and the remainder for the cost of the ticket. Contact Alumni Relations at 906-487-2400 to put your name on the early bird list, or register online here.

**Past Events**

**Winter Carnival Hockey Alumni Scholarship Social** - The skybox was full of MTU alumni, and we raised nearly $700.00 for the scholarship, while the Huskies enjoyed a 5-1 victory over Bemidji State! Dale Kero’s (ME-EM Senior Major Gift Officer) son Devin received MVP and got to kiss the Winter Carnival queen, Cora Taylor (ME-EM) for his valiant efforts as goalie, making 36 saves.

**ME-EM Department Chair Travel**

When on travel for the department, Dr. Predebon visits with alumni to get their feedback on our programs and their career and to give an update on the department and the University. Please let us know if you would be available for a visit when he is in your area (906) 487-2911.

Bill will be traveling to the following cities this summer:

- Week of April 8 - Detroit, MI for the SAE World Congress
- Week of May 7 or May 21 - Shanghai and Wuhu, China
- Week of June 4 - Vancouver, Canada for the ASME Annual Meeting
- Week of June 24 - ASEE Annual Conference in Salt Lake City, Utah
New ME-EM Staff Members

Tricia Stein permanently joined the ME-EM department staff as a Mechanical Engineering Academic Advisor. She was previously a temporary academic advisor. Tricia earned her BSME at Michigan Tech in 1987 and brings to the department a wealth of industrial experience and experience as an engineering recruiter, all of which is valuable background for advising our students.

Kristi Kesti-Pieti joined the ME-EM department office staff as an Office Assistant and is responsible for reception and purchasing and payroll, among other things. Kristi’s previous position with MTU Sponsored Programs, and her background in manufacturing working with engineers of all stripes, makes her an ideal addition to our department.

ME-EM Faculty & Staff Awards and Accomplishments

Dr. Parisa Abadi (assistant professor, ME-EM) published an article in the journal of Advanced Functional Materials titled, "Engineering of Mature Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes Using Substrates with Multiscale Topography". See the Michigan Tech News story here and the full article here. The article has been cited by several outlets including Science Daily, Medical Xpress, News Medical, Technology Networks, Science Newsl ine, and MEDWISE.

Dr. Nancy Barr (Director ME-EM Engineering Communications Program) authored a short story that was awarded the Judges’ Choice Runner-up in the sixth annual Write Michigan Short Story Contest. Read article here.

Dr. Andrew Barnard (assistant professor, ME-EM) was announced as a finalist in this year’s Distinguished Teaching Awards. Award winners will be formally announced in May. See the full article here.


Dr. Nina Mahmoudian (associate professor, ME-EM) has been named the first Lou and Herbert Wacker Associate Professor in Autonomous Mobile Systems. See the full article here.

Dr. Guy Meadows (research professor, GLRC/ME-EM) was selected by the State of Michigan, through a contract agreement with Michigan Tech, to lead an independent risk analysis of the Line 5 Straits Pipelines that run beneath the Straits of Mackinac. Read the Michigan Tech News article here. This article can also be found in Tech Century, an engineering and technology news website published by the Engineering Society of Detroit.

Dr. Greg Odegard (professor, ME-EM) was interviewed by PodcastDetroit on the launch of the Falcon Super Heavy. Listen to the podcast. Greg’s contribution to the conversations starts around the 18 minute mark.

Dr. Xiao Sun (research assistant, CEE), Dr. Qingli Dai (associate professor, CEE), Dr. Muraleekrishnan Menon (research assistant, ME-EM) and Dr. Fernando Ponta (professor, ME-EM) co-authored “Design and Simulation of Active External Trailing-edge Flaps for Wind Turbine Blades on Load Reduction.” The paper received the 2017 Journal of Aerospace Engineering “Best Paper Award”. An award banquet will take place at the 2018 Earth and Space Conference on April 9-12 in Cleveland, OH.

Ed Trinklein (research engineer, ME-EM) won the Unsung Hero Award during the 2017 Making a Difference Staff Awards. Read the article here.

Several ME-EM faculty and staff were honored for their research contributions in calendar year 2017 at the MTU Research Development Day held in January. Two of the three top research expenditures went to ME-EM faculty Dr. Jeff Naber and Dr. Greg Odegard, who each received awards of more than $1MM. Drs. Parisa Abadi, Chunpei Cai, Hassan Masoud, Ye Sun, Lucia Gauchia, and Tony Pinar were recognized for receiving their first external funding as a PI at Michigan Tech. Read the College of Engineering blog article here.
Awards & Accomplishments

Prof. Chuck Van Karsen (associate professor, ME-EM) is the 2018 recipient of the Society for Experimental Mechanics (SEM) D. J. DeMichele Award in recognition of his exemplary service and support in promoting the science and educational aspects of modal analysis technology. Read the announcement on the Society for Experimental Mechanics website here.

Faculty and Student Invention Disclosures

Inventors Dr. Mo Rastgaar (associate professor, ME-EM), Dr. Evandro Ficanha (research assistant professor, ME-EM), and Kenton Kaufman (Mayo Clinic-Rochester, MN) hold patent no. US 9,849,003 B2 for the System for Powered Ankle-Foot Prosthesis with Active Control of Dorsiflexion-Plantaflexion and Inversion-Eversion.

Department Accomplishments

Michigan Tech participated in the 2018 AutoMobili-D exposition in Detroit, which overlaps with the North American International Auto Show. Michigan Tech's booth featured our unique research capabilities related to automotive research in the unstructured environments. Read the article.

Alumni and Friends News, Accomplishments & Awards

Brett Belan (BSME '99) was featured in the Ashland (Wisconsin) Daily Tidings for the solar-powered scooter, Solarolla, he invented.

News of Joe Berger (BSME ‘04), a 13-year NFL pro offensive lineman, was reported in various media outlets (see here, here, here, here and here) as he contemplated retiring from the NFL. Although the Minnesota Vikings wanted him back for the 2018 season, Joe ultimately announced his retirement.

Sai Srinivas C. Petluru (MSME ‘15) was promoted to Senior Electronic Controls Engineer at Cummins Inc. effective February 2018.

Curtis Fortier (BSME ’91, MSME ’94), currently working as an actor and comedian in Los Angeles, was featured on "Jimmy Kimmel Live" in a skit that spoofed a recent incident on the game show "Jeopardy." Fortier was active in theatre productions and was a member of "The Troupe" improvisational comedy group while at MTU. Read the MTU VPA and TechAlum articles.
Student Competitions & Team Awards

Five Michigan Tech students competed in the Lear Open Innovation Challenge 2018, and four brought home awards — including three ME-EM graduate students: Mayank Bagaria, Arvind Ravindran and Anurag Kamal. Read article here.

The 2018 SAE Clean Snowmobile Challenge, hosted by the Keweenaw Research Center and the ME-EM department, held March 5-9, was featured in various news sources. Read articles here, here, here, here and here.

Over spring break the Michigan Tech Robotics Systems Enterprise GM/SAE AutoDrive Challenge Team, called Prometheus Borealis, headed to Road America’s four-mile, 14-turn road circuit in Elkhart Lake, Wisconsin, to run tests on their autonomous vehicle. Dr. Jeremy Bos (assistant prof., ECE), and Dr. Darrell Robinette (assistant prof., ME-EM) are faculty co-advisors. Read the article, and Twitter updates here, and the FoxNE/KFXL coverage.

Student Accomplishments / Awards

Cora Taylor (sr. ME-EM) was crowned 2018 Winter Carnival Queen & Audience Choice. Congratulations!

Kyle Monroe (jr. ME-EM) was named the Great Lakes Intercollegiate Athletic Conference North Division Player of the Week, the US Basketball Writers Assoc. Division II Men’s Basketball National Player of the Week, Top 50 Watch List for the 2018 Bevo Francis Award, and 2018 Division II Conference Commissioners Association All-Midwest Region First Team (see here and here). Kyle has also been selected to the National Assoc. of Basketball Coaches’ 2018 Midwest All-District First Team. Read article here.

Rebecca Spencer (sr. ME-EM) was featured in an article for volunteering. Finlandia and MTU students read to Houghton Elementary kids on Martin Luther King Day. See article here.

Ryan Thompson (sr. ME-EM) presented at Feb 15’s HuskyLEAD! See the full article in Tech Today here.

Articles featuring the research of Brandon Jackson (ME-EM PhD candidate) are featured on the websites of both LiveScience and Democratic Underground. Brandon is studying ferrofluids as self-assembling thrusters on tiny satellites.

Amanda Kautzer (jr. double major BioMed and ME-EM), will compete in NCAA Cross Country Skiing alongside four of her MTU teammates. Kautzer has qualified for the Biathlon Junior World Championship US women’s team for the fourth year in a row. See the articles here and here.

The Michigan Tech football program announced the 2017 team awards at its recent annual postseason meeting. Headlining the list of honorees is senior running back John Williams (sr. ME-EM), who was named the Alan Bovard Most Valuable Player. Jacob Wenzlick (sr. ME-EM) was the recipient of the Daniel Dopp Memorial Outstanding Special Teams Player and Outstanding Offensive Player of the Year awards. Jeremy Bell (sr. ME-EM) was selected as the Offensive Lineman of the Year. Check out the full article here.

Cooper Mineheart (so. ME-EM) and Thomas Richter (sr. ME-EM) and three other students are working with the Alternative Energy Enterprise team while living in Tech’s Sustainability Demonstration Home to demonstrate how older homes can be retrofit to be sustainable and energy-efficient. The students are tracking their energy and waste, as well as carrying out projects on how to reduce energy use. See the full article here.
University News and Awards

Michigan Tech announced that Janet Callahan has been hired to serve as Dean of the College of Engineering. She will begin serving on July 1 and will replace retiring dean, Wayne Pennyington. See the full article here.

“Ninety-two percent of Huskies secure a job, enter the military or get into graduate school within six months of graduation,” according to the recently published Michigan Tech Career Services Annual Report 2016-2017.

See how some Michigan Tech ME students apply their education and skills on co-op or internships at Fiat Chrysler Automobiles here. Students interviewed are Nicholas Olbrantz ’17 ME, Yvonne Lewsley ’18 ME, and Brady Mashak ’17 EE.

Dr. Lily Wang, Univ. of Nebraska, led a workshop co-sponsored by the Visiting Women & Minority Lecturer Scholar Series on “Designing a Modular Stage Shell Ceiling” on the Rozsa Center Stage. The workshop was held March 1st and 2nd. Dr. Andrew Barnard’s (assistant professor, ME-EM) Acoustics and Noise Control class formed teams with students from Visual & Performing Arts to design new ideas for the modular ceiling. See the full article here.

Student applications for the 2018-2019 academic year are the highest ever.

MTU’s College of Engineering Graduate School ranked 83rd of more than 200 engineering schools that grant doctoral degrees by the 2019 US News and World Report’s “Best Graduate Schools”. See the full article here.

MTU teamed with NASA’s Jet Propulsion Laboratory (JPL) to demonstrate water extraction on Mars from gypsium and partnered with Honeybee Robotics to develop rock-welding technology for landing pad construction. See the full article in Aerospace America.

MTU is a university partner in a pilot after-school science, technology, engineering and math (STEM) program at Martin Luther King, Jr. Senior High School & Detroit Collegiate Preparatory High School in Detroit. See the full article here.

Detroit News reported on the American Center for Mobility (ACM) self-driving research site in Ypsilanti, and its new partnership with 15 Michigan universities, including Michigan Tech. The partnership will lead to training, courses, recruitment, internships, co-ops and work-study programs. Also, MTU is one of three Michigan universities whose students have been invited to participate in a three-year autonomous vehicle competition sponsored by General Motors and SAE. See the full article here, and more info here.

SWE Students Travel to WE Local, Milwaukee - Six Michigan Tech students, including ME-EM undergrads Hannah Daavettila and Jocelyne Denhof, attended the Society of Women Engineers SWE Local Conference in Milwaukee March 9-11 to participate in the conference career fair, and attend professional development sessions and networking activities. The SWE Women in Academia Committee presented on the various career paths available in academia. See article here.

The Michigan Tech Board of Trustees approved a recommendation to award Senator Gary Peters with an Honorary PhD at the 2018 Spring Commencement. See full article here.

Michigan Tech is building on its resources to create a new STEM ecosystem through a nearly $1 million National Science Foundation grant to the School of Technology(SOT). The focus: expand the number and diversity of academically talented and financially disadvantaged students beginning and completing engineering technology degrees at Michigan Tech. Read the article here.

MTU has been recognized by the Princeton Review as one of 200 colleges across the nation that “pay you back.” See articles here and here.

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Michigan Tech's campus beautification continues with the construction of a clock tower located in the heart of campus between the Memorial Union and the MEEM building.

Join this exciting campus project by purchasing your own personally engraved paver stone to be placed around the clock tower.

The clock tower is part of a generous gift from Bill & Ilene Bernard and their family.

"We hope this gift creates a new gathering place and an opportunity to inspire students to create new traditions. At the same time, we hope it honors the great
University News & Awards (con’t)
The Pep Band and even Blizzard T. Husky were complimented in the column "#GOTECH!—Opposing Team’s Fans Are Setting the Standard," in the Mankato Free Press. The column was written by Free Press Features Editor Robb Murray.

Area News
The FIRST Robotics District Championship took place in Escanaba on March 16. Nearly 40 high school teams are competing in the district, with 8 teams from the Keweenaw area. Read the Keweenaw Report article.

Fox 66, in Flint, ran a story about Hemlock Semiconductor offering 30 students in the Great Lakes Bay Region scholarships to Michigan Tech’s Engineering Scholars Summer Youth Program. The story was also covered on WEYI, and Midland Daily News.

Current Contracts and Grants

Barnard, Andrew (PI, ME-EM); “Caterpillar Hydraulic Fluid Borne Sound”; sponsor: Caterpillar. Total award: $70,000.

Miers, Scott A. (PI, ME-EM); “Pilot Program In-Service Monitoring for Snowmobiles”; sponsor: Int’l Snowmobile Manufacturer’s Association (ISMA). Total award: $87,299.

Naber, Jeffrey (PI, ME-EM); “Continuation of Engine Ignition Studies”; sponsor: Ford Motor Company. Total award: $115,000.

Naber, Jeffrey (PI, ME-EM), Blough, Jason R. (Co-PI, ME-EM); “Powertrain Sensor Fusion for Combustion Control and Diagnostics”; sponsor: Ford Motor Company. Total award: $90,000.

Naber, Jeffrey (PI, ME-EM), Chen, Bo (Co-PI, ME-EM); “Combustion Sensing and Control (CLCC)”; sponsor: Ford Motor Company. Total award: $110,000.


That’s how many Senior Capstone Design (SCD) projects are underway at Michigan Tech as you read this. Thanks to all of you who continue to challenge our emerging engineering talent, honing their hard and soft skills through involvement with these projects as they prepare to start their careers. Eighteen of these design teams will be making their final presentations at Tech on Tuesday, 24 April.

Come join us and see for yourself what value they may have created for their customers during their projects. Will there be another Jeep Wrangler tailgate story? Will another drivetrain supplier realize a 4% efficiency improvement through component design improvement? Or, will another manufacturing facility capture a $10,000 monthly savings in one of their production cells? Check out a couple of other teams’ project summaries from this past year here and here.

If you cannot join us for presentations on the 24th, watch upcoming newsletters for more information or contact me at the email below to join one or more of the regular series of informational online chat sessions throughout the spring and summer.

Planning for fall projects is underway now in earnest. Please consider being one of the ‘Capstone Crowd’ for the 2018-2019 academic year!