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ME-EM eNewsBrief, June 2021

Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University

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ME-EM
Michigan Tech eNewsBrief
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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, Instagram and Twitter.

IN THIS ISSUE:

ME-EM Department News & Accomplishments

Dr. Predebon will continue to serve as the ME-EM department chair for up to one more year, until an external search is concluded and a new chair is in place. He is willing to continue to lead ME-EM in order to facilitate the transition as we work to identify the next leader for the department. The President's office has hired a professional search firm to assist with the external search, thereby providing the departmental search committee with the very best candidates to review.

The ME-EM department is excited to fire up the new advanced 3D Metal Printer (3D Systems DMP Flex 350) which will be a shared facility and has been installed in room 117 of the M&M Building. 11 different metals can be used, with a build volume of approximately 1ft cube, and resolution of 5 microns. It is expected to be ready for use by early August of this year. The 3D metal printer was purchased through Scarlett, Inc., owned by Michigan Tech alumnus **Jim Scarlett** who provided a generous discount. Additional funding was through the generous donations of distinguished group of ME-EM alumni. It will be used in our education and research programs and will also be available to external partners. You can read more about it in the COE Blog article. For more information about its uses and availability, contact Russell Stein (restein@mtu.edu) or Bob Page (rwpage@mtu.edu).

ME-EM Academy Induction - Class of 2021

The Department of Mechanical Engineering-Engineering Mechanics (ME-EM) held its 2021 ME-EM Academy induction ceremony on May 14 via Zoom. This year's inductees have made a significant impact in their professions and include alumni who have risen to the top levels of major corporations, professional societies and universities, and those who are successful entrepreneurs. The full ME-EM Academy now includes 88 members.

Learn more about this years inductees in the College of Engineering blog post. The 2021 inductees include:

Brett R. Chouinard '88, Altair Engineering, Inc.; **M. Margaret Cobb '93**, The Cobb Foundation NW; **Juan Dalla Rizza '71**, Dalla-Rizza & Associates Consulting Engineers, Inc.; **Kimberly L. Foster '94**, Tulane University; **Pamela Rogers Klyn '93**, Whirlpool Corporation; **Karl E. LaPeer '85**, Peninsula Capital Partners, LLC; **Robert S. Messina '93**, JLG Industries, Inc.; **Douglas L. Parks '94**, General Motors Company; **Gordon W. Renn '82**, Fox Converting, Inc., Accuracy Machine, LLC, and Loyality, Inc.; **Sheryl A. Sorby '86 '91**, University of Cincinnati, and American Society for Engineering Education (ASEE); and **Christopher K. Yakes '95**, Oshkosh Corporation.

Eleven ME Alumni were inducted into the Department of Mechanical Engineering - Engineering Mechanics Academy - May 14, 2021

Brett R. Chouinard | M. Margaret Cobb | Juan Dalla Rizza, P.E. | Kimberly L. Foster, Ph.D. | Pamela Rogers Klyn | Karl E. LaPeer | Robert S. Messina | Douglas L. Parks | Gordon W. Renn | Sheryl A. Sorby, Ph.D. | Christopher K. Yakes

ME-EM Faculty & Staff Awards and Accomplishments

Dr. Ezra Bar-Ziv (Professor, ME-EM) received his first MTRAC AgBio grant in 2018 through a competitive grant proposal submission. This $50,000 matching fund grant supported his research that uses biological materials as feedstocks for petroleum refineries. In 2019, he submitted a proposal for a second technology that resulted from previous MTRAC awarded research. MTRAC grants are awarded to assist with the commercialization of new technologies. Read the full article Commercializing clean waste to energy technology.

Dr. Nancy Barr (Professor of Practice, ME-EM) was invited to present a talk to the Philadelphia chapter of the IEEE Professional Communication Society titled "Stop Wasting People's Time: How to Deliver Meaningful and Relevant Training Sessions" in June.

Dr. Barr and **Dr. Jaclyn Johnson** (Senior Lecturer, ME-EM) published their research on the Pandemic's effects on student engagement with engineering lab courses. They published two articles, one in the Journal of Online Learning, and another in IEEE Transactions of the Professional Communication, which IEEE chose to spotlight as part of its pandemic-scholarship focus.

Michigan Tech Staff Service Awards

- **Alex Normand** (Admin Aide, APS Labs) - 5 years
- **Henry Schmidt** (Research Eng II, Manager AERB) - 5 years
- **Bob Page** (Director, Laboratory Facilities) - 10 years
- **Connie Tuohimaa** (Manager of Finance & Accounting) - 30 years
- **Paula Zenner** (Director of Operations & Finance) - 30 years

Dr. Fei Long (Lecturer, ME-EM) was the winner of the 2021 Mechanical Engineering Teacher of the Year Award. The award, which is selected by ME students, was announced during the recent 2021 ME-EM Department Order of the Engineer virtual ceremony. Runners-up were ME-EM senior lecturers Dr. Jaclyn Johnson and Dr. Aneet Narendranath.

Dr. Nina Mahmoudian (Adj Assoc Prof, ME-EM) developed an agile underwater glider dubbed ROUGHIE (Research Oriented Underwater Glider for Hands on Investigative Engineering) that was the subject of a story in Hydro International. The story notes that Mahmoudian and her students began the project in 2012 at Michigan Tech.

Dr. Guy Meadows (Res Prof, ME-EM and GLRC) and Lorelle Meadows (Res Assoc Prof, Pavlis Honors College) have been instrumental in bringing a new buoy and a permanent high-frequency radar system to add further monitoring to the Straits of Mackinac. The Straits' turbulent currents make remote observation of waves and weather crucial in the busy and important Michigan waterway. Read the full story "Oh Buoy: New Monitoring Keeps Maritime Safety on the Radar in the Straits on mtu.edu/news.

Drs. Jeff Naber (Prof, ME-EM) APSRC), **Darrell Robinette** (Asst Prof, ME-EM), **Bo Chen** (Prof, ME-EM) and Jeremy Bos (Asst Prof, ECE) received word in April that their team was chosen to receive funding for the second phase of the NEXTCAR (Next-Generation Energy Technologies for Connected and Automated On-Road Vehicles) program from the US DOE's Advanced Research Projects Agency-Energy initiative. The story was covered by Energy News Network.

Dr. Greg Odegard (Prof, ME-EM) was awarded the 2021 Michigan Tech Research Award as announced by the VP for Research Office. Dr. Odegard has made a significant impact in the field of composite materials research through his pioneering work with computational modeling techniques to predict the influence of molecular structure on bulk-level properties of composite materials. As an internationally recognized leader, he is making great strides in his field of research with a demonstrated strength in balancing research, teaching and administrative duties throughout his career.

Dr. Odegard recently participated in a Q&A in which he talked about his research developing ultrastrong composite materials for crewed deep space missions. Read the article "Q&A with MTU Research Award Winner Gregory Odegard" in the Michigan Tech News blog.

Dr. Trisha Sain (Asst Prof, ME-EM) was a recipient of a Spring 2021 Portage Health Foundation Research Excellence Fund (PHF-REF-RS) Research Seed Grant. The Health Research Institute announced the recipients in early May. More information about REF awards can be found on the Research Excellence Fund page.

Dr. Yongchao Yang (Asst Prof, ME-EM) was a recipient of a Spring 2021 Research Excellence Fund (REF) award as announced by the Associate VP for Research Development Office.

Faculty Promotions

The Michigan Tech Board of Trustees, at their meeting on Friday, April 30, 2021, officially approved the promotions of two Mechanical Engineering-Engineering Mechanics faculty members:

Dr. Wayne W. Weaver has been promoted from Associate Professor with tenure to Professor with tenure, effective August 16, 2021. Dr. Weaver is the Director of the Agile and Interconnected microgrid (AIM) Research Center at Michigan Tech.

Dr. Weaver's primary research focus is on the novel design, control, and optimization of interconnected energy assets in a network, which include multiple domains such as mechanical, thermal, and electrical. His focus recently has been on the development and application of Hamiltonian Surface Shaping and Power Flow Control (HSSPFC) methods in a multitude of energy applications which include electric naval ships, electric aircraft, forward operating bases, autonomous robotic systems, and wave energy conversion.

Dr. Weaver's teaching philosophy is to make the value of the theory clear through links to real-world experiences and examples by adapting research topics and discoveries into his course curriculum. He contributed to the development of a HEV curriculum at Tech as a co-PI on a DoE grant, by modifying the undergraduate power electronics and motor drive courses to include vehicle-based material, and adding advanced graduate-level courses in power electronics and motor drives with emphases on vehicular and renewable energy applications.

Dr. Darrell L. Robinette has been promoted from Assistant Professor without tenure to Associate Professor with tenure, effective August 16, 2021.

Dr. Robinette's vision is to bring research and development industry-centric projects in the areas of mobility systems, to educate young engineers for impactful careers, and to continue to enhance Tech's reputation for advanced mobility systems research. His automotive experience at GM was an important contributor in securing the $3.11M ARPA-E NEXTCAR project, which included facilitating a partnership with General Motors and the donation of eight vehicles.

Dr. Robinette, a professional engineer, brings nine years of valuable industry experience and expertise as a Senior Project Engineer at GM into the classroom. His teaching evaluation scores are among the best at Michigan Tech and he often team -teaches classes with other faculty, allowing for a richer experience for the students.

As a result of his excellent teaching performance, his outstanding advising/mentoring of the SAE-GM AutoDrive Challenge, and his strong professional record early in his career, he was selected as the recipient of the 2020 SAE Ralph R. Teetor Educational Award.

Student Accomplishments/ Awards

Apurva Baruah (MSME '19, ME-EM PhD student) and Beth Williams (Director, Career Services) co-chaired a successful national search for the new Michigan Tech Vice President for Student Affairs - Wallace Southerland III.

Nathan Ford (ME-EM PhD Student) was the recipient of the "Exceptional Leadership in Student Governance Award at the Annual Student Leadership Awards held in April.

Marcello Guadagno (BSME '19, and Ph.D. student) and Jacob Loss (ECE '19) co-authored an article with Joshua Pearce (MSE/ECE) titled: "Open Source 3D-Printable Planetary Roller Screw for Food Processing Applications" in Technologies.

Jonathan Oleson (ME-EM PhD student) received a Michigan Space Grant Consortium 2020 fellowship for his proposal titled: "A Machine Learning model for Mechanics of Multi-Walled Carbon naotubes for Space-Composite materials". His advisor is **Dr. Susante Ghosh** (Assistant Professor, ME-EM).

Rajput Oudumbar and **Nathan D. Spike** (ME-EM PhD candidates) are both recipients of Grad School Doctoral Finishing **Fellowships** and the DeVlieg Foundation Award for the summer 2021 semester. Their advisors are **Dr. Youngchul Ra** (Associate Professor, ME-EM), and **Dr. Darrell Robinette** (Assistant Professor, ME-EM), respectively.

Katy Pioch (jr., ME) and **Sophie Stewart** (jr., ME), attended the virtual SWE-Wisconsin Spring Forward Professional Day held on April 10. Katy gave the introductory welcome address, and Sophie and Aerith Cruz (fr., MIS) gave a presentation and workshop summarizing our outreach efforts where, with support from a Society of Women Engineers (SWE) Program Development Grant, the College of Engineering and Civil and Environmental Engineering, the section has virtually met with over 500 local and regional youth.

Cora Taylor (BSME '18, MSME '20, ME-EM PhD student) wrote an article for SAE's April edition of Momentum magazine. Check it out. Momentum - 4/21 - No,No,No, We're Dynamics People - Cov1. Cora is advised by **Dr. Jason Blough** (Professor, ME-EM).

Student Accomplishments/ Awards *(con't)*

Andrea Udovich (sr, ME), **Spencer Seeley** (sr., ME) and **Seth Olson** (jr., ME) are pursuing minors in naval systems (Olson also minors in art). These three ME students are part of the SENSE Enterprise undergraduate research team with on-the-job skills up their sleeves and maritime tech projects under their belts. Read more about their experiences in the Unscripted Blog story "Michigan Tech Enterprise Makes SENSE".

Owen White (sr., ME), Michigan Tech men's basketball guard, was named 2020-21 Academic All-District and to the 2020-21 Academic All-America Third Team, as selected by the College Sports Information Directors of America (CoSIDA). He was recognized as one of the nation's top student-athletes for his combined performances on the court and in the classroom and was the only player in the Great Lakes Intercollegiate Athletic Conference to be named. The CoSIDA Academic All-America program separately recognizes basketball honorees in four divisions — NCAA Division I, NCAA Division II, NCAA Division III, and NAIA. Read more on the Michigan Tech Athletics website.

Upendra Yadav (ME-EM, PhD student) was one of 12 winners of the Student/Post-Doctoral Fellow Competition to present in: US Assoc. of Computation Mechanics Virtual Workshop on "New Trends and Open Challenges in Computational Mechanics", His talk was titled "Interpretable Machine Learning model for the deformation of Multiwalled Carbon Nanotubes". His advisor is **Dr. Susante Ghosh** (Assistant Professor, ME-EM)

Michigan Technological University 1885

Student Competitions and Team Awards

Congratulations to the Michigan Tech FSAE (team #52) for their excellent work preparing for the 2021 FSAE virtual Knowledge Event Competition held in May. The team placed 21st of 132 teams. The Overall Results listing can be found on the FSAE website.

- 16th place in Cost (preliminary)
- 20th place on Business Presentation
- 36th place in Design (preliminary)

Dr. Jim De Clerck (Professor of Practice, ME-EM) is the team's faculty advisor.

DESIGN EXPO AWARDS 2021

More than 1,000 students in Enterprise and Senior Capstone Design showcased their work on April 14, competing for cash awards. Tour the 2021 Virtual Design Expo. The ME Awards are listed below:

~ Enterprise Awards ~

2nd place - Aerospace Enterprise ; Led by: **Nolan Pickett**, ME; Matthew Sietsema, EE; Advised by: **L. Brad King** (Prof., ME-EM); Sponsored by: Auris: Air Force Research Laboratory, Stratus: NASA (watch video).

3rd place - Innovative Global Solutions - Led by: Lynnsey Hooker and Kat Miller, BiomedEng; Advisor **Radheshyam Tewari** (Sen.Lecturer, ME-EM) and Nathan Manser, GME; Sponsored by: Tree Frog Aquagric LLC, Ford Fund–Collegiate Community Challenge, General Motors, Cleveland Cliffs (watch video).

~ Senior Design Awards ~

1st place - Advanced PPE Filtration System; Team Members: Matthew Johnson, EE; **Bryce Hudson, Mary Repp, Carter Slunick, Mike Stinchcomb, Braeden Anex, Brandon Howard, Josh Albrecht**, and **Hannah Bekkala**, (sr, MEs); Advised by: **Jaclyn Johnson** and **Aneet Narendranath**, (Sen Lecturers, ME-EM); Sponsored by: Stryker (watch video).

~ Honorable Mentions ~

◊ **EPS Ball Nut Degrees of Freedom Optimization;** Team Members: **Brad Halonen, Rocket Hefferan, Luke Pietila, Peadar Richards**, and **David Rozinka**, (sr., MEs); Advised by: **Jim De Clerck** (Prof of Practice, ME-EM); Sponsored by: Nexteer (watch video).

◊ **Electric Tongue Jack Redesign;** Team Members: **Brandon Tolsma** (sr., ME), Collin Jandreski, Christian Fallon, Warren Falicki, and Andrew Keskimaki (ECE); Advised by: Trever Hassell (ECE); Sponsored by: Stromberg Carlson (watch video).

◊ **Bone Access and Bone Analog Characterization**; Team Members: **Sarah Hirsch**, (sr., ME); Elisabeth Miller, Katelyn Ramthun and Christiana Strong (Biomed), Morgan Duley, ECE; Advised by: Hyeun Joong Yoon and Orhan Soykan (Biomed); Sponsored by: Stryker Interventional Spine Team (watch video).

~ Enterprise Student Awards ~

Outstanding Enterprise Leadership:
Andy Lambert (sr., ME), CEO - Supermileage Systems Enterprise

Daniel Prada (sr., ME), Spark Ignition (SI) Team Lead - Clean Snowmobile Enterprise

Rookie Award:

Jack Block (sr., ME), CFO - Supermileage Systems Enterprise

~ Design Expo Image Contest ~

Based on image submitted by the team

1st place - Blizzard Baja (Team 101); **Andrew Erickson** and **Kyle Harris** (sr., MEs); Advisors: Kevin Johnson MMET and **Steven Ma** (Professor of Practice, ME-EM); sponsors: multiple.

3rd place: Aerospace Enterprise; Team leads: **Nolan Pickett**, (sr., ME); Matthew Sietsema, ECE; Advisor: **Brad King** (Professor, ME-EM); sponsor: Auris: AFRL, Stratus: NASA.

Student Competitions and Team Awards *(con't)*

The Pavlis Honors College 2021 virtual Undergraduate Research Symposium was held in April. The students who presented this year represented a wide array of scientific and engineering disciplines and highlighted the diversity of research areas explored.

Two of our ME students received Honorable mentions: **Justin Henderson** (sr.), "Development of Furuta Inverted Pendulum Test Rig for Testing of Motor Dynamics and Capabilities" working with **M.K. Park** (Research Assistant Professor, ME-EM), and **Morgan Kline** (sr.), "Optimization of Wave Energy Converters Through Neural Networks" working with **Gordon Parker** (Professor, ME-EM).

An MTU Unscripted research blog post on Enterprise team Strategic Education through Naval Systems Experiences (SENSE) was picked up by Michigan Ag Connection. The Enterprise Program allows for students from any major to join and spend three to four years learning how to improve their designs and prepare for in-demand careers. Members of the SENSE team include ME majors **Stevie Carson** (so.), **Andrea Udovich** (sr.), **Spencer Seeley** (sr.) and **Seth Olson** (jr.). The faculty advisor for SENSE is **Dr. Andrew Barnard** (BSME '02, MSME '04) (ME-EM Associate Professor and GLRC Director) and co-advisor Dr. Timothy Havens (Professor, ICC)

Michigan Tech's **Supermileage Systems Enterprise (SSE)** placed 2nd overall among 13 teams - a repeat performance from last year's 2nd place finish! Like last year, the validation event (vehicle competition) was canceled due to COVID. Overall results were based on combined scores of both the written design report and verbal presentation to competition judges. Rick Berkey (Prof. of Practice, MMET) is the faculty advisor.

NASA listed Michigan Tech's **Planetary Surface Technology Development Lab (PSTDL)** as a winner for the Mission Scenario 2 of the NASA Watts on the Moon Challenge - Phase 1, a technology design contest challenging U.S. innovators to imagine next-generation energy infrastructure on the Moon. **Dr. Paul van Susante** (Assistant Professor, ME-EM) is the Director of the lab which was awarded a $100,000 prize for their win. NASA announced the winners during a private awards ceremony on May 20. Read the announcement on NASA.gov.

Michigan Tech soccer head coach Turk Ozturk has announced 10 team award winners for the 2020-21 season. The Huskies finished the spring with a winning record (5-4-1) including a trip to the Great Lakes Intercollegiate Athletic Conference quarterfinals. **Team award recipients from ME-EM include: Stephanie Yeager** (sr.) - Defensive MVP; and **Anna Gulan** (sr.) - Most Improved Player. Read more about the players on the Michigan Tech Athletics website.

A Michigan Tech team is among 17 teams from top colleges and universities nationwide selected to compete in the 2021-22 Marine Energy Collegiate Competition: Powering the Blue Economy. The event is hosted by the U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE). These student competitors are poised to be the next blue economy innovators as they gain real-world experience and make industry connections to prepare for future careers in marine energy, according to the competition website. The team's faculty advisors are **Dr. Andrew Barnard** (Assoc Prof, ME-EM/Director, GLRC), **Dr. Gordon Parker** (Prof, ME-EM) and Dr. Timothy Havens (CC/ICC). Read the story on the Inst. of Computing & Cybersystems Blog.

Michigan Tech's **AutoDrive I Challenge Team** placed 3rd overall and had the second most trophies in the fourth and final year of the competition. AutoDrive I is a SAE-GM national competition. Tech was the top US team in year four, the top US team two years running, and the top team in Michigan three years in a row. The advisors are Dr. Jeremy Bos, ECE, and **Dr. Darrell Robinette** (Assistant Professor, ME-EM). Congratulations to the students (from ECE, ME-EM, CS) and the faculty advisors for a fantastic finish.

Summary of placements by event:

- Concept Design Report: 2nd
- Concept Design Presentation: 2nd
- Social Responsibility Report: 1st
- Social Responsibility Presentation: 2nd
- MathWorks Challenge: 2nd

Michigan Tech has been selected to compete in the **AutoDrive II Challenge** starting this fall. Read the story on AutoDrive Challenge II in Robotics Tomorrow.

GM's Chevy Bolt EV: The Michigan Tech AutoDrive II vehicle "Prometheus Borealis. Over 100 students have been involved in the SAE AutoDrive Enterprise over the past four years.

Upendra Yadav, Revanth Mattey (ME-EM PhD students) and **Susanta Ghosh** (Asst Prof, ME-EM) were winners of the Most Watched Poster Video in the Advances in Nanomechanics topic category at the virtual technical meeting of the Society of Engineering Science. Their winning presentation was titled "Mechanical Instability of Multilayer Graphene and the Effects of Substrate".

Alumni and Friends News, Accomplishments & Awards

Abby Hempy (MSME '21) wrote an article for SAE's April edition of Momentum magazine. Momentum - 4/21 - Dossier: Abby Hempy of NASCAR

Work by alumna **Aubrey Woern (BSME '19)** and Joshua Pearce (Prof, MSCE) was featured by Ninjatek in a case study - "Discover Economic Benefits at Home with Ninjaflex TPU 3D Printer Filament".

A pilot program for the Swimsmart Warning System, an automated warning light system for beachgoers developed by Michigan Tech graduate Jacob Soter (BSEE '19, BSCE '19, MBA '20) and his advisor **Andrew Barnard** (Associate Professor, ME-EM), was covered by 9&10 News.

Department Rankings

Our Undergraduate Mechanical Engineering (ME) Program is ranked 34th nationally by the 2020 U.S. News Best Undergraduate Mechanical Engineering Programs among all doctoral granting universities in the U. S., which puts Michigan Tech in the Top 10% of all ME programs in the United States.

Our ME Undergraduate program is ranked 16 out of 272 ME programs nationwide in 2019 by College Factual on average early-career and average mid-career earnings. This places Michigan Tech's ME program in the Top 10% of all ME programs in the country reviewed by College Factual for value.

Our Undergraduate Program is currently 8th in enrollment and 19th in BSME degrees awarded in the U.S (latest ASEE data). We have been in the top 27 in BSME degrees awarded for the past 36 consecutive years.

Our Graduate Program is ranked 63rd nationally among the 182 (top 35%) doctoral granting ME departments in the U.S. by the 2022 U.S. News:Best Graduate Schools (ranked in 2021). Our department is 5th in MSME enrollment,16th in MSME degrees awarded, 26th in PhD enrollment and 21st in PhD degrees awarded in the U.S. (latest ASEE Data).

The NSF ranks Mechanical Engineering in research expenditures at Michigan Tech 16th in FY2019 (latest rankings) with $20.015 Million among all ME programs in the U.S.

University News & Awards

Michigan Tech was mentioned in a DVIDS story covering the U.S. Army Automotive Research Center's annual conference. MTU was listed among participating universities known for their M&S expertise.

Stacker.com released its list of 100 Best Public Colleges in America. Michigan Tech ranked No. 34. The rankings were promoted by various regional media outlets country-wide.

Michigan Tech ranked 46th in a College Consensus list of the 100 best colleges for veterans in 2021.

The EMP/Larche Family Engineering Scholarship Fund, which provides high school students with engineering scholarships to Michigan Tech, was the subject of a feature article in the Escanaba Daily Press.

Michigan Tech alumnus **Richard Freeman** is featured in the story "Photo display honors work of Richard Freeman," in the Sturgis (Michigan) Journal.

A grant to Michigan Tech from the U.S. Dept. of Energy was mentioned in the article "Fueling the Future," in Flyover Future.

Michigan Tech's Keweenaw Research Center (KRC) was mentioned by Army Recognition magazine in a story announcing that the Next Generation NATO Reference Mobility Model (NRMM) has been adopted by NATO as a standard. A team led by the U.S. Army DEVCOM Ground Vehicle Systems Ctr. spent more than seven years developing the model, and performed extensive on-the-ground benchmarking at sites including the KRC.

Military.com called out Michigan Tech's tuition waiver program for students older than 60. The waiver covers up to two courses per semester after students apply through Admissions.

The U.S. Coast Guard's large-scale spill response exercise taking place this week at Michigan Tech was covered by WLUC TV6 and ABC 10.

Construction is ramping up on the roads around campus this summer, so check the Facilities Management US-41 Road Project web page for updated information.

A Moody's Investors Service June 10 press release has assigned an A1 credit rating to Michigan Tech's General Revenue Bonds based on the University's very good strategic positioning. The service referenced MTU's regional student draw and reputation as an engineering-focused and applied sciences university and called out its generally steady enrollment and good fundraising. Moody's also highlighted MTU's highly competitive student market as a factor in the ratings, and listed the University's outlook as stable. Moody's report was covered in a Tech Today article titled Michigan Tech's Revenue Bonds Rated A1.

University News & Awards *(con't)*

Two recent rankings place Michigan Tech among elite colleges and universities on both the state and national level. Tech was rated #2 on the list of the Best Accredited Online Colleges in Michigan by EDsmart. The ranking service assesses online colleges based on data that covers cost, academic quality, student satisfaction and salary after attending.

Tech was ranked #13 on the list of the 50 Best Value Public Colleges in America by Stacker. The ranking included only public, 4-year colleges and weighed the cost of tuition with each school's acceptance rate, quality of professors, diversity and median earnings for alumni 6 years post grad.

Michigan Tech's Campus Master Plan (CMP) website will be utilized for two-way communication as work progresses on the CMP. Throughout the site, you will find info as it is posted by SmithGroup, the CMP consultant.

Michigan Tech's successful bid to host the 2023 U.S. Cross Country Ski Championships was covered by **WLUC TV6**.

Current Contracts and Grants

Atkinson, Bill (PI, ME-EM/APSRC), **Jeffrey Naber, Henry Schmidt** (co-PIs, ME-EM/APSRC): "Visualization of Diesel Kinetic Breakup Injector"; sponsor: Nostrum Energy LLC; total award: $3,860.

Choi, Chang-Kyoung (PI, ME-EM/MuSTI), Yongchao Yang (co-PI, ME-EM): "Applying High-Speed Visualization and Machine Learning for Car Crash Test Analysis"; sponsor: Hyundai; total award: $149,500.

Ghosh, Susante (co-PI, ME-EM), **Jonathan Oleson** (PI, ME-EM student): "A Machine Learning model for Mechanics of Multi-Walled Carbon Nanotubes for Space-Composite Materials"; sponsor: University of Michigan - Michigan Space Grant Consortium; total award: $5,000.

Naber, Jeff (PI, ME-EM/APSRC), Darrell Robinette, Bo Chen (co-PIs, ME-EM); "NEXTCAR: Connected and Automated Control for Vehicle Dynamics and Powertrain Operation on a Light-Duty Multi-Mode Hybrid Electric Vehicle (Phase II)"; sponsor: US DOE, ARPA-E, NEXTCAR; total amount: $4,498,650.

Van Susante, Paul (PI, ME-EM/MARC): "Lunar Water Extraction Techniques and Systems (WETS)"; sponsor: Trans Astronautica Corporation; total award: $25,000.

Van Susante, Paul (PI, ME-EM/MARC), Jeff Allen (co-PI, ME-EM), Tim Eisele (co-PI, ChemEng), Tim Scarlett (Co-PI, Social Sci): "Percussive Hot Cone Penetrometer (PHCP) and Ground Penetrating Radar (GPR) for Geotechnical and Volatiles Mapping"; sponsor: NASA SMD; total award: $1,990,068.

Area News

The home of Michigan Tech has been ranked among the most livable and affordable small towns in America. Houghton is listed at #3 on Realtor.com's list of the "Top 10 Affordable Small Towns where you'd actually want to live, 2021 Edition".

CAPSTONE CORNER

New Capstone Projects — 1 September!

As this goes to press, we are planning for a fresh group of projects to be kicking off the first week of September. Based on incoming class size, we are planning for 21 projects. Please contact us to get involved~! Put an end to your skyrocketing opportunity costs of NOT pursuing those product development or process improvement tasks on your ***To-Do List***. Get involved with a couple of SCD teams to go after them!

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