



**Formal Session of the Board of Trustees**  
**April 30, 2021**  
**9:00 a.m. – 11:00 a.m.**  
**Location: Memorial Union Ballroom B**  
**Public via ZOOM Webinar**

- I. Call to Order**  
Brenda Ryan, Chair
- II. Roll Call**  
Sarah Schulte, Secretary
- III. Confirm Agenda**  
Brenda Ryan, Chair
- IV. Opening Remarks**
  - A. Opening Remarks of the Board Chair** Brenda Ryan, Chair
  - B. Opening Remarks of the University President** Richard Koubek, President
  - C. Remarks by Trustee Derhun Sanders**
- V. Presentation by Representative Greg Markkanen**
- VI. Public Comment Period**
- VII. Committee Reports**
  - A. Academic Affairs Committee**  
John Bacon, Committee Chair
  - B. Audit and Finance Committee**  
Jeff Littmann, Committee Chair
  - C. Leadership Committee**  
Steve Tomaszewski, Committee Chair
- VIII. Consent Agenda**
  - A. Approval of Minutes**

**A. Resignations, Retirements, and Off Payroll**

**BOARD OF TRUSTEES OFF-PAYROLL REPORT**  
(January 24, 2021– March 27, 2021)

**RETIRED**

Name	Class	Department	Title	Most Recent Hire Date	Term Date
Craig Friedrich	Faculty	Mechanical Engineering – Engineering Mechanics	Professor	01/01/1997	03/31/2021
Michelle Kampinen	Staff	Electrical and Computer Engineering	Office Assistant 6	08/20/1990	02/06/2021
Andre Soumis	Staff	Sports and Recreation Operations	Building Mechanic II	06/08/1978	03/20/2021
Christopher Wojick	Staff	Civil and Environmental Engineering	Senior Research Engineer	10/31/2002	02/25/2021

**OFF-PAYROLL**

Name	Class	Department	Title	Most Recent Hire Date	Term Date
Joseph Caron	Staff	Facilities Management	Custodian	10/16/2006	01/29/2021
Timothy Downey	Staff	Wadsworth Hall Food Service	Food Service Helper	02/18/2014	02/27/2021
Amanda Grimm	Staff	Michigan Tech Research Institute(MTRI)	Research Scientist I/ Geospatial Researcher	01/09/2012	02/26/2021
Bethany Jones	Staff	Rozsa Center for Performing Arts	Marketing Manager	01/17/2011	02/02/2021
Leela Joshi	Staff	Chemical Engineering	Assistant Research Engineer/Scientist	04/08/2019	02/12/2021
Megan Mcpherson	Staff	Sponsored Programs Accounting	Office Assistant 6	03/09/2020	03/04/2021
Lorelle Meadows	Staff	Pavlis Honors College	Dean, Pavlis Honors College	08/01/2014	01/31/2021
Mary Mickalich	Staff	Residential Education & Housing	Administrative Aide 8	12/04/2017	02/05/2021
Pinaki Mukherjee	Staff	Materials Science and Engineering	Engineer/Scientist in ACMAL	01/02/2018	02/19/2021
Valentina O'Kane	Staff	Materials Science and Engineering	Departmental Coordinator	08/07/2017	02/20/2021
Peter Pelissero	Staff	Facilities Management	Facilities Manager	09/23/2002	02/01/2021
Eldon Rice, II	Staff	McNair Hall Food Service	Food Service Helper	10/19/2020	01/28/2021
Carol Schaaf	Staff	Wadsworth Hall Food Service	Cooks Helper	11/14/2005	02/03/2021
Crystal Verran	Staff	University Marketing & Communications	Director of Operations	09/18/2000	02/06/2021
Aila Weber	Staff	Chief Financial Officer & Senior Vice President for Administration	Assistant to Chief Financial Officer & Senior Vice President for Administration	03/08/2021	03/16/2021

**Michigan Technological University  
Michigan Tech Fund  
Fundraising Productivity Report**

July 1, 2020 through Mar 31, 2021  
Compared to Prior Fiscal Year

FY21					FY20					
Source	YTD Total	Adjustment	FY Goal	% of Goal	Source	YTD Total	Adjustment	FY Goal	% of Goal	FY Total
			(in millions)					(in millions)		
Individual Giving	19,224,558	2,000,000	18.25	116%	Individual Giving	14,391,450		26.25	55%	15,236,068
Corporate Giving	1,727,434		1	173%	Corporate Giving	2,149,348		2	107%	2,453,346
Foundation & Other Org Giving	3,223,364	142,359	1	337%	Foundation & Other Org Giving	911,766		1.5	61%	1,153,801
Corporate Sponsored Research	9,829,877		11	89%	Corporate Sponsored Research	7,624,035		11	69%	9,972,618
<b>Fundraising Total</b>	<b>34,005,232</b>	<b>2,142,359</b>	<b>31.25</b>	<b>116%</b>	<b>Fundraising Total</b>	<b>25,076,599</b>		<b>40.75</b>	<b>62%</b>	<b>28,815,833</b>

		FYGoal	% of Goal
<b>TOTAL PROGRESS TOWARDS FY GOAL</b>	<b>\$ 36,147,591</b>	<b>31.25</b>	<b>116%</b>

*Amt of TOTAL from Gifts-in-Kind*      117,035.60 *(included in the Source totals above)*  
*Amt of Gifts for the Endowment*      10,100,194.29 *(included in the Source totals above)*

*Realized Planned Gifts - All*      4,496,221.26 *(not included in the Source totals above)*  
*Realized Planned Gifts - Endowed*      4,373,635.51 *(not included in the Source totals above)*  
*Realized Pledges*      5,110,445.59 *(not included in the Source totals above)*

**Notes:**  
 The Adjustment totals include changes to gift records (eg. gift received date, amount, or other donor driven gift modifications)  
 The FUNDRAISING TOTAL includes outright gifts, as well as new pledge and planned gift commitments, made in the specified date range.  
 Realized planned gifts and realized pledges are not included in the FUNDRAISING TOTAL.  
 An individual's gifts made through a donor-advised fund are counted under the individual.  
 An individual's gifts made through another source (i.e. family foundation or closely held business) are counted under the source entity.  
 The FUNDRAISING TOTAL for fiscal years 2020 and later include gifts-in-kind under other sources (Major Gifts, Annual Giving, etc).

**IX. Action and Discussion Items**

**A. Employee Recognition**

Brenda Ryan, Chair

For our employees that have worked for Michigan Tech for 35 or more years and in recognition of their distinguished service and outstanding contributions to Michigan Tech, the Board would like to honor them with a resolution of appreciation.

RECOMMENDATION: That the Board of Trustees adopts the Resolution of Appreciation for the following individuals:

- 1.) Andre Soumis – 43 years of service

**B. Appointments, Not Involving Tenure and/or Promotion**

Jackie Huntoon, Provost



Office of the Provost and  
Senior Vice President for Academic Affairs

Phone: (906) 487-2440  
Fax: (906) 487-2935

**TO:** Richard Koubek, President

**FROM:** Jacqueline E. Huntoon, Provost and Senior Vice President for Academic Affairs

**DATE:** March 30, 2021

**SUBJECT:** Tenure-Track Faculty Appointment Recommendations

*Jacqueline E. Huntoon*

In accordance with Board of Trustees Policy 2.2, Duties and Powers of the President, I am submitting the following faculty appointment recommendations for your review and subsequent approval by the Board of Trustees at their meeting on April 30, 2021.

**Appointment without Tenure for Two Years  
Effective August 16, 2021**

Elham Asgari	Assistant Professor	College of Business
Prabhjot Mukandwal	Assistant Professor	College of Business
Josue Reynoso Vallejo	Assistant Professor	College of Business
Ulrich Schmelzle	Assistant Professor	College of Business
Bo Chen	Assistant Professor	Computer Science
Iakov Nekritch	Associate Professor	Computer Science
Nathir Rawashdeh	Assistant Professor	Applied Computing
Weihua Zhou	Assistant Professor	Applied Computing
Xin Xi	Assistant Professor	Geological & Mining Eng. & Sciences
Tatyana Karabancheva-Christova	Associate Professor	Chemistry

Formal notification of these decisions will be sent to each individual Monday, May 10, 2021.

APPROVED:

Richard Koubek, President

3/31/2021

Date

**C. Appointments, Involving Tenure and/or Promotion**  
Jackie Huntoon, Provost



Office of the Provost and Senior Vice President for Academic Affairs

Phone: (906) 487-2440 Fax: (906) 487-2935

**TO:** Richard Koubek, President

**FROM:** Jacqueline E. Huntoon, Provost & Senior Vice President for Academic Affairs *Jacqueline E Huntoon*

**DATE:** March 31, 2021

**SUBJECT:** Appointment with Tenure Recommendation or Tenure and Promotion Recommendations

In accordance with Board of Trustees Policy 6.4, Academic Tenure and Promotion, the following faculty members have been recommended for appointment and/or promotion with tenure. I have reviewed and support these recommendations and request that the Board of Trustees be asked to approve them at their April 30, 2021 meeting. If approved, the promotions will be effective August 16, 2021.

**Promotion from Assistant Professor without Tenure to Associate Professor with Tenure**

- Heather Knewton                      College of Business
- Erik Herbert                            Materials Science & Engineering
- Darrell Robinette                      Mechanical Engineering–Engineering Mechanics
- Xinfeng Xie                              College of Forest Resources and Environmental Science
- Stephen Techtmann                    Biological Sciences
- Kevin Trewartha                        Cognitive & Learning Sciences
- Andrew Fiss                              Humanities
- Benjamin Ong                            Mathematical Sciences
- Issei Nakamura                         Physics
- Sarah Scarlett                          Social Sciences
- Roman Sidortsov                        Social Sciences
- Kent Cyr                                  Visual and Performing Arts

**Promotion from Associate Professor without Tenure to Associate Professor with Tenure**

- Christo Christov                        Chemistry

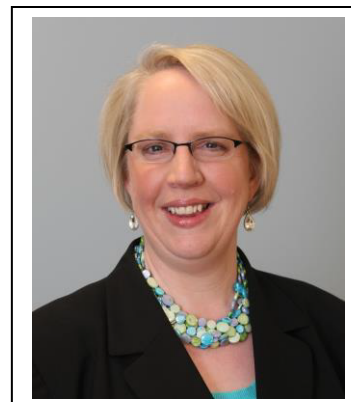
APPROVED:

4/1/2021

Richard Koubek, President

Date

**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**HEATHER S. KNEWTSON**  
**Michigan Technological University**



**Heather S. Knewton**, who is currently an assistant professor of finance without tenure in the College of Business, is being considered for promotion to associate professor of finance with tenure in the College of Business.

**Academic Degrees:**

Ph.D.	2011	Washington State University, Pullman, WA
M.A.	2010	Washington State University, Pullman, WA
B.A.	1999	Roosevelt University, Chicago, IL

**Professional Record:**

2014 – present	Assistant Professor (without tenure), College of Business, Michigan Technological University, Houghton MI
2011 - 2014	Assistant Professor (without tenure), Department Finance & Law, College of Business Administration, Central Michigan University, Mt. Pleasant MI
2007 – 2011	Doctoral Student & Teaching Assistant, Department of Finance & Management Science, College of Business Administration, Pullman WA
2003 - 2007	Administrative Associate, Dean’s Office, College of Engineering, Michigan Technological University, Houghton MI
2000 – 2003	Actuarial Analyst, Watson Wyatt & Company, Minneapolis, MN
1999 – 2000	Actuarial Assistant, HPL&S, Arlington Heights, IL
1994 – 1997	Administrative Assistant, Office of Development, Wayne State University, Detroit, MI
1988 – 1992	Signals Intelligence Analyst, United States Army, Augsburg, Germany

**Summary of Accomplishments:**

- Teaching

Dr. Knewton has taught over 600 students at Michigan Tech since Fall 2014. Her teaching scores are consistently strong, and she has taught Principles of Finance, Equity Analysis and Investment Analysis. Dr. Knewton uses a variety of teaching innovations including: structured class notes, role-playing, problem-solving challenges, the case method, and texts from the finance industry. Variety to motivate and engage is the hallmark of her teaching approach.

Dr. Knewton’s teaching effectiveness has been recognized throughout her academic career. In 2010, she received Washington State University's Graduate Student Teaching Excellence Award. In 2018, Dr. Knewton was inducted into the Michigan Tech Academy of Teaching Excellence. She has been a three time finalist for Michigan Tech’s Distinguished Teaching Award. In 2020, Dr. Knewton was a Teaching Excellence Finalist for the MBAA Academy of Finance.

Dr. Knewton has created innovative curriculum, including two new courses: Financial Literacy and FinTech Foundations. Dr. Knewton introduced the FinTech minor on behalf of the College of Business. The FinTech minor responds to the call to create business-savvy tech students and tech-savvy business students, and is the only FinTech minor in the Upper Midwest.



- Research/Scholarly Activity

Dr. Knewtson's research record includes eight publications and one forthcoming article. Most of her work is empirical, but she has contributed to theoretical (2018) and pedagogical (2014, 2018) research streams. She has worked with a variety of authors, including all three dissertation committee members, and seven authors she collaborated with beyond her dissertation. Two of her publications are solo authored. Dr. Knewtson's research has been published in journals such as the *Financial Analysts Journal*, the *International Review of Economics and Finance*, the *Journal of Business Research*, the *Journal of Risk Finance and Managerial Finance*.

Dr. Knewtson's research has matured beyond her dissertation topic of insider trading to research finance more broadly in the context of technology. This aligns with her research interests, and the strategic direction of Michigan Technological University. Dr. Knewtson has multiple research projects in progress covering areas such as FinTech, game theory, insider trading, and pension finance. She has also published articles in the Scholarship of Teaching and Learning, including an article in the leading finance pedagogy journal, the *Journal of Financial Education*.

Dr. Knewtson has presented at professional conferences 11 times, served as discussant 7 times, and served as both a session chair and a panel organizer. Her research has been recognized in multiple ways, including a top-ten (percent) session at the Financial Management Association International Conference (2014) and two best-in-track awards from the MBAA Academy of Finance Conference (2019, 2020).

Evidence of her research impact from citation reports reflects the impact and quality of her scholarly output, including 60 citations as of October 29, 2020 and an h-index of 5 (reflecting five publications have been cited at least five times). Citing journals include quality outlets such as the *Journal of Business Research*, the *Journal of Finance*, the *Journal of Financial Economics*, and *Managerial Finance*.

- Service

Dr. Knewtson serves as a Director, Program Chair and President-Elect for the 2021 MBAA Academy of Finance Annual Meeting. Dr. Knewtson serves the Roman Catholic Diocese of Marquette as a member of the Diocesan Finance Council. At Michigan Technological University, Dr. Knewtson serves as faculty advisor for the Finance Club, as a member of the College of Business Strategic Planning Committee, and as Principal Contact for the Chartered Financial Analyst (CFA) Institute University Affiliation Program. Dr. Knewtson also serves the University as an Academic At-Large Senator and as a member of the Curricular Policy Committee in the Michigan Technological University Senate.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

In response to the Tech Forward initiative, Dr. Knewtson hosted a panel on FinTech at the MBAA Academy of Finance in March 2019. Prior to that time, FinTech had no clear operating definition, so Knewtson cowrote a paper with a graduate student distinguishing between FinTech technologies and firms that use FinTech. They used the definition to provide an organization for the FinTech industry, modeled on FinTech characteristics and the existing finance industry. In February 2020, their seminal work on FinTech, *Toward an Understanding of FinTech and its Industry*, was published in *Managerial Finance*. Based on her FinTech expertise, Dr. Knewtson was interviewed and an article from that interview was featured in October 2020 Innovation Sage magazine entitled, "Did the FinTech Revolution Make Banks Obsolete?"

**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**ERIK G. HERBERT**  
**Michigan Technological University**

*Erik G. Herbert*, who is currently an assistant professor without tenure in the Department of Materials Science and Engineering in the College of Engineering, is being considered for promotion to associate professor with tenure in the Department of Materials Science and Engineering in the College of Engineering.



**Academic Degrees:**

Ph.D.	2008	The University of Tennessee, Knoxville, TN
M.S.	2006	The University of Tennessee, Knoxville, TN
B.A.	1992	The University of Tennessee, Knoxville, TN

**Professional Record:**

2015 – present	Assistant Professor (without tenure), Department of Materials Science and Engineering, Michigan Technological University
2010 – 2014	Assistant Research Professor, University of Tennessee, Department of Materials Science and Engineering, Knoxville, TN
2008 – 2009	Post-Doctoral Fellow, University of Tennessee, Department of Materials Science and Engineering, Knoxville, TN
2009	Visiting Scientist, Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN) at Trinity College, Dublin, Ireland
2008 - 2009	Staff Scientist, Research and Development, Nano Instruments (Agilent Technologies), Oak Ridge, TN
2007 - 2008	Staff Scientist, Research and Development, Nano Instruments (MTS Systems Corp.), Oak Ridge, TN
2003 - 2006	Manager, Analytical Services Laboratory, Nano Instruments (MTS Systems Corp.), Oak Ridge, TN
1998 - 2002	Applications Engineer, Nano Instruments (MTS Systems Corp.), Oak Ridge, TN
1997 - 1998	Laboratory Technician, Nano Instruments, Oak Ridge, TN

**Summary of Accomplishments:**

• *Teaching*

Since 2016, Dr. Herbert has taught the following undergraduate (UG) and graduate (G) courses at Michigan Tech: Introduction to Materials Science and Engineering (UG), Advanced Topics in Materials Science and Engineering (G), Materials and Process Selection (UG), and Contact Mechanics & Nanoindentation (UG & G). Over the past 6 years, 308 students from the fall & spring semesters have provided direct feedback through course evaluation surveys (represents a survey response rate of 68%). Based on the results from 10 courses, Dr. Herbert's average scores from the numerically evaluated 7-dimensions of teaching range from 3.92 to 5.0 on a 5-point scale (1 is poor, 5 is excellent). Combining all 10 courses, his average score is 4.22 ± 8%. Course content is frequently innovated by demonstrating its relevance to solving global grand challenges such as clean energy and energy storage. Beyond the classroom, Dr. Herbert serves as a mentor to undergraduate researchers working in his lab. One such student, Maria Rochow, co-authored an invited feature article on lithium metal. Using the publication and her two semesters of experience working in the lab with Dr. Herbert as a stepping stone, Maria secured a summer internship (2020) working in the Energy Conversion Group at UC Berkeley (UCB). She hopes to attend graduate school at UCB starting next Fall. During the summer of 2019, Dr. Herbert established a state-of-the-art nanoindentation workstation for the

senior design program within the Department of Materials Science and Engineering. Trained and educated by Dr. Herbert, students utilizing the system gain unique knowledge about the application of cutting-edge mechanical characterization performed at the forefront of materials science and engineering.

- Research/Scholarly Activity

Dr. Herbert has published 41 peer-reviewed papers. Among them, 14 have been published since arriving at MTU in 2015. Motivated by NSF's participation in the nation's Materials Genome Initiative and both the department & the university's strategic plans, Dr. Herbert's primary field of research has evolved into the development of next generation energy storage materials. On that topic, he has published 5 invited feature articles since 2018 (50+ citations to date) and given 18 invited talks. Among them, 10 were solicited by the US Department of Energy through the Vehicle Technology Office, ARPA-E & the National Solid-State Battery Brainstorming Meeting hosted by Oak Ridge National Laboratory. In recognition of his work on advanced battery materials, Dr. Herbert received the Early Career Research Excellence Award from the College of Engineering in 2019. Dr. Herbert also serves as a consultant for the PolyPlus Battery Company based in Berkeley, CA. As an international expert in small-scale mechanical characterization, Dr. Herbert has also performed on-site invited seminars at the Helmholtz-Zentrum Geesthacht Institute in Geesthacht, Germany (June 2016). Since joining MTU in 2015, Dr. Herbert has contributed to securing \$1.2M in sponsored research from the US government and industry. Another \$577K is currently pending with NSF and approximately \$1.7M is under development to be submitted in January of 2021 (NSF DMRF:GOALI). Prior to joining MTU, Dr. Herbert contributed to sponsored research awards totaling \$2.1M at the University of TN and Oak Ridge National Laboratory (2008-2014). Through his research on next generation battery materials, Dr. Herbert's scientific leadership is particularly well aligned with several TechForward initiatives within the department and the university.

- Service

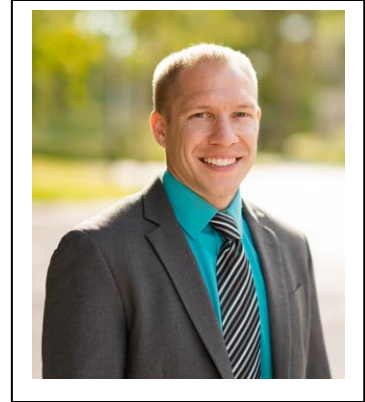
At the department level, Dr. Herbert serves on the Graduate Committee and the Space & Facilities Committee (since 2015). At the university level, he serves by appointment from the Provost, Dr. Jacqueline E. Huntoon, on the university's Global Literacy Committee (since 2018). At the national & international level, Dr. Herbert is a Principal Editor for the Journal of Materials Research (since 2015). He is also an active manuscript reviewer for a number of journals, winning awards from Acta Materialia and Microelectronic Engineering (2017). Since 2014, Dr. Herbert has reviewed over 50 proposals for the US National Science Foundation and the US Department of Energy. In 2016, he served as a Graduate Student and Post-Doctoral Mentor at the Gordon Research Seminar on Thin Film and Small-Scale Mechanical Behavior in Lewiston, Maine. In 2016, he was the co-Chair of a Nanoindentation session at the 17th International Conference on Experimental Mechanics in Rhodes, Greece.

- Recent and Significant Publications

**4 Invited Feature Publications (refereed)**

1. E. G. Herbert, N. J. Dudney, M. Rochow, V. Thole and S. A. Hackney, "On the mechanisms of stress relaxation and intensification at the lithium/solid-state electrolyte interface," *J. Mater. Res.* **34** 21, 3593–3616 (2019).
2. E. G. Herbert, S. A. Hackney, N. J. Dudney and P. S. Phani, "Nanoindentation of high purity vapor deposited lithium films: The elastic modulus," *J. Mater. Res.* **33** 10, 1335–1346 (2018).
3. E. G. Herbert, S. A. Hackney, N. J. Dudney, V. Thole and P. S. Phani, "Nanoindentation of high purity vapor deposited lithium films: A mechanistic rationalization of diffusion-mediated flow," *J. Mater. Res.* **33** 10, 1347–1360 (2018).
4. E. G. Herbert, S. A. Hackney, N.J. Dudney, V. Thole and P. S. Phani, "Nanoindentation of high purity vapor deposited lithium films: A mechanistic rationalization of the transition from diffusion to dislocation-mediated flow," *J. Mater. Res.* **33** 10, 1361–1368 (2018).

**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**Darrell Robinette**  
**Michigan Technological University**



**Darrell L Robinette**, who is currently an assistant professor of mechanical engineering without tenure in the Department of Mechanical Engineering-Engineering Mechanics in the College of Engineering, is being considered for promotion to associate professor of mechanical engineering with tenure in the Department of Mechanical Engineering-Engineering Mechanics in the College of Engineering.

**Academic Degrees:**

Ph.D.	2007	Michigan Technological University, Houghton, MI
B.S.	2000	Michigan Technological University, Houghton, MI

**Professional Record:**

2016 – present	Assistant Professor (without tenure), Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University
2015 – 2016	Advanced Hybrid and Electrification Architecture Engineer, Senior Project Engineer General Motors Company, Global Propulsion Systems, Pontiac, MI
2011 – 2015	Transmission Road-Lab-Math (RLM) Calibration, Senior Project Engineer General Motors Company, Powertrain, Milford MI
2007 – 2011	Powertrain Integration – Noise and Vibration, Development Engineer General Motors Company, Powertrain, Milford, MI

**Summary of Accomplishments:**

- Teaching

Dr. Robinette, a professional engineer, brings nine years of valuable industry experience and expertise as a Senior Project Engineer at GM into the classroom. The classes he teaches include a junior-level laboratory course in system dynamics and testing (MEEM 3911), a senior level/intro graduate course in automotive propulsion systems and electrification (MEEM 4295), and a student-led, multi-year collegiate design competition. His teaching approach includes current industry trends and incorporates digital tools used by industry for mobility engineering as examples in his courses. His teaching evaluation scores are among the best at Michigan Tech and he often team-teaches classes with other faculty, those whose experience complements his, allowing for a richer experience for the students.

In 2017, Dr. Robinette and Dr. Jeremy Bos (Asst Prof, ECE) submitted a successful proposal (only eight universities selected) to compete in the Society of Automotive Engineering-General Motors (SAE-GM) AutoDrive Challenge, a 4-year collegiate design competition to produce an SAE Level 4 autonomous vehicle (AV). The challenge is judged in a variety of areas including Object Detection, Localization, MathWorks Simulation, Mapping Program, etc. Advising the AutoDrive student Enterprise teams also involves teaching and mentoring four graduate students and 30 to 40 undergraduate students per year to execute the competition deliverables, field a functioning AV, and be successful in the competitions.

Dr. Robinette created and taught a short course on automatic transmissions in the summer of 2018 and jointly taught four additional short courses through the Michigan Tech Mobile Lab (operated by the ME-EM department) to several companies for professional development training.

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, Dr. Robinette was nominated by his department chair and was ultimately selected as the recipient of the 2020 SAE Ralph R. Teetor Educational Award.

- Research/Scholarly Activity

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 Michigan Tech's reputation for advanced mobility systems research. Because of his automotive experience at GM, Dr. Robinette, as Co-PI, 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. The NEXTCAR award was a stepping stone for further DOE awards in 2019 and 2020 for Dr. Robinette, totaling over \$5.5M, and the NEXTCAR projects were instrumental in securing as PI a \$2.0M DOE award in July of 2020. The ARPA-E and DOE grants are all focused on connected and automated mobility energy optimization and vehicle electrification architecting for energy savings. In addition, Dr. Robinette has received over \$750K as PI and over \$345K as Co-PI of external research funding from a variety of industries.

Dr. Robinette has graduated one PhD student and three MS students and is currently advising eight PhD students and four MS students as the primary advisor. In addition, he is co-advising one PhD and 15 MS students, of which 12 have graduated. Dr. Robinette has published six peer-reviewed journal articles, 19 peer-reviewed conference papers, 16 non-peer-reviewed conference and magazine articles. The impact of Dr. Robinette's research in mobility, and more specifically connectivity and automation, in such a short period of time is significant. His efforts build on Michigan Tech's recognition as a mobility systems research center and provide a research focus on connectivity, automation, and energy sufficiency for his graduate students.

- Service

Dr. Robinette's external service contributions are mainly with SAE as a member of three organizing committees, session organizer for the annual World Congress, and three international SAE conferences since 2015. He has been active in SAE paper reviews, completing approximately 120 paper reviews since 2012. In 2019 Dr. Robinette received the SAE Forest R. McFarland Award for sustained service work to SAE. He has been an invited reviewer for a variety of international journals. He was a volunteer judge for the FIRST Lego League competition in Houghton in November of 2016. His service to the ME-EM department includes serving on four faculty and staff hiring committees, as a reviewer for PHF/REF Mid-Career proposals, and as a volunteer mentor for Heroes' Alliance.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

2020 – Dep't of Energy, Vehicle Technology Office research grant awarded for \$2.0M, 4 industry partners  
 2020 – Published article in Journal of Vibration and Control on granted patent invention  
 2020 – SAE Ralph R Teetor Educational Award – early career educator award for preparing engineers  
 2019 – SAE World Congress paper selected for inclusion in SAE Int. J. Adv. & Curr. Prac. in Mobility  
 2019 – SAE Forest R McFarland Award – sustained contributions to SAE organizing and committee work

**INFORMATION SHEET FOR BOARD OF TRUSTEES****XINFENG XIE****Michigan Technological University**

**Xinfeng Xie**, who is currently an assistant professor of forest biomaterials without tenure in the College of Forest Resources and Environmental Science, is being considered for promotion to associate professor of forest biomaterials with tenure in the College of Forest Resources and Environmental Science.

**Academic Degrees:**

Ph.D.	2008	The University of Maine, Orono, ME
M.S.	2001	The Central-South Forestry University, Zhuzhou, China
B.S.	1998	The Central-South Forestry University, Zhuzhou, China

**Professional Record:**

2016 – present	Assistant Professor (without tenure), College of Forest Resources and Environmental Science, Michigan Technological University
2013 – 2016	Post-Doctoral Fellow, School of Natural Resources, West Virginia University, Morgantown, WV
2012 – 2013	Director for Quality Assurance and Research, Maine Wood Treeters Inc., Mechanic Falls, ME
2011 – 2012	Assistant Research Professor, School of Forest Resources, University of Maine, Orono, ME
2008 – 2010	Post-Doctoral Research Associate, School of Forest Resources, University of Maine, Orono, ME
2003 – 2008	Graduate Research Assistant, School of Forest Resources, University of Maine, Orono, ME

**Summary of Accomplishments:**

- Teaching

Dr. Xie has taught FW1035 Wood Anatomy and Properties (4 credits – required for the BS in Forestry) each spring with 40 students and FW3098 Adding Value to Biomaterials (2 credits) every other fall. He consistently updates the syllabi and lecture contents to improve students' learning experience. He has achieved an average 4.2/5 teaching evaluation score from the students for the past 4 years. He developed 2 core courses, Mechanics of Wood Materials and Preservation of Wood Materials, for the recently approved major in Sustainable Bioproducts in CFRES. Dr. Xie has chaired 3 PhD committees (1 graduated) and 3 MS committees (2 graduated). He also has served on 5 PhD committees of the students in the College of Engineering (1 graduated). He mentored 13 undergraduate students as research technicians in his lab and 5 teaching assistants for FW1035.

- Research/Scholarly Activity

Dr. Xie's personal goal is to develop and promote efficient use of renewable forest products to help improve people's lives. Working toward his goal, he contributes to the University's mission of creating solutions for society's challenges through education, research, and innovation, and the University's goal on responsible use of resources. Dr. Xie has developed an externally funded research program of forest

biomaterials at the University, highlighting northern hardwoods lumber, byproducts and wastes of forest products industry, and wood-based building materials. He has received 3.9 million USD research funds as PI or co-PI over the past 4 years on projects sponsored by the Federal Government and private sectors. The funding has provided support to 3 full-time research scientists, 7 graduate students, and more than 15 undergraduate student workers. Dr. Xie was recognized as one of the top researchers in CFRES in terms of research expenditures in 2019. In addition, Dr. Xie has published 19 peer-reviewed research articles and 1 book. He achieved an H-Index of 11. He also gave 7 invited presentations and contributed to 8 oral and 2 poster presentations at professional conferences. Moving forward, Dr. Xie will expand his research to fundamental properties of forest biomaterials and develop novel applications. He will seek to leverage his expertise in wood science and strong connection to the forest products industry to help the industry solve emerging challenges.

- Service

Dr. Xie has served as the group leader of the CFRES Wood Protection Group, an accredited ISO17025 testing laboratory, since 2016. He successfully expanded the group's testing capacity and developed projects with new sponsors. The annual research expenditure has been increased 20% over the past 4 years. Dr. Xie has also served on CFRES International Committee since 2017. He facilitated the signing of 5 international education and research agreements with the universities and research institutes in 4 countries. He served on the biotechnology faculty search committee in 2020. He has served as the program coordinator of CFRES forest biomaterials programmatic area for 3 years. Outside of the University, Dr. Xie has served as the representative from Michigan Technological University at American Wood Protection Association (AWPA), the standards developer of the wood protection and preservation industry in the U.S. He has served on 6 technical committees in AWPA. Dr. Xie has also served as an Editorial Board Member of *Interdisciplinary Perspectives on the Built Environment* (2019-2022). He has reviewed 25 research articles for more than 15 journals. Dr. Xie will continue to provide service to the University and the communities beyond.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

\*Ma, Y., \*M. Musah, \*R. Si, Q. Dai, **X. Xie**, X. Wang, R. Ross. 2020. Mechanical property evaluation of hybrid mixed-species CLT panels with sugar maple and white spruce. *Journal of Materials in Civil Engineering*.

**Led by Dr. Xie's PhD advisees, this paper is the outcome of a multi-year collaboration between Dr. Xie and USDA Forest Service studying the feasibility of using northern hardwoods lumber in production of cross laminated timber.**

\*You, L., Z. You, Q. Dai, **X. Xie**, S. Washko, J. Gao. 2019. Investigation of adhesion and interface bond strength for *pavements* underlying chip-seal: Effect of asphalt-aggregate combinations and freeze-thaw cycles on chip-seal. *Construction and Building Materials*.

**This paper is the result of Dr. Xie's collaboration with the faculty of engineering to develop the Michigan Tech's shear bond test, the first of its kind, for evaluating pavements bonding quality in the lab.**

Liu, L., S. Luo, Y. Qing, N. Yan, Y. Wu, **X. Xie**, F. Hu. 2018. A temperature-controlled, conductive PANI@CNFs/MEO<sub>2</sub>MA/PEGMA Hydrogel for Flexible Temperature Sensors. *Macromolecular Rapid Communications*.

**This paper featured the front cover of that issue of the journal.**

\*Graduate student author

**INFORMATION SHEET FOR BOARD OF TRUSTEES**

**STEPHEN M. TECHTMANN**  
Michigan Technological University



**Stephen M. Techtmann**, who is currently an assistant professor of Environmental Microbiology without tenure in the Department of Biological Sciences in the College of Science and Arts, is being considered for promotion to associate professor of Biology with tenure in the Department of Biological Sciences in the College of Science and Arts.

**Academic Degrees:**

Ph.D.	2009	University of Maryland, Baltimore, Baltimore, MD
B.S.	2004	University of Maryland, Baltimore County (UMBC), Catonsville, MD

**Professional Record:**

2015 – present	Assistant Professor (without tenure), Department of Biological Sciences, Michigan Technological University
2012 – 2015	Post-Doctoral Research Associate, University of Tennessee, Knoxville, TN
2009– 2012	Post-Doctoral Fellow, Uniformed Services University, Bethesda, MD
2004 – 2009	Graduate Research Assistant, Center for Marine Biotechnology, University of Maryland Biotechnology Institute, University of Maryland, Baltimore, Baltimore, MD

**Summary of Accomplishments:**

- Teaching

Stephen Techtmann has taught seven courses at Michigan Tech from first year bioinformatics to graduate level courses in genomics and microbial physiology. Dr. Techtmann has taught a large Environmental Microbiology course with lab for the past five years. He consistently has received positive feedback from students and peer reviewers. During his time teaching these courses, he has developed two new courses to complement the existing offerings at the university. He has also sought to bring innovation to the lab portion of the microbiology course through rewriting of the lab manual to more closely align with the lecture portion of the class and update lab activities to more state-of-the-art techniques. Dr. Techtmann's teaching has been recognized through his induction into the Michigan Tech Academy of Teaching Excellence in 2018.

- Research/Scholarly Activity

Dr. Techtmann has developed a broad research program centered on the biotechnological applications of environmental microorganisms. Since joining Michigan Tech, he has published 23 peer reviewed publications and one book chapter. He has developed an extramurally funded research program with awards from the Defense Applied Research Projects Agency (DARPA) and the National Science foundation. He received the DARPA Young Faculty Award, which is designed to identify and engage rising stars in junior research positions. Dr. Techtmann has also been involved in collaborative research funded through the National Science foundation with other Universities throughout the US. Most recently, Dr. Techtmann is the PI in a large DARPA-funded project, which integrates expertise of PIs across the engineering disciplines at Michigan Tech as well as PIs at other Universities. He has mentored four MS students who successfully defended their thesis and currently mentors four PhD students and one MS student. His current research program has coupled molecular biology, field research, and computational biology to address problems



related to environmental contamination and microbial forensics. Moving forward, his research program will seek to further develop the microbial forensic tools for environmental monitoring. Furthermore, he will seek to leverage his expertise in oil metabolizing bacteria to be applied to dealing with and reusing plastic waste. Both of these issues have broad applications to further both basic and applied science in both the public and private sectors.

- Service

Dr. Techtmann has served as a member of the biological sciences curriculum committee for four years. He has also served as the director of the bioinformatics undergraduate degree program. As part of this service, he has led the revamping of the bioinformatic curriculum including working with stakeholders in the college of computing, the college of forest resources and environmental sciences, and the department of mathematical sciences. He has also served as the co-advisor for the microbiology club, which provides a context for students curious about microbiology to explore the field through hands-on demonstrations, research presentations, career workshops, and conference attendance. He also has served the broader microbiology community through convening a number of sessions at the ASM microbiology general meeting. He also serves as an ad-hoc reviewer for diverse journals in the field as well as serving as an abstract reviewer for the ASM Microbe national meeting.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

Schaerer, L. G., Ghannam, R. B., Butler, T. M., **Techtmann, S. M.** 2019 Global comparison of the bacterial communities of bilge water, boat surfaces, and external port water. *Applied and environmental microbiology* 85(24). American Society for Microbiology.

**This paper was highlighted by the journal as a research spotlight in this issue.**

Ghannam, R. B., Schaerer, L. G., Butler, T. M., **Techtmann, S. M.** 2020 Biogeographic Patterns in Members of Globally Distributed and Dominant Taxa Found in Port Microbial Communities. *Mosphere* 5(1). American Society for Microbiology Journals.

**This paper examines differences in microbial communities in twenty globally distributed shipping ports.**

Campa, M.F., **Techtmann, S.M.**, Gibson, C.M., Zhu, X., Patterson, M., Garcia de Matos Amaral, A., Ulrich, N., Campagna, S.R., Grant, C.J., Lamendella, R. and Hazen, T.C., 2018. Impacts of glutaraldehyde on microbial community structure and degradation potential in streams impacted by hydraulic fracturing. *Environmental science & technology*, 52(10), pp.5989-5999

**This paper is part of a collaboration between Dr. Techtmann's group, University of Tennessee, Oak Ridge National Lab, and Juniata college to study the impact of fracking on stream microbial communities.**

**Techtmann, S.M.**, Zhuang, M., Campo, P., Holder, E., Elk, M., Hazen, T.C., Conmy, R. and Santo Domingo, J.W., "Corexit 9500 Enhances Oil Biodegradation and Changes Active Bacterial Community Structure of Oil-Enriched Microcosms." *Applied and Environmental Microbiology* 83.10 (2017): e03462-16.

**This paper is part of a collaboration between Dr. Techtmann and the EPA office of research to study commonly employed strategy for oil spill response.**

**INFORMATION SHEET FOR BOARD OF TRUSTEES**

**Kevin M. Trewartha**  
**Michigan Technological University**



**Kevin M. Trewartha**, who is currently an assistant professor without tenure in the Department of Cognitive & Learning Sciences (CLS) and the Department of Kinesiology & Integrative Physiology (KIP) in the College of Sciences and Arts, is being considered for promotion to associate professor with tenure in the CLS and KIP departments in the College of Sciences and Arts.

**Academic Degrees:**

Ph.D.	2012	Concordia University, Psychology, Montreal, QC, Canada
M.A.	2007	Concordia University, Psychology, Montreal, QC, Canada
B.A.	2004	University of Western Ontario, Psychology and Philosophy, London, ON, Canada

**Professional Record:**

2015 – present	Assistant Professor (without tenure), Department of Cognitive & Learning Sciences and Department of Kinesiology & Integrative Physiology, Michigan Tech University
2012 – 2015	Post-Doctoral Fellow, Queen’s University, Kingston, ON, Canada
2010 – 2010	Graduate Research Intern, University of Birmingham, Birmingham, UK
2005 – 2010	Graduate Research Trainee, Canadian Institutes of Health Research, Mississauga, ON

**Summary of Accomplishments:**

- Teaching

At MTU I have developed two core undergraduate courses (Motor Learning & Control, and Brain & Behavior) and one core graduate level course (Advanced Motor Learning & Control) that are each offered on an annual basis and additional undergraduate (Aging Brain & Cognition) and graduate (Cognitive & Motor Aging) courses that are offered on demand. My goal is to continue improving my course delivery by enhancing student engagement, ensuring that assessments are aligned to learning objectives, and designing learning activities that will allow students to achieve the learning objectives. To this end, I have regularly engaged in professional development activities for teaching including attending the UP Teaching and Learning conference, attending workshops and seminars offered by the Center for Teaching and Learning, and recently completing the Foundations of Online Teaching course. By continuing to refine my skills as an educator I have seen consistently increasing scores in student evaluations over the years with scores consistently above the university average, and my highest scores to date this past year. I consider the development of my teaching approach a lifelong learning exercise and I plan to continue to seek out professional development opportunities that will ensure I adhere to best practices in pedagogy.

- Research/Scholarly Activity

My primary scholarly contributions have been to improve our understanding of the cognitive factors associated with declines in motor learning and performance in older adults and leverage that knowledge to assess the utility of measures of motor behavior for identifying early stages of cognitive impairment in mild cognitive impairment (MCI) and Alzheimer’s disease (AD). My research has been published in top-tier neuroscience (e.g., Journal of Neuroscience; Journal of Neurophysiology), aging (e.g., Psychology & Aging; Frontiers in Aging Neuroscience; Journals of Gerontology: Psychological Sciences), and cognitive psychology (e.g., Cognition) journals. I have a strong track record of applying for both external and internal

funding at MTU (total funding requested = \$5,380,319). Those efforts have led to success with my current NIH funded project (1R15AG059095-01, \$455,883) and prior internal grants (total \$92,000). In 2019 I received an Institute of Computing and Cybersystems (ICC) Achievement Award for exceptional contributions to interdisciplinary research at the intersection of technology and human movement. In March, face-to-face data collection in my lab was suspended, particularly for our high-risk older adult populations. In response to the pandemic, I have developed a collaboration with a faculty member in the College of Computing to create a web-based platform to run motor learning experiments virtually. We are in the process of validating this platform and will be collecting our first virtual data over the next few months. We anticipate continuing to use this app to broaden our participant pool beyond our geographic limitations in the future, even after our normal face-to-face projects resume. In addition to building on my core research in the future, I have also branched out my research program with collaborators to explore the influence of cognitive aging on balance recovery for the prevention of falls, and cardiovascular function, respectively. These collaborations have led to a recent publication and manuscript in preparation for submission, as well as a recent (October 2020) collaborative NIH submission on the sensory, physical, and cognitive factors involved in balance recovery in adults with Type II Diabetes. By expanding my research program through interdisciplinary collaborative efforts, I am enthusiastic about broadening my research impact in the aging field in the coming years.

- Service

My most significant institutional service commitment at MTU has been to serve as a University Faculty Senator, representing CLS since 2018, and my associated contributions to the Research Policy Committee for the first two years and now the Committee on Promoting and Facilitating Equity and Understanding. At the university level, I also served two years as an Internal Advisory Board Member for the Pavlis Honors College. In terms of departmental service, I have served on the Graduate Program Committee in CLS every year since I started at MTU, am the Diversity Liaison for both CLS and KIP, have directed the Applied Cognitive Science and Human Factors Colloquium Series since 2015, and have served on search committees for faculty searches and for a new Dean of the College of Sciences and Arts (2018).

My major professional service contribution has been to serve as a Councilor at Large on the Board of the Michigan Society for Neuroscience. This elected position involves attending council meetings, planning the annual conference, and representing the neuroscience research and education community in the Upper Peninsula. I am currently serving my second 2-year term. Finally, I am an active peer reviewer for academic journals and funding agencies. I look forward to expanding my professional service contributions over the coming years on the National and International scale.

- Recent and Significant Publications

- Watral, A. T. & **Trewartha, K. M.** (In Revision for Resubmission). Age Differences in Rapid Motor Decisions in a Robotic Object Hit and Avoid Task: The Role of Executive Control. *Psych & Aging*.
- Pitts, J., Flint, I., Cook, A., **Trewartha, K. M.**, DenHerder, A., & Duncan, C. A. (In Press). The influences of lighting conditions on lower limb muscle activations during balance recovery. *Proceedings of the Human Factors and Ergonomics Society*. Santa Monica, CA.
- Rajeshkumar, L. & **Trewartha, K. M.** (2019). Advanced spatial knowledge of target location eliminates age-related differences in early sensorimotor learning. *Exp Brain Res*, 237, 1781-1791.
- **Trewartha, K. M.** & Flanagan, J. R. (2017). Linking actions and objects: Context-specific learning of novel weight priors. *Cognition*, 163, 121-127.
- **Trewartha, K. M.** & Flanagan, J. R. (2016). Distinct contributions of explicit and implicit memory processes to weight prediction when lifting objects and judging their weights: an aging study. *J Neurophysiol*, 116, 1128-1136.
- **Trewartha, K. M.**, Garcia, A., Wolpert, D. M., & Flanagan, J. R. (2014). Fast but Fleeting: Adaptive Motor Learning Processes Associated with Aging and Cognitive Decline. *J Neurosci*, 34, 13411-13421.

**INFORMATION SHEET FOR BOARD OF TRUSTEES**

**Andrew Fiss**  
Michigan Technological University



**Andrew Fiss**, who is currently an assistant professor of technical and professional communication without tenure in the Department of Humanities in the College of Sciences and Arts, is being considered for promotion to associate professor of technical and professional communication with tenure in the Department of Humanities in the College of Sciences and Arts.

**Academic Degrees:**

Ph.D.	2011	Indiana University, Bloomington, IN
M.A.	2007	Indiana University, History and Philosophy of Science, Bloomington, IN
A.B.	2005	Vassar College, Poughkeepsie, NY

**Professional Record:**

2014 – present	Assistant Professor (without tenure), Humanities Department, Michigan Technological University
2020 – present	Director of Scientific and Technical Communication Program, Humanities Department, Michigan Technological University
2013 – 2014	Post-Doctoral Fellow, Davidson College, Davidson, NC
2011 – 2013	Post-Doctoral Fellow, Vassar College, Poughkeepsie, NY
2010 – 2011	Graduate Research Assistant, Department of History and Philosophy of Science, Indiana University, Bloomington, IN
2006 – 2010	Graduate Teaching Assistant, Department of History and Philosophy of Science, Indiana University, Bloomington, IN

**Summary of Accomplishments:**

- Teaching

Within the Humanities Department's undergraduate and graduate classes, my teaching emphasizes perspectives that encourage students to communicate across disciplines. At the undergraduate level, I teach a range of courses that contribute to the Program in Scientific and Technical Communication (STC), especially Science Writing and Grant Writing. My classes contribute to our programs' majors in the Humanities department and also serve to develop all students' skills in composition and communication. Furthermore, my guest lectures with the College of Forest Resources and Environmental Science and the Keweenaw Bay Ojibwe Community College have allowed me to reach underrepresented STEM students. At the graduate level, I have offered a special topics course on Public Understandings of Science, twice taught the graduate-level Technical and Scientific Communication, and am currently teaching the Practicum in Teaching Technical Communication. All of these courses contribute centrally to graduate-level STC, providing significant preparation for students interested in various careers. I have served as advisor for 1 PhD student and 3 MS students and as committee member for 6 PhD students, as well as honors mentor for 2 undergraduates and research co-advisor for 1 undergraduate student. Recently, my students have recognized my teaching as especially successful through the Provost's Office and the Center for Student Success. My new position as Director of the STC

Program speaks to my interest in continuing to provide high-quality teaching and learning.

- Research/Scholarly Activity

My research centrally argues for humanities-based perspectives on science and technology. In 1 book, 9 peer-reviewed articles, 2 book chapters, and 3 non-refereed works, my research promotes diverse stories of students' engagement with STEM fields. Culminating in the book *Performing Math: A History of Communication and Anxiety in the American Mathematics Classroom* (Rutgers UP, November 2020), I research the experiences of students in STEM, who not only studied but also doodled, sang, joked, wrote plays, and broadly performed about their classes. This research is important to my fields because it foregrounds students' experiences in broadening what can be counted as technical communication. Beyond my fields, this work is gaining attention in the United States and internationally, as indicated by invited talks to leading research groups at the University of California at Berkeley, the British Science Association, and the University of Edinburgh, as well as a *Best Writing on Mathematics 2020* citation.

My research likewise is aligned with the strategic plans for the university. Technical and professional communication, as a field, recognizes that science and technology develop through humans writing and working together. Such aims are at the heart of the National Science Foundation's Big Ideas. On the five-year \$3.7-million NSF grant "Michigan Community and Anishinaabe Renewable Energy Sovereignty (MICARES)," I am the Senior Personnel researcher in charge of studying whether/how the large team comes to communicate, collaborate, and ultimately build a new discipline. In my new position as Director of the STC Program, I argue that humanistic perspectives, together with technological practices, "prepare students to create the future."

- Service

My service includes administrative and committee work at the department, university, and national levels. In the Humanities Department, I have served on a variety of committees, including the STC Steering Committee, the Diversity Studies Committee, and 3 faculty search committees. I am advisor to the student chapter of the Society for Technical Communication, and I have been Director of the Humanities Internship Program. At the university level, I have been an assessor for 2 university-wide learning goals, I serve on the Institutional Animal Use and Care Committee, and I represent Humanities in 4 current and pending grants. With respect to "Tech Forward," I contribute to 3 of the 9 initiatives: Health and Quality of Life; Policy, Ethics, and Culture; and Education for the Twenty-first Century. At the national level, I serve on the History of Science Society's committee on inclusion and diversity, as a manuscript reviewer, and as a grants reviewer for the National Science Foundation. Locally, my work informs my participation in cultural organizations. Overall, my record shows significant ongoing contributions to my department, university, fields of study, and local community.

Recent and Significant Publications/Exhibitions/Performances/Etc.

**Fiss, Andrew.** *Performing Math: A History of Communication and Anxiety in the American Mathematics Classroom*. New Brunswick, NJ: Rutgers University Press, November 2020.

**Fiss, Andrew.** "Ridicule, Technical Communication, and Nineteenth-Century Women Performing College Math." *Technical Communication Quarterly* (17 Aug 2020): forthcoming in print.

Schelly, Chelsea, Douglas Bessette, Kathleen Brosemer, Valoree Gagnon, Kristin L. Arola, **Andrew Fiss**, Joshua M. Pearce, and Kathleen E. Halvorsen. "Energy Policy for Energy Sovereignty: Can Policy Tools Enhance Energy Sovereignty?" *Solar Energy* 205 (15 July 2020): 109-112.

**Fiss, Andrew.** "Mathmagics of Media Princesses: Informal STEM Learning, STEM Rhetorics, and Animated Children's Movies." *Peitho* 22, no.1 (2019): 128-142.

**Fiss, Andrew** and Laura Kasson Fiss. "Laughing Out of Math Class: The Vassar *Mathematikado* and Nineteenth-Century Women's Education." *Configurations* 27, no.3 (2019): 301-329.

**INFORMATION SHEET FOR BOARD OF TRUSTEES****BENJAMIN W. ONG****Michigan Technological University**

**BENJAMIN W. ONG**, who is currently an assistant professor without tenure in the Department of Mathematical Sciences in the College of Science and Arts, is being considered for promotion to associate professor with tenure in the Department of Mathematical Sciences in the College of Science and Arts.

**Academic Degrees:**

Ph.D.	2007	Simon Fraser University, Burnaby, BC, Canada
B.S.	2000	Simon Fraser University, Burnaby, BC, Canada

**Professional Record:**

2015 – present	Assistant Professor (without tenure), Department of Mathematical Sciences, Michigan Technological University
2014 – 2015	Director of Research, Institute for Cyber-Enabled Research, Michigan State University, East Lansing, MI
2011 – 2014	Research Specialist, Institute for Cyber-Enabled Research, Michigan State University, East Lansing, MI
2007 – 2011	Research Assistant Professor, Department of Mathematics, Michigan State University, East Lansing, MI

**Summary of Accomplishments:****Teaching**

Dr. Ong has used blended learning to introduce the synergies between computing and mathematics in two courses, MA 1600 (Introduction to Scientific Simulations) and MA 2600 (Introduction to Scientific Computing). Both courses place a heavy emphasis on how solutions to real-world problems can be approximated, providing students a deeper insight into what they have previously learned in calculus and linear algebra, and what they will learn in more advanced mathematics and statistical courses. Dr. Ong is particularly gratified when talking with graduates and seniors about how MA 1600/MA 2600 has provided them useful tools and computational perspective throughout their studies and in their jobs. Dr. Ong has also taught a variety of other courses at both the undergraduate and graduate level, including freshman calculus and ordinary differential equations, graduate numerical partial differential equations, introduction to data science (an interdisciplinary graduate course) and a special topics course in his research area, “parallel time integration”. Student evaluations have been very positive, with a rating of 4.5 (averaged over 16 courses).

**Research/Scholarly Activity**

Dr. Ong is an internationally recognized expert in parallel time integration. He has published a total of 18 articles in top journals, and 3 peer-evaluated conference proceedings. He has worked with eight undergraduate researchers, three of which were funded based on merit by SURF. One SURF project has resulted in a publication with an undergraduate student, as well as a second

manuscript in preparation. Dr. Ong has graduated one PhD student (Spring 2020), is presently advising one PhD student, and has advised five masters projects (one in the Mathematical Sciences, four in data science). Dr. Ong has received (as PI) three federally funded grants totaling over \$750,000 in research funding over his career, including two active NSF grants.

### Service

Dr. Ong has provided extensive service to the department and university. He has been a member of the department undergraduate committee and has served twice on the department hiring committee. He has spearheaded the submissions of several large grant proposals to NSF (NSF RTG, NSF Data Corps) in support of undergraduate and graduate programs at Michigan Tech. Dr. Ong organized the statistics and applied mathematics seminars from 2016-2019. Dr. Ong presently serves as an undergraduate advisor. At the university level, Dr. Ong served for one year as the interim graduate program director for the Data Science program. As program director, Dr. Ong was involved with admissions, advising enrolled students, inter-departmental coordination of courses, as well as promoting industrial and alumni relations. In coordination with staff at the Pavlis Honors College, he helped incorporate graduate data science students into the enterprise program, and mentored two enterprise teams working on data-analytics projects. Dr. Ong served on the university CIS (Computational and Informational Sciences) working team, the university research computing committee, as well as the data science steering committee. At the national level, Dr. Ong has served on NSF panels in (2017-2020), and a DOE Panel (2020). He has served as an NSF XSEDE (Extreme Science and Engineering Discovery Environment) campus champion and fellow, as well as reviewing papers for XSEDE proceedings and proposals for XSEDE XRAC allocations. At the international level, Dr. Ong is a reviewer for several top journals in scientific computing, including SIAM Review, SIAM Scientific Computing, SIAM Matrix Analysis and Applications, ACM TOMs, Journal of Computational Physics, and the Journal of Scientific Computing, among others. He was elected to the Parallel-in-Time Scientific Committee (term: 2018-2021). He has organized various workshops and conferences, most recently, an international conference on parallel time integration, held virtually due to Covid19, in summer 2020.

### Recent Significant Products

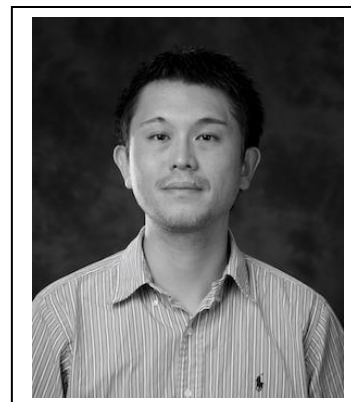
**Software packages for parallel time integration:** (2020) “*Deferred Correction Methods for Ordinary Differential Equations*”, Journal of Scientific Computing; (2016) “*Algorithm 965: RIDC Methods – A Family of Parallel Time Integrators*”, ACM TOMS

**Exa-scale computing:** (2020) “*Applications of Time Parallelism*”, Computing and Visualization Science; (2019) “*Waveform Relaxation with Adaptive Pipelining*”, SIAM Scientific Computing; (2018) “*Pipeline Implementations of Neumann-Neumann and Dirichlet--Neumann Waveform Relaxation Methods*”, Numerical Algorithms

**Scientific Computing:** (2020) “*Towards an adaptive treecode for  $n$ -body problems*”, Journal of Scientific Computing; (2017) “*A new family of regularized kernels for the harmonic oscillator*”, Journal of Scientific Computing; (2017) “*An Asymptotic Preserving Maxwell Solver Resulting in the Darwin Limit of Electrodynamics*”, Journal of Scientific Computing

**Data Analysis:** (preprint) “*Randomized Iterative Methods for Matrix Approximations*”; (2016) “*A Distributed and Incremental SVD Algorithm for Agglomerative Data Analysis on Large Networks*”, SIAM J. on Matrix Analysis and Applications

**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**ISSEI NAKAMURA**  
**Michigan Technological University**



*Issei Nakamura*, who is currently an assistant professor of physics without tenure in the Department of Physics in the College of Sciences and Arts, is being considered for promotion to associate professor of physics with tenure in the Department of Physics in the College of Sciences and Arts.

**Academic Degrees:**

Ph.D.	2010	McMaster University, Hamilton, Ontario, Canada
M.S.	2002	Osaka University, Osaka, Japan
B.S.	2000	Tokyo University of Science

**Professional Record:**

2017 – present	Assistant Professor (without tenure), Department of Physics, Michigan Technological University
2013 – 2016	Professor, State Key Lab of Polymer Physics and Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, Jilin, China
2010 – 2013	Postdoctoral Scholar, Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA, USA
2004 – 2010	Graduate Research Assistant, Department of Physics and Astronomy, McMaster University, Hamilton, Ontario, Canada
2004 – 2009	Graduate Teaching Assistant, Department of Physics and Astronomy, McMaster University, Hamilton, Ontario, Canada

**Summary of Accomplishments:**

• Teaching

My teaching style primarily relies on preclass exercises, regardless of the academic level. For example, in the graduate-level statistical mechanics course, students need to solve a few questions before each class and submit typically 20 to 30 exercises by the end of the course. Thus, I test students' ability regarding continuous effort in their study as well as their conceptual understanding of the subject. I believe that this constant practice substantially familiarizes students with the course topic. Indeed, the students' evaluations and comments have reflected this. I also found that this effect is even further positively pronounced in the undergraduate course for modern physics. Currently, I am trying to increase the efficiency of this method and develop a pedagogical algorithm to be customized for MTU's students according to the student evaluation.

• Research/Scholarly Activity

My research is focused on the study of polymer electrolytes in liquid phases. Recently awarded NSF Career award is related to a new class of molecular simulations for ion-containing liquids (<https://www.mtu.edu/news/stories/2020/november/issei-nakamura-wins-career-award-for-charged-liquids-research.html>). Our group's research work has been recognized with publications in high-impact journals in soft-matter sciences.



To increase our collaborative opportunities with scientists of the Department of Energy, I have received a USER facility grant from the Center for Integrated Nanotechnologies (CINT), which is part of the Department of Energy and Office of Science Nanoscale Science Research Center jointly operated by the Los Alamos and Sandia National Laboratories. An Umbrella Non-Proprietary User Agreement with Sandia National Laboratory has also been signed.

- Service

**Committee work:** Colloquium committee, (fall 2017 – present), qualifying exam committee (spring 2019 – present), advisory committee (fall 2019 – present), and graduate studies committee (fall 2020 – present). As a chairperson of the colloquium committee, I invited diverse groups of speakers including Prof Monica Olvera de la Cruz, Northwestern with the support of MTU's Visiting Women and Minority Series.

**Conference Chair:** APS March meeting, Los Angeles, CA (2018).

- Recent and Significant Publications/Exhibitions/Performances/Etc.

**Peer-reviewed publications since 2017:**

1. Shock, C., Stevens, M., Frischknecht, A., and Nakamura, I., *J. Phys. Chem. B* 2020, 124, 22, 4598–4604
2. Nakamura, I., *Macromolecules*, 53, 10, 3891–3899 (2020)
3. Nakamura, I., *New J. Phys.* 22 015001 (2020): Invited-only for a special topic.
4. Nakamura, I., Schock J. C., Eggart L., and Gao T., *Isr. J. Chem.*, 58, 1–12 (2018): A review article invited by Dr. Guterman, Max Planck Institute of Colloids and Interfaces
5. Nakamura, I., *J. Phys. Chem. B*, 122, 22, 6064–6071 (2018)
6. Chen, H., An, L., and Nakamura, I., *Mol. Syst. Des. Eng.*, 3, 328-341 (2018)
7. Liu, L and Nakamura, I., *J. Phys. Chem. B*, 121, 3142-3150 (2017)

**Internal research fund:** Research Excellence Fund (REF) \$29,200 (\$20,000 REF/\$9,200 Cost Share) (07/01/2019 - 08/31/2021)

**External research grant:** The NSF CAREER award (Total intended award amount: \$490,000) (08/01/2020 – 07/31/2015)

**Oral presentations since 2017:** 10 presentations in international-level conferences (1 invited talk), 1 presentation in a national-level conference, and 1 presentation in a regional conference. 1 invited talk for Grain Processing Seminar 2020 at the Chemical Engineering Department in Michigan Tech.

**Journal Reviewer:** 77 articles as of November 6 2020. According to Publons, the total number of my reviews has scored in the 98th percentile, and the number of my reviews performed in the last 12 months has scored in the 99th. As of November 6, 2020, this result comes in first place at Michigan Tech ([https://publons.com/researcher/?institution=460&is\\_core\\_collection=1&is\\_last\\_twelve\\_months=1&order\\_by=num\\_reviews](https://publons.com/researcher/?institution=460&is_core_collection=1&is_last_twelve_months=1&order_by=num_reviews)).

**Media Recognition:**

1. Research Highlight, *Advances In Engineering*, Apr. 2020
2. Inside Back Cover for *Molecular Systems Design & Engineering*, Apr. 2018.
3. Research Highlight, *Advances In Engineering*, Nov. 2018

**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**SARAH FAYEN SCARLETT, PhD**  
**Michigan Technological University**

**Sarah Fayen Scarlett**, who is currently an assistant professor of history without tenure in the Department of Social Sciences in the College of Sciences and Arts, is being considered for promotion to associate professor of history with tenure in the Department of Social Sciences in the College of Sciences and Arts.



**Academic Degrees:**

Ph.D.	2014	University of Wisconsin—Madison
M.A.	2002	University of Delaware, Winterthur Program in American Material Culture
B.A.	1998	Yale University, New Haven, CT

**Professional Record:**

2015 – present	Assistant Professor (without tenure), Department of Social Sciences, Michigan Technological University
2013–15	Lecturer and Post-Doctoral Fellow, Department of Visual and Performing Arts, Michigan Technological University
2009–10 and 2011–12	University Fellow, Graduate Research Assistant, Department of Art History, University of Wisconsin—Madison
2002–2009	Curator, Chipstone Foundation and the Milwaukee Art Museum, Milwaukee, Wisconsin

**Summary of Accomplishments:**

Teaching

Dr. Scarlett teaches and mentors students in the classroom and in funded research. She consistently earns average 7-dimension scores over 4.5 (out of 5) from student evaluations, and received student commendation through the Provost for successful teaching during the COVID-19 pandemic in Spring 2020. Innovations include introducing the immersive “Reacting to the Past” pedagogy to the U.S. History survey course, re-designing the Reading the Landscape course to apply geospatial technologies to the history of Michigan Tech’s campus history, and developing a new course called The History of Making Things. Scarlett’s graduate classes in the Industrial Heritage & Archaeology program include community-engaged applied projects in museums and historic preservation. Scarlett has supervised 2 graduate students, co-authored 2 significant peer-reviewed papers with PhD students, and has served or is currently serving on 4 PhD and 2 MS committees, and one external PhD committee. As part of the NEH-sponsored Keweenaw Time Traveler project, which Scarlett co-directs, she has supervised and mentored graduate and undergraduate students from across campus in developing and evaluating digital spatial history and community-engaged heritage. Scarlett’s current sponsored research is supporting 8 undergraduates, 1 MS student, 2 PhD students, and a post-doc.

Research/Scholarly Activity

Dr. Scarlett is an interdisciplinary scholar and public historian investigating the politics of the American built environment through digital spatial heritage research and methods in vernacular architecture and cultural landscapes studies. Scarlett’s first area of research considers social power, class, and identity in domestic architecture and landscapes of industrial communities. Her single-authored monograph uses an

object-driven approach and breaks new methodological ground by analyzing women's embodied experience to reveal unexpected power dynamics and opportunities for resistance in middle-class housing. She is building on this analysis to study social mobility over time as part of "Three Centuries of Francophone Migration in North America," a 7-year collaborative research project funded by the Social Sciences and Humanities Research Council of Canada. Beyond academic publications, Scarlett's dissemination of her collaborative work will include a bi-lingual online exhibition and local programming with the National Park Service. Scarlett's second area of research investigates applications of historical GIS for analysis and public history. Scarlett has raised over \$767,000 in external research funding (\$262,000 as PI, \$505,000 as co-PI) to build the pioneering historical spatial data infrastructure known publicly as the Keweenaw Time Traveler. Two major grants from the National Endowment for the Humanities (2016 and 2020) and another from the Council on Library and Information Resources (2020) are funding Scarlett's work to create historical big datasets from mining company records and demographic sources, and then map and record-link them in a historical GIS available online to researchers and the public. This intensely collaborative and public-facing project has engaged over 800 people in face-to-face conversation about the changing landscapes of the Keweenaw, and resulted in 5 co-authored peer-reviewed papers and 10 co-authored conference presentations.

### Service

Dr. Scarlett has taken multiple leadership roles in the Vernacular Architecture Forum, North America's leading professional organization for the study of everyday landscapes. Currently serving on the Editorial Board of the VAF's Special Series, she served three years as an elected board member, and is the conference organizer for the 2024 VAF Annual Conference called "North of the Northwoods," which will be hosted at Michigan Tech. She has been a review panelist for the NEH, and reviewed articles for *Heritage & Society*, *The Journal of Community Archaeology and Heritage*, and the University of Tennessee Press among others. For the University, Scarlett serves on the University Learning Goal #4 committee, reviewed Summer Undergraduate Research Funding applications for three years, and recently co-created a Local Literacy module with an IDEA Hub grant through the Pavlis Honors College. She is currently serving as chair of an external search committee for a new Chair of the Department of Social Sciences.

### Recent and Significant Publications (selected)

#### BOOK

**Sarah Fayen Scarlett**, *Company Suburbs: Architecture, Power, and the Transformation of Michigan's Mining Frontier*, Knoxville: University of Tennessee Press, 2021.

#### PEER REVIEWED ARTICLES

**Sarah Fayen Scarlett**, Don Lafreniere, Dan Trepal, John Arnold, Yichun Xie, "Out of the Classroom and Into History: Mobile Historical GIS and Community-Engaged Teaching," *The History Teacher* 53, no. 1 (November 2019): 11–35.

**Sarah Fayen Scarlett**, Don Lafreniere, John D. M. Arnold, Daniel J. Trepal, Robert Pastel "Engaging Community and Spatial Humanities for Post-Industrial Heritage: The Keweenaw Time Traveler," *American Quarterly*, Special Issue: Toward a Critically Engaged Digital Practice: American Studies and Digital Humanities 70, 3 (September 2018): 619–23.

Dan Trepal (graduate student), **Sarah Fayen Scarlett**, Don Lafreniere, "Heritage Making through Community Archaeology and the Spatial Humanities," *Journal of Community Archaeology and Heritage* 6, no. 4 (August 2019): 238–256.

**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**ROMAN V. SIDORTSOV**  
**Michigan Technological University**



**Roman V. Sidortsov**, who is currently an assistant professor of energy policy without tenure in the Department of Social Sciences in the College of Sciences and Arts, is being considered for promotion to associate professor of energy policy with tenure in the Department of Social Sciences in the College of Sciences and Arts.

**Academic Degrees:**

Ph.D.	2016	University of Cambridge, United Kingdom
LL.M in Environmental Law	2012	Vermont Law School, South Royalton, VT
JD	2008	Vermont Law School, South Royalton, VT
Bachelor and Master of Law	1999	Irkutsk State University School of Law, Irkutsk, Russia

**Professional Record:**

2016 – present	Assistant Professor of Energy Policy (without tenure), Department of Social Sciences, Michigan Technological University
2020 – present	Senior Research Fellow in Energy Justice and Transitions, University of Sussex, Science Policy Research Unit, Sussex, UK
2019 – 2020	Associate Fellow, University of Sussex, Science Policy Research Unit, Sussex, UK
2018 – present	Associate Editor, <i>Energy Research and Social Science</i>
2013 – 2016	Team Researcher, Árran Lule Sámi Centre, Drag, Norway, based in Cambridge, UK
2011 – 2017	Senior Global Energy Fellow and Distance Learning and Summer Programs Faculty, Vermont Law School, Institute for Energy and the Environment, South Royalton, VT
2010 – 2011	Research Associate, Vermont Law School, Institute for Energy and the Environment, South Royalton, VT
2010 – 2012	Adjunct Faculty, Marlboro College Graduate School, Brattleboro, VT
2008 – 2010	Associate Attorney, Gravel and Shea, Burlington, VT
2004 – 2006	Foreign Attorney/Law Clerk, Littler Global, Phoenix, AZ
2001 – 2004	Paralegal, Meckler, Bulger & Tilson, Chicago, IL
1999 – 2001	Attorney/Project Coordinator, Project Harmony, Inc., Waitsfield, VT, based in Moscow and Irkutsk, Russia
1999 – 2000	Lecturer, Baikal State University of Economics and Law (formerly Irkutsk State Academy of Economics and Law), Irkutsk, Russia

**Summary of Accomplishments:**

**Teaching:** Dr. Sidortsov has been recognized as an excellent teacher by his students, peers, and university administration. Since joining Michigan Tech, he has received an average 4.58 rating across all surveyed dimensions based on the evaluations from three large, four medium, two small undergraduate, and one small graduate classes. Dr. Sidortsov received the 2018 Dean's Teaching Showcase award for teaching excellence, the 2018 Jackson Center Instructional Award for Large Class Teaching, and two recognitions as a top 10% teacher in Fall 2018 and Fall 2019. Since joining the university, he has developed and currently teaches undergraduate courses in Energy Policy and Technology, Energy Security and Justice, Renewable Energy and Alternative Fuels, and Energy

Transitions, and a graduate Advanced Seminar in Energy and Climate Policy course in which he heavily draws on his research. In addition, Dr. Sidortsov has taught Global Issues and he currently teaches Environment and Society. In He has engaged several undergraduate students in his ongoing research. All Dr. Sidortsov's courses have a significant online component; he developed an online version of Energy Policy and Technology that he teaches every summer. At Michigan Tech, he has had one MS and one PhD student successfully defend their thesis and dissertation. He currently advises one PhD student and one MS student, and co-advises three PhD students.

*Research/Scholarly Activity:* Dr. Sidortsov is a comparative socio-legal researcher. His research is motivated by the need to transition to sustainable energy systems. It lies in the intersection of energy and environmental law and policy. Geographically, his research is predominately linked to energy development issues in the Arctic with the focus on the Russia and the United States. Since joining Michigan Tech, Dr. Sidortsov expanded his research to energy issues important to Michigan and the Upper Peninsula in particular including energy storage, pipeline safety, affordability of electricity rates, and renewable energy development. Throughout his career, Dr. Sidortsov helped to secure over \$9,000,000 in external funding, including over \$7,300,000 as a principal investigator and co-investigator. He currently leads a project that explores repurposing decommissioned mines into energy storage facilities. Since joining Michigan Tech, he has been part of 13 grant applications, five of which have been successful. Dr. Sidortsov seeks to expand Michigan Tech's international profile by co-leading a 6,000,000 EUR project funded by the E.U. Commission and comprising 17 international research institutions. He has authored and co-authored one book, 23 refereed articles, seven book chapters, and four technical reports.

*Service:* Dr. Sidortsov has served on various university and departmental committees. He is a co-founder and current director of the Keweenaw Energy Transition Lab, an interdepartmental transdisciplinary research hub. He has served as a peer reviewer for seven journals, with regular contributions to *Energy Research and Social Science* (ERSS), *Energy Policy*, and *Applied Energy*, as a book proposal reviewer for Routledge and Edward Edgar, as well as grant proposal reviewer for national and international funders. On January 1, 2018, Dr. Sidortsov assumed the duties of ERSS's associate editor after four years of service as one of its editorial board members. He periodically presents his research to the local community and helps with facilitating proposal submissions for professional conferences. As part of his service to the State of Michigan, he currently serves on the Upper Peninsula Energy Task Force, to which he was appointed by Governor Gretchen Whitmer.

*Recent and Significant Publications (selected)*

*Books*

Benjamin Sovacool, **Roman Sidortsov**, & Benjamin Jones, *Energy Security, Equality, and Justice*, Routledge (2014).

*Refereed Articles*

**Roman Sidortsov**, Benefits over Risks: A Case Study of Government Support of Energy Development in the Russian North, *Energy Policy*, 129, pp. 132-138 (2019)

**Roman Sidortsov** & Elena Gavrilina, When Foundation Matters: Overcoming Policy, Legal, and Regulatory Barriers to Oil and Gas Well Decommissioning in Russia, *Journal of World Energy Law & Business*, (2018).

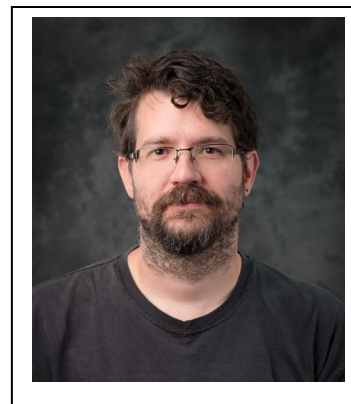
**Roman Sidortsov** & Benjamin Sovacool, Left Out in the Cold: Energy Justice and Arctic Energy Research, *Journal for Environmental Studies and Sciences*, 5:3, pp. 302–307 (2015).

**Roman Sidortsov**, Aytalina Ivanova, & Florian Stammer, Localizing Governance of Systemic Risks: A Case Study of the Power of Siberia Pipeline in Russia, *Energy Research and Social Science*, Vol. 16, pp. 54-68 (2016).

**Roman Sidortsov**, Reinventing Rules for Environmental Risk Governance in the Energy Sector, *Energy Research & Social Science* Vol. 1, pp. 171-182 (2014).

## INFORMATION SHEET FOR BOARD OF TRUSTEES

**Kent A. Cyr**  
Michigan Technological University



**Kent A. Cyr**, who is currently an assistant professor of technical theatre without tenure in the Department of Visual & Performing Arts in the College of Sciences & Arts, is being considered for promotion to associate professor of theatre with tenure in the Department of Visual & Performing Arts in the College of Sciences & Arts.

### Academic Degrees:

M.F.A.	2008	Boston University, CFA: Technical Production, Boston, MA
B.S.	1996	Indiana University, General Studies, Bloomington, IN

### Professional Record:

2015 – present	Assistant Professor (without tenure), Dept. of Visual and Performing Arts, Michigan Technological University
2012 – 2015	Assistant Professor (without tenure), York College, Dept. of Communication and the Arts, York, PA
2008 – 2012	Associate Instructor, York College, Dept. of Communication and the Arts, York, PA
2007 – 2008	Technical Director, Bard Summerscape, Bard College, Annandale-on-Hudson, NY
2005 – 2007	Graduate Assistant, College of Fine Arts, Boston, MA
2002 – 2005	Lecturer of Technical Direction, School of Music, Indiana University, Bloomington, IN

### Summary of Accomplishments:

- Teaching

In 2020-2021 Kent Cyr was appointed Program Director for the Theatre & Entertainment Technology B.S. degree and the Technical Theatre minor. As a member of this degree committee, he developed significant curriculum additions: new courses, FA2705 Stage Properties - Design and Craft and FA2706 Intermediate Backstage Technology; and a new degree emphasis area, Crafts with multidisciplinary collaborations including Humanities, Mechanical Engineering Technology, and Materials Science courses. His overall student evaluations average is 4.17, with the last 5 semesters trending up where all evaluations were over 4.0, averaging 4.36. His continuing industry professional work for Technical Theatre Solutions as a technical designer and draftsman for national and international touring productions, keeps him abreast of entertainment industry trends and needs which he incorporates into his course work. In 2018, Cyr was awarded the Association for Theatre in Higher Education/Kennedy Center American College Theatre Festival Regional Innovative Teaching Award for theatre at the college level, specifically for his inclusion of classical approaches to theatre technology and skills into relevant modern contexts. He has expanded the students' experiential opportunities to include non-theatrical events, such as the Quincy Haunted Mine Tour, with students problem-solving to mount a public event in a found space, expanding the context of entertainment in the degree. This is the foundation for future endeavors Cyr is pursuing with other venues such as a regional children's museums, window displays, and aquariums.

- Research/Scholarly Activity

Cyr was a Co-PI on the 2016-17 "Listening to Parks" Grant, which was awarded by the joint National Endowment for the Arts/National Park Service program to promote the National Park System. This culminated in multiple regional tours of the resulting exhibit for which he designed and built the sculptural

structure. This has expanded awareness of the broad range of Michigan Tech work. He has received several internal grants: PI on a C2E2 grant (2015-16) for the purchase of media servers to support the department's visual/projection performance enhancements; PI on a REF:IE grant (2017-18) for materials to begin an entertainment technology lab which continues to evolve in a dedicated space supporting future industry explorations; and Co-PI on a REF:IE grant (2019-2020) for updates and improvements to the McArdle Theatre infrastructure keeping the performance space relevant for future educational productions. As part of his scholarly activity Cyr, in consultation with a physical therapist and an occupational therapist, has been developing part of the entertainment technology lab for student self-evaluation of their endurance and fine-motor skills critical to working in the industry. He is actively involved with regional/national workshops, symposia, and conferences including: the 2016 United States Institute for Theatre Technology (USITT) Education Commission session panelist, Women in Leadership Roles: Training and Mentoring, discussing the responsibilities of mentoring college women; 2020 USITT Education and Scenic Commissions respectively (deferred to 2021) poster sessions presenter on utilizing professional work in the classroom and the communication needs between technicians and designers. For the Kennedy Center American College Theatre Festival – Region 3 (KCACTF3) 2016-present he is a frequent workshop presenter on theatrical rigging and stagecraft; and a frequent poster presenter on Michigan Tech production work. In support of his interdepartmental collaborations at Tech, he participated in a 2018 summit between theatre and engineering educators with entertainment industry professionals evaluating the intersection between educational goals and industry needs leading to the now annual Symposium on Education and Entertainment.

- Service

Cyr has been a continual member of two department committees: VPA Safety and the Theatre & Entertainment Technology BS Degree. At the university level, he has been a member of the Undergraduate Student Learning Goal 4 – Creative and Critical Thinking for the past four years and an artifact reviewer for USLG 4 and USLG 8 - Social Responsibility and Ethical Reasoning. Since 2016, he continues as an editor for the USITT *Tech Expo Journal*. For the 2016 KCACTF3 festival he was a respondent, critiquing the technical load-in process for invited productions; in 2017 he became the principal respondent coordinating other respondents, this expanded further in 2018 to include detailing information and supporting both those in attendance and the supporting venues. For the 2019 KCACTF3 festival, this was formalized when he was appointed the region's first Festival Technical Director which he presently continues – while continuing as the respondent coordinator, he performs site surveys for the festival, joins the selection committee for invited productions, determines performance venues and technical needs for those productions, and works as a liaison between the conference hosts, the venues, and invited productions to provide schedules, technical support and safety protocols.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

Cyr's most recent professional work with Technical Theatre Solutions (TTS Studios) has included *Bandstand*, which started its national tour in 2019, the 50<sup>th</sup> anniversary international tour of *Jesus Christ: Superstar*, and *A Christmas Story*, Charleston, SC. At Tech, his 2019 scene design for *Eurydice* was awarded a KCACTF Certificate of Merit. Due to his technical direction for *A Midsummer Night's Dream* and executing many large rotating columns that could be operated by cast members, the production was awarded a KCACTF Certificate of Merit for scene transformation. He continues to assemble the NEA "Listening to Parks" exhibit in locations around the region. His research into students' waning fine-motor skills and diminishing stamina in technical work is resulting in an article under consideration for publication. His work is ongoing with the Educational Testing Service to write and refine 45 questions to be published as the national Praxis exam for K-12 teacher certification with the additional role of reviewing 120 more as test content for accuracy, 'dated-ness', educational level, and that key references are current and accurate before publication of the exams.

**INFORMATION SHEET FOR BOARD OF TRUSTEES**

**Christo Z. Christov**  
Michigan Technological University



**Christo Z. Christov**, who is currently an associate professor of chemistry without tenure in the Department of Chemistry in the College of Sciences and Arts, is being considered for promotion to associate professor of chemistry with tenure in the Department of Chemistry in the College of Sciences and Arts.

**Academic Degrees:**

Ph.D.	2003	Bulgarian Academy of Sciences, Sofia, Bulgaria
M.S.	1995	University of Sofia, Sofia, Bulgaria

**Professional Record:**

2017 – present	Associate Professor (without tenure), Department of Chemistry, Michigan Technological University, Houghton, MI
2014 – 2017	Associate Professor (upper level), Northumbria University, Newcastle-upon-Tyne, UK
2011-2014	Associate Professor, Northumbria University, Newcastle-upon-Tyne, UK
2010-2011	Assistant Professor, Northumbria University, Newcastle-upon-Tyne, UK
2010-2013	Visiting Scholar and Marie Curie Fellow, Stanford University, CA, USA
2005-2010	Postdoctoral Researcher, Bristol University, UK; Sussex University, UK; and Autonomous University of Barcelona, Spain
2003-2005	Assistant Professor, Bulgarian Academy of Sciences, Bulgaria; Marie Curie Fellow & Visiting Professor at University Jaime I, Castellon, Spain

**Summary of Accomplishments:**

• Teaching

Dr. Christov has actively contributed to the undergraduate teaching mission of the Department of Chemistry by delivering the CH3510 Physical Chemistry I course. In 2020 he was acknowledged by the Provost for his excellent job managing the transition to remote teaching. Dr. Christov has also developed new courses in Biomolecular Simulations/Molecular Modeling and Bioinorganic Mechanisms for graduate and upper division students. In addition, Dr. Christov is contributing to expanding and updating the BS program in Computational Chemistry and Chemical Informatics. His efforts have significantly contributed to graduate and undergraduate education in chemistry at Michigan Tech.

• Research/Scholarly Activity

Dr. Christov uses computational methods to understand reactions of enzymes, especially enzymes that contain metals. He works closely with experimentalists to interpret their results and propose new experimental strategies. This work has practical applications in drug design, biomedicine, biotechnology, and synthetic biology. His tools are a combination of multilevel modelling methods based on quantum mechanics, molecular dynamics, and combined techniques. These studies reveal enzyme reaction mechanisms and the role of the dynamics. They provide insights for new enzyme inhibitors that could be used as drugs. A 2020 publication investigated mechanisms of DNA repair and was featured as the cover



image for ACS Central Science. Most recently, Dr. Christov was awarded an NSF grant for a new project on enzymes that produce ethylene. Dr. Christov's research is published in top research journals such as ACS Catalysis, ACS Central Science and Chemical Science. He is currently supervising three Ph.D. students in the chemistry department.

- Service

Dr. Christov has served as a member of the Undergraduate Program Committee (UPC) in the chemistry department, where he focused on improving the BS program in Cheminformatics, including changing its name to "Computational Chemistry and Chemical Informatics". In that role he also evaluated undergraduate research proposals. He serves as a member of five Ph.D. and MS advisory committees. Dr. Christov serves as a peer reviewer for journals of the American Chemical Society, Royal Society of Chemistry, and Elsevier. He has edited or co-edited eight volumes of the prestigious scientific serials *Advances in Protein Chemistry and Structural Biology*, and has edited multiple special issues and topical collections of the *International Journal of Molecular Sciences*. In the UK, Dr. Christov served on prioritization panels for the Engineering and Physical Sciences Research Council (EPSRC) and as a reviewer for the Biotechnology and Biological Sciences Research Council and the Fulbright Commission.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

*Selected Publications*

1. S. Chaturvedi, R. Ramanan, J. Hu, R. Hausinger, **C.Z. Christov**. (2021) Atomic and Electronic Structure Determinants Distinguish between Ethylene Formation and L-Arginine Hydroxylation Reaction Mechanisms in the Ethylene-Forming Enzyme, *ACS Catalysis*, 11, 1578-1592.
2. R. Ramanan, S. S. Chaturvedi, N. Lehnert, C. J. Schofield, T. G. Karabencheva-Christova and **C. Z. Christov** (2020) Catalysis by the JmjC Histone Demethylase KDM4A Integrates Substrate Dynamics, Correlated Motions and Molecular Orbital Control. *Chemical Science*, 11, 9950-9961.
3. S. O. Waheed, R. Ramanan, S. S. Chaturvedi, N. Lehnert, C. Schofield, **C. Z. Christov** and T. G. Karabencheva-Christova\* (2020) Role of Structural Dynamics in Selectivity and Mechanism of Non-heme Fe(II) and 2-Oxoglutarate-Dependent Oxygenases Involved in DNA Repair. *ACS Central Science*, 6, 795–814. *Selected for supplementary cover image.*
4. S. S. Chaturvedi, R. Ramanan, N. Lehnert, C. J. Schofield, T. G. Karabencheva-Christova, and **C. Z. Christov** (2020) Catalysis by the Non-Heme Iron(II) Histone Demethylase PHF8 Involves Iron Center Rearrangement and Conformational Modulation of Substrate Orientation. *ACS Catalysis*, 10, 1195-1209.
5. S. S. Chaturvedi, R. Ramanan, S. O. Waheed, J. Ainsley, M. Evison, J. M. Ames, C. J. Schofield, T. G. Karabencheva-Christova and **C. Z. Christov** (2019) Conformational Dynamics Underlies Different Functions of Human KDM7 Histone Demethylases. *Chemistry - A European Journal*, 25, 5422-5426.
6. S. O. Waheed, R. Ramanan, S. S. Chaturvedi, J. Ainsley, M. Evison, J. M. Ames, C. J. Schofield, **C. Z. Christov** and T. G. Karabencheva-Christova (2019) Conformational Flexibility Influences Structure–Function Relationships in Nucleic Acid N-methyl Demethylases. *Organic & Biomolecular Chemistry*, 17, 2223-2231.
7. J. Ainsley, S. S. Chaturvedi, T. G. Karabencheva-Christova, M. Tanasova, and **C. Z. Christov** (2018) Integrating Molecular Probes and Molecular Dynamics to Reveal Binding Modes of GLUT5 Activatory and Inhibitory Ligands. *Chemical Communications*, 54, 9917-9920
8. T. Karabencheva-Christova, **C. Christov**, G. Fields (2018) Conformational Dynamics of Matrix Metalloproteinase-1•Triple-helical Peptide Complexes. *J. Phys. Chem. B*, 122, 21, 5316-5326. [10.1021/acs.jpcc.7b09771](https://doi.org/10.1021/acs.jpcc.7b09771).

**D. Promotions**

Jackie Huntoon, Provost



Office of the Provost and  
Senior Vice President for Academic Affairs

Phone: (906) 487-2440  
Fax: (906) 487-2935

**TO:** Richard Koubek, President

**FROM:** Jacqueline E. Huntoon, Provost & Senior Vice President for Academic Affairs

**DATE:** March 31, 2021

**SUBJECT:** Promotion Recommendations

In accordance with Board of Trustees Policy 6.4, Academic Tenure and Promotion, the following faculty members have been recommended for promotion. I have reviewed and support these recommendations and request that the Board of Trustees be asked to approve them at their April 30, 2021 meeting. If approved, the promotions will be effective August 16, 2021.

**Promotion from Associate Professor with Tenure to  
Professor with Tenure**

Timothy Havens	Computer Science
Jingfeng Jiang	Biomedical Engineering
Amlan Mukherjee	Civil & Environmental Engineering
Christopher Middlebrook	Electrical & Computer Engineering
Gregory Waite	Geological & Mining Engineering & Sciences
Yongmei Jin	Materials Science & Engineering
Wayne Weaver	Mechanical Engineering-Engineering Mechanics
Robert Froese	College of Forest Resources & Environmental Science
Amy Marcarelli	Biological Sciences
Yang Yang	Mathematical Sciences

APPROVED:

4/1/2021

Richard Koubek, President

Date

**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**TIMOTHY C. HAVENS**  
**Michigan Technological University**



*Timothy C. Havens*, who is currently the William and Gloria Jackson Associate Professor in the Department of Computer Science and the Associate Dean for Research in the College of Computing, is being considered for promotion to professor of computer science with tenure in the Department of Computer Science in the College of Computing.

**Academic Degrees:**

Ph.D.	2010	Electrical and Computer Engineering, University of Missouri, Columbia, MO
M.S.	2000	Electrical Engineering, Michigan Technological University, Houghton, MI
B.S.	1999	Electrical Engineering, Michigan Technological University, Houghton, MI

**Professional Record:**

2019 - present	Associate Dean for Research, College of Computing, Michigan Technological University
2016 - present	William and Gloria Jackson Associate Professor (with tenure), Departments of Computer Science and Electrical and Computer Engineering, Michigan Technological University
2018 - present	Director, Institute of Computing and Cybersystems, Michigan Technological University
2012 – 2016	William and Gloria Jackson Assistant Professor (without tenure), Departments of Electrical and Computer Engineering and Computer Science, Michigan Technological University
2010 – 2012	NSF / CRA Computing Innovation Fellow, Michigan State University, East Lansing, MI
2008 - 2010	Teaching Fellow, Department of Electrical and Computer Engineering, University of Missouri, Columbia, MO
2007 - 2008	NSF GK-12 Fellow, University of Missouri, Columbia, MO
2000 – 2005	Associate Technical Staff, MIT Lincoln Laboratory, Lexington, MA

**Summary of Accomplishments:**

- Teaching

Dr. Havens's record has all the hallmarks of a first-rate educator; he obtains consistently exceptional teaching evaluations, has been recognized for his teaching accomplishments, has contributed to the development of new courses and degree programs at Michigan Tech, and continues to hone his pedagogical skills. Dr. Havens has been recognized for his teaching with the IEEE Eta Kappa Nu, Beta Gamma Chapter, Professor of the Year Award (2015) and Jackson Creative Canvas Course Contest Award (2014). During the transition to remote education in early 2020, Dr. Havens was identified by 11 of his students as providing *excellent remote instruction* in a survey supported by the Provost Office. In 2015, he helped found the new interdisciplinary M.S. Data Sciences program and served as its executive director in AY2017-18.

In addition to his classroom teaching, Dr. Havens is also an exceptional mentor to graduate students. He has advised five Ph.D. students to graduation, and currently is advising six Ph.D. students—two of which are expected to graduate this year. Five of his current students are supported as Graduate Research Assistants funded by external grants and contracts (the sixth student is a full-time employee at Michigan Tech Research Institute). All of his past Ph.D. students have gone on to secure highly sought-after positions in industry and the academy, e.g., at Los Alamos National Laboratory, Michigan Tech, and Microsoft Research.

Dr. Havens has a passion for education and mentoring, and it is evident that, as a result of this passion, he will continue to be an essential part of the MTU team, upholding and supporting Michigan Tech's outstanding reputation for excellence in STEM education. His dedication to student learning and success will help Michigan Tech achieve its goals in boosting graduate and undergraduate enrollment and eventual placement in successful careers.

- Research/Scholarly Activity

Dr. Havens's research lies in the confluence of machine learning/artificial intelligence (ML/AI) and signal processing, applied to interdisciplinary problems such as explosive hazard mitigation, marine environment monitoring, and mobile robotics. He has a very vibrant research program, publishing over 140 academic peer-reviewed articles and papers—111 published during his time at Michigan Tech—and securing over \$5.5 million in external funding to support his research at MTU. Significant recent funding awards include:

- Modeling and Algorithm Development for Adaptive Adversarial AI for Complex Autonomy (\$428,707), US Army ERDC, 2020-2022, PI: T.C. Havens, Co-PI: A.J. Pinar
- DURIP: Acoustic Sensing System and High-Throughput Computing for Environment and Threat Monitoring in Naval Environments Using Machine Learning (\$243,169), Office of Naval Research, 2020-2021, PI: T.C. Havens, Co-PIs: A. Barnard, Gowtham, G. Meadows
- Algorithms for Look-Down Infrared Target Exploitation – Phase II (\$399,994), National Geospatial-Intelligence Agency, 2020-2022, PI: T.C. Havens

Dr. Havens has won several awards for his research, including Best Paper at *FUZZ-IEEE* 2012 and the IEEE Franklin V. Taylor Memorial Award for best paper at *IEEE SMC* 2011. Dr. Havens's ML/AI expertise is also recognized by industry; he has ongoing consulting relationships with two local Department of Defense (DoD) contractors and a DoD contractor in Washington, DC, where he provides subject matter expertise in ML and AI. Furthermore, he has been funded by Ford Motor Company for several years to investigate ML/AI applications in connected and autonomous vehicles.

The future research program of Dr. Havens's team will continue to push the boundaries of how computers and machines interrogate and interact with the world to the benefit of our military and society at large.

- Service

In addition to his contributions as a member of numerous department, college, and university committees, Dr. Havens has served Michigan Tech in several leadership positions. He is currently the Associate Dean for Research in the College of Computing and Director of the Institute of Computing and Cybersystems (ICC) as well as the ICC Center for Data Sciences. In each of the past 3 years, Dr. Havens has served as chair of an Early Career Mentoring (ECM) committee, mentoring and advocating for new faculty at MTU. Other leadership roles include committee chair roles in college and department committees.

Dr. Havens has also served in significant positions of international stature within his professional community. In 2019, he was the General Co-Chair of the *IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)* in New Orleans, LA: the flagship conference in his field. He also serves as an Associate Editor of the *IEEE Transactions on Fuzzy Systems*, the leading academic journal in his research field and among the top-ranked transactions overall in the IEEE, is a co-chair of the IEEE Computational Intelligence Society (CIS) Task Force on Cybersecurity for Smart World, and a member of the IEEE CIS Fuzzy Systems Technical Committee and IEEE CIS Social Media Committee. Dr. Havens has also served on several organizing committees of top conferences in his field, he reviews for numerous academic journals and conferences each year, and he serves as an external reviewer for national and international grant programs. He is a senior member of the IEEE.

Given Dr. Havens's exceptional record of service to Michigan Tech and his professional community, it is evident that he will continue to serve as an essential and influential member both at Michigan Tech and also within his national and international research and professional communities.

- Recent and Significant Publications (excerpted from 140; bold indicates Dr. Havens's PhD advisees)

**S.K. Kakula, A.J. Pinar**, M.A. Islam, D.T. Anderson, and T.C. Havens. Novel regularization for learning the fuzzy Choquet integral with limited training data. Accepted, *IEEE Trans. Fuzzy Systems*.

**S. Yazdanparast**, T.C. Havens, and M. Jamalabdollahi. Linear time community detection by a novel modularity gain acceleration in label propagation. Accepted, *IEEE Trans. Big Data*.

**I.T. Cummings**, T.J. Schulz, J.P. Doane, and T.C. Havens (Dec, 2020). Aperture-level simultaneous transmit and receive with digital phased arrays. *IEEE Trans. Signal Processing*, 68(1), 1243-1258.

**A.J. Webb**, T.C. Havens, and T.J. Schulz (Sept, 2018). Fast image reconstruction in forward looking GPR using dual l1 regularization. *IEEE Trans. Computational Imaging*, 4(3), 470-478.

T.C. Havens, J.C. Bezdek, C. Leckie, L.O. Hall, and M. Palaniswami (2012). Fuzzy c-means algorithms for very large data. *IEEE Trans. Fuzzy Systems*, 20(6), 1130-1146.

## INFORMATION SHEET FOR BOARD OF TRUSTEES

**Jingfeng Jiang**  
Michigan Technological University



**Jingfeng Jiang**, who is currently an associate professor of biomedical engineering with tenure in the Department of Biomedical Engineering in the College of Engineering, is being considered for promotion to full professor of biomedical engineering in the Department of Biomedical Engineering in the College of Engineering.

### Academic Degrees:

Post-doc	2005	The University of Wisconsin, Medical Physics, Madison, WI
Ph.D.	2003	The University of Kansas, Civil Engineering, Lawrence, KS
M.S.	2002	The University of Kansas, Computer Science, Lawrence, KS
M.S.	1998	Zhejiang University, Structural Engineering, Hangzhou, China
B.S.	1995	Zhejiang University, Civil Engineering, Hangzhou, China

### Professional Record:

2018 - present	Associate Professor (with tenure), Department of Biomedical Engineering, Michigan Technological University
2012 – 2018	Assistant Professor (without tenure), Department of Biomedical Engineering, Michigan Technological University
2008 – 2012	Associate Scientist, Medical Physics, The University of Wisconsin, Madison, WI
2005 - 2008	Assist Scientist, Medical Physics, The University of Wisconsin, Madison, WI
2003 – 2005	Post-Doctoral Associate, Medical Physics, The University of Wisconsin, Madison, WI
2001 – 2002	Graduate Research Assistant, Department of Radiology, Kansas University Medical Center, Kansas City, KS
1998 – 2000	Graduate Research Assistant, Department of Civil and Environmental Engineering, The University of Kansas, Lawrence, KS

### Summary of Accomplishments:

- Teaching

Dr. Jiang currently teaches two core courses (BE3300: Biomechanics I and BE4901/4910: Senior Design) and two electives (BE4115: Finite Element Modeling in Biological Systems and BE4930: Introduction to Medical Imaging) in Biomedical Engineering. Excellent student evaluations for these classes (approximately 4.04 from 2014-2020). Three of his senior design teams have received second-place, first-place, and third-place awards by the MTU Senior Design Expo in 2016, 2017, and 2018, respectively. Also, he advised 5 Ph.D. students, 12 master's students, and numerous undergraduate students in the last five years. One Ph.D. student was awarded a nationally competed pre-doctoral fellowship from the American Heart Association in 2017, three Ph.D. students were awarded FINISHING fellowship by the Graduate School of Michigan Tech in the last 3 years, and 6 undergraduate students were awarded Summer Undergraduate Fellowship.

- Research/Scholarly Activity

Dr. Jingfeng Jiang is a nationally recognized expert in medical ultrasound, biomechanical analysis,

0901 artificial intelligence-assisted medical imaging analysis. He published 64 peer-reviewed journal papers and has 7 issued US patents. His work has been widely read and cited by his peers as evidenced by his current h-index of 26 (Google Scholar). He received competitive grants and contracts from the National Institutes of Health, National Science Foundation, the Radiological Society of North America, the State of Michigan, industry, and Michigan Tech. Total research support is close to \$1,800,000 (including matching funds). One NIH R01 proposal (approximately \$1,500,000) was reviewed well in June 2020 and is expected to be funded in January 2021.

His research accomplishments have been recognized by the research community and peers. As a result, he has been recruited to serve as a reviewer by the National Science Foundation and the National Institutes of Health; chairs sessions at imaging specialty meetings; and serves as a peer reviewer for approximately 20 journals.

- Service

Dr. Jiang currently serves as the director of the graduate program and chairs the graduate committee for the Department of Biomedical Engineering. He is also chairing the IT committee of the University Senate and has a seat in the Executive Committee and Ad Hoc Committee on Textbook Affordability of the University Senate. He is also active in the Health Research Institute by serving on the Executive Committee. He is also on the research computing committee for the Superior HPC and the review committees for the summer undergraduate research fellowship program and research excellence fund at the Michigan Technological University.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

Dr. Jiang has pioneered open-source software development for ultrasound elastography simulations. This work has been published in the following peer-reviewed journals:

1. Wang Y., Helmine E., and Jiang J. "Building an Open-source virtual ultrasound simulation platform for quasi-static breast elastography", Medical Physics, 2015, Vol. 42, pp. 5453-5466.
2. Wang Y, Peng B, Jiang J., "Building an Open-source Simulation Platform of Acoustic Radiation Force-based Breast Elastography", Physics in Medicine and Biology, 2017, Vol. 62, pp. 1949-1969.

The software is currently hosted on Github (<https://github.com/jjiang-mtu/virtual-breast-project>) and has been received well. Other research groups at the University of Wisconsin, Xian Jiaotong University (China), Southwest Petroleum University (China), and Concordia University (Canada) have been using this open-source software platform.

Dr. Jiang is leveraging the above-mentioned ultrasound simulation platform for artificial intelligence (AI) applications in medical ultrasound elastography. Currently, he is one of the leaders in applying AI in ultrasound elastography.

3. He L., Peng B, Yang T, Jiang J., "An Application of Super-resolution Generative Adversary Networks for Quasi-static Ultrasound Strain Elastography: A Feasibility Study", IEEE Access, 2020.
4. Peng B, Xian Y, Zhang Q, Jiang J., "Neural-network-based motion tracking for breast ultrasound strain elastography: An initial assessment of performance and feasibility", Ultrasonic Imaging, 2020, Vol. 42, pp. 74-91.

**INFORMATION SHEET FOR BOARD OF TRUSTEES**

**Amlan Mukherjee**  
Michigan Technological University



**Amlan Mukherjee's** research and professional interests focus on studying sustainability and resilience of civil infrastructure systems using methods in life cycle assessment, stochastic analysis and simulations. His scholarly activity focuses on developing context sensitive metrics and methods that can be applied to support efficient and sustainable decision-making during the design, construction, and maintenance of civil infrastructure systems.

**Academic Degrees:**

Ph.D.	2005	University of Washington, Seattle, WA
M.S.	2001	University at Buffalo, State University of New York, Buffalo, NY
B.S.	2000	Birla Institute of Technology and Science, Pilani, India

**Professional Record:**

2011 – present	Associate Professor, Dept. of Civil & Environmental Engineering, Michigan Tech.
2013 - present	Trisight, LLC, Founder and Partner, Houghton MI.
2014 – 2015	EPD Program Facilitator, National Asphalt Pavement Association, Lanham, MD.
2005 – 2011	Assistant Professor, Dept. of Civil & Environmental Engineering, Michigan Tech.
2004 – 2005	Pre-Doctoral Instructor, Dept. of Civil Engineering, University of Washington, Seattle.
2001 -- 2004	Research Associate, Human Interface Tech. Lab., University of Washington, Seattle.
2000 -- 2001	Teaching Assistant, Dept. of Civil Engineering, University at Buffalo, Buffalo, NY.

**Summary of Accomplishments:**

- Teaching

Dr. Mukherjee's classrooms are interactive environments that nurture independent thinking and incentivize intentional exploration of alternative solutions. I aim to help students develop strong problem-solving skills. I strive to create an inclusive learning environment that supports students with diverse learning styles and backgrounds to participate meaningfully in classroom activities.

- Research/Scholarly Activity

Dr. Mukherjee has led a \$1.62 million research program externally funded by Federal and State agencies including Federal Highway Administration (FHWA), National Cooperative for Highway Research Programs (NCHRP), the National Science Foundation (NSF), and the Michigan and Minnesota Departments of Transportation. He has published ~60 scholarly products in refereed journal publications, peer reviewed research reports, book chapters, an ISO compliant industry document and conference publications.

- Service

Dr. Mukherjee serves on the Board of Directors of the Green Building Initiative and Greenroads Foundation, and works closely with the North American asphalt paving industry. He is also a member of the Federal Highways Sustainable Pavements Technical Working Group.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

- Bhat, C. G., & Mukherjee, A. (2020) "A Life-Cycle Thinking Informed Approach for Design Decision-Making," ASCE Journal of Transportation Engineering: Part B, Pavements, 146(4): 04020067.
- Muench, S.T, Migliaccio, G, Mukherjee, A., Anderson, J., Kaminsky, J., Ashtiani, M. Z. & Bhat, C.G. (2019) "A Guidebook for Sustainable Highway Construction Practices," NCHRP Research Report: 916 (10-91A).



**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**Christopher T. Middlebrook**  
**Michigan Technological University**



**Christopher T. Middlebrook**, who is currently an assistant professor of electrical and computer engineering with tenure in the Department of Electrical and Computer Engineering in the College of Engineering, is being considered for promotion to full professor of electrical and computer engineering with tenure in the Department of Department of Electrical and Computer Engineering in the College of Engineering.

**Academic Degrees:**

Ph.D.	2007	University of Central Florida, Orlando, FL
M.S.	2002	Rose Hulman Institute of Technology, Terre Haute, IN
B.S.	1999	Michigan Tech University, Houghton, MI
A.A.S.	1997	Southwestern Michigan College, Dowagiac, MI

**Professional Record:**

2013 – present	Associate Professor, Department of Electrical and Computer Engineering in the College of Engineering, Michigan Technological University, Houghton, MI
2016 - present	Visiting Summer Faculty Naval Surface Warfare Center – Crane, IN
2007 – 2013	Assistant Professor, Department of Electrical and Computer Engineering in the College of Engineering, Michigan Technological University, Houghton, MI
2003 – 2007	Graduate Research Assistant, College of Optics and Photonics, University of Central Florida, Orlando, FL
1999 – 2003	Electrical Engineer, Electro-Optics, Naval Surface Warfare Center – Crane, IN
1994 – 1997	Electrician, K& F Printing and Manufacturing, Granger, IN
1990 –1994	Aviation Electricians Mate, U.S. Navy, Norfolk, VA

**Summary of Accomplishments:**

• Teaching

Dr. Middlebrook is an outstanding educator with great breadth and has been a departmental asset. His teaching contributions have been recognized by numerous awards. He has won the HKN Outstanding Electrical and Computer Professor of the Year Award two years (2019/2020 & 2010/2011). Additionally, he was also The Michigan Tech Graduate Faculty Mentor Award winner (2010/2011). Finally, he is the recipient of the IPC Michael V. Carano Teacher Excellence Award Recipient for 2020 and the Gentec-EO Laser Lab Award.

• Research/Scholarly Activity

Dr. Middlebrook is an internationally recognized expert in integrated optical devices, infrared imaging, and electronics manufacturing and design. Since beginning his position at Michigan Tech in 2007, he has been the PI or direct financial responsibility for grants totaling over \$2.7M. He has published 49 scientific papers and holds one patent. Dr. Middlebrook is a senior member of both SPIE and the OSA. He continues to serve as a visiting faculty appointment since 2016 with the Naval Surface Warfare Center Crane where he has been engaged in active research within multiple research and engineering teams. His work has been recognized by invited speaker engagements across the nation as well as internationally. He has

042 broadened his research and scholarly activity to include electronics design and manufacturing which is beginning to show merit. He has been directly responsible for securing funding from the Plexus Foundation to create the Plexus Innovation Laboratory which will serve as an electronics maker space for students and researchers on campus. The new laboratory will be a highlight of departmental activity to recruit and retrain students.

- Service

Within the Department Dr. Middlebrook has provided valuable insight and impact while serving on multiple departmental committees and serving as associate chair. He regular participates in departmental/university outreach and open house events. In terms of the greater University he has served on the university senate for 3 years and for each of those years served as a standing committee chair. Dr. Middlebrook serves as advisor to two university professional chapters (Optics and Photonics Society and the IPC-Electronics Chapter). Nationally he serves as a technical committee member for SPIE Photonics West Conference, IEEE Avionics and Fiber Optics and Photonics Conference, as well as a member of the IPC National Student Chapter

Recent and Significant Publications/Exhibitions/Performances/Etc.

Journals:

2019. Hosseinzadeh, A., Middlebrook, C. T. Published Analog Signal Modulation Using an All-Polymer Ring Resonator Modulator. *Journal of Lightwave Technology* 37(3), 755-760.

2019. Gawron, E., Maurer, M., Middlebrook, C. T., Kellar, K. Published Optical loss characterization of SEO100C electro-optic polymer within single mode rib waveguides. *OSA Continuum* 2(11), 3299-3308.

2018. Hosseinzadeh, A., Middlebrook, C. T. Published Linearity optimizations of analog ring resonator modulators through bias voltage adjustments. *Optics Communications* 410, 345-349.

2016. Hosseinzadeh, A., Middlebrook, C. T. Published Highly linear dual ring resonator modulator for wide bandwidth microwave photonic links. *Optics express* 24(24), 27268-27279.

2016. Kruse, K., Middlebrook, C. T. Published Polymer taper bridge for silicon waveguide to single mode waveguide coupling. *Optics Communications* 362, 87-95.

Patents:

Middlebrook, Christopher T., and Arash Hosseinzadeh. "Electro-optic modulator, microwave photonic link including an electro-optic modulator, and method of communicating a signal with an electro-optic modulator." U.S. Patent No. 10,345,674. 9 Jul. 2019.

Patent Applications:

Middlebrook, Christopher, and Kevin Kruse. "Tapered polymer waveguide." U.S. Patent Application No. 14/940,487.

**RECOMMENDATION FOR PROMOTION TO PROFESSOR WITH TENURE**

**Gregory P. Waite**  
Michigan Technological University



**Gregory P. Waite**, who is currently an associate professor of geophysics with tenure in the Department of Geological and Mining Engineering and Sciences in the College of Engineering, is recommended for promotion to professor of geophysics with tenure in the Department of Geological and Mining Engineering and Sciences in the College of Engineering.

**Academic Degrees:**

Ph.D.	2004	The University of Utah, Geophysics, Salt Lake City, UT
M.S.	1999	The University of Utah, Geophysics, Salt Lake City, UT
B.A.	1996	Saint Norbert College, Mathematics, De Pere, WI

**Professional Record:**

2013 – present	Associate Professor (with tenure), Department of Geological and Mining Engineering and Sciences, Michigan Technological University
2018	Affiliate Scientist, U.S. Geological Survey, Hawaiian Volcano Observatory, Volcano, HI
2007 – 2013	Assistant Professor (without tenure), Department of Geological and Mining Engineering and Sciences, Michigan Technological University
2004 – 2007	Mendenhall Postdoctoral Fellow, U.S. Geological Survey, Menlo Park, CA
2002-2004	Graduate Research Assistant, University of Utah, Salt Lake City, UT

**Summary of Accomplishments:**

- Teaching

Dr. Waite regularly teaches upper-level undergraduate and graduate level courses in seismology, volcanology, and natural hazard mitigation. He also teaches courses in inverse theory and modeling. He has developed all but one of these courses while at Michigan Tech and continually improves them through adoption of new teaching methods and new applications of real-world data for laboratories. His student evaluations of teaching are consistently strong. Dr. Waite has graduated 6 PhD students, 18 MS students, and supervised one postdoctoral researcher. He was recognized by the Graduate Student Government at MTU as an “Exceptional Graduate Faculty Mentor” in 2013. He has hosted 9 undergraduate research interns from other institutions, with an emphasis on promoting students from groups that are traditionally underserved in STEM.

- Research/Scholarly Activity

Dr. Waite is a nationally and internationally recognized expert in seismology with special emphasis in studies of fluid processes and modeling of volcano seismic and infrasound signals. Dr. Waite and his students conduct studies of active volcanic processes using field data, laboratory analog experiments, and computer modeling. He has developed integrated novel approaches to modeling gas emission data jointly with seismic and infrasound to better understand the ubiquitous signals associated with active volcanoes worldwide. This understanding is critical to monitoring and forecasting of volcanic eruptions. Dr. Waite actively collaborates with scientists from Central and South America, Europe, and Japan. He has published 47 peer-reviewed articles in top-tier international journals including a book chapter. He is the recipient of a prestigious National Science Foundation CAREER award and has secured additional grants from NSF and

the U.S. Geological Survey. He has twice been awarded an Editors' Citation for Excellence in Refereeing (2009, 2017, American Geophysical Union).

- Service

Dr. Waite has served as an Associate Editor for Journal of Geophysical Research (American Geophysical Union), since 2017, and an Associate Editor for the Bulletin of Volcanology (International Association of Volcanology and Chemistry of the Earth's Interior), since 2019, and regularly reviews papers in the areas of earthquake and volcano seismology. He has served on an NSF Geophysics Program review panel and regularly reviews proposals for several NSF programs, as well as for similar programs in Europe. Dr. Waite is active as chair and organizer of scientific programs for numerous international conferences and symposia. At MTU, Dr. Waite is active on the University Senate; has served on College search committees; and served on many department committees including as chair of faculty and staff search committees, graduate committee; and promotion, tenure, and reappointment committees. He also leads a long-running outreach program with middle school teachers, which has included a week-long workshop on the geophysics of the Great Lakes region.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

Lanza, F., & Waite, G. P. (2018). A nonlinear approach to assess network performance for moment-tensor studies of long-period signals in volcanic settings. *Geophysical Journal International*, 215(2), 1352-1367. doi:10.1093/gji/ggy338

Waite, G. P., & Lanza, F. (2016). Nonlinear inversion of tilt-affected very long period records of explosive eruptions at Fuego volcano. *Journal of Geophysical Research: Solid Earth*, 121, 7284-7297. doi:10.1002/2016JB013287

Medici, E. F., Allen, J. S., & Waite, G. P. (2014). Modeling shock waves generated by explosive volcanic eruptions. *Geophysical Research Letters*, 41(2), 414-421. doi:10.1002/2013GL058340

Richardson, J. P., Waite, G. P., & Palma, J. L. (2014). Varying seismic-acoustic properties of the fluctuating lava lake at Villarrica volcano, Chile. *Journal of Geophysical Research: Solid Earth*, 119(7), 2014JB011002. doi:10.1002/2014JB011002

Waite, G. P., Nadeau, P. A., & Lyons, J. J. (2013). Variability in eruption style and associated very long period events at Fuego volcano, Guatemala. *Journal of Geophysical Research: Solid Earth*, 118(4), 1526-1533. doi:10.1002/jgrb.50075

Lyons, J. J., Waite, G. P., Ichihara, M., & Lees, J. M. (2012). Tilt prior to explosions and the effect of topography on ultra-long-period seismic records at Fuego volcano, Guatemala. *Geophysical Research Letters*, 39, L08305. doi:10.1029/2012GL051184

Nadeau, P. A., Palma, J. L., & Waite, G. P. (2011). Linking volcanic tremor, degassing, and eruption dynamics via SO<sub>2</sub> imaging. *Geophysical Research Letters*, 38(1), L01304. doi:10.1029/2010gl045820

Dalton, M. P., Waite, G. P., Watson, I. M., & Nadeau, P. A. (2010). Multiparameter quantification of gas release during weak Strombolian eruptions at Pacaya Volcano, Guatemala. *Geophysical Research Letters*, 37(9), L09303. doi:10.1029/2010gl042617

Lyons, J. J., Waite, G. P., Rose, W. I., & Chigna, G. (2010). Patterns in open vent, strombolian behavior at Fuego volcano, Guatemala, 2005–2007. *Bulletin of Volcanology*, 72(1), 1-15. doi:10.1007/s00445-009-0305-7

Waite, G. P., Chouet, B. A., & Dawson, P. B. (2008). Eruption dynamics at Mount St. Helens imaged from broadband seismic waveforms: Interaction of the shallow magmatic and hydrothermal systems. *Journal of Geophysical Research: Solid Earth*, 113(B2), B02305. doi:10.1029/2007jb005259

**INFORMATION SHEET FOR BOARD OF TRUSTEES**

**YONGMEI M. JIN**

**Michigan Technological University**



**Yongmei M. Jin**, who is currently an associate professor of materials science and engineering with tenure in the Department of Materials Science and Engineering (MSE) in the College of Engineering, is being considered for promotion to full professor of materials science and engineering with tenure in the Department of Materials Science and Engineering in the College of Engineering.

**Academic Degrees:**

Ph.D.	2003	Rutgers University, Materials Science and Engineering, New Brunswick, NJ
M.S.	1997	Univ. of Sci. and Tech. of China, Mechanical Engineering, Hefei, Anhui, China
B.S.	1994	Univ. of Sci. and Tech. of China, Mechanical Engineering, Hefei, Anhui, China

**Professional Record:**

2014 – present	Associate Professor, Materials Science and Engineering, Michigan Technological University, Houghton, MI
2009 – 2014	Assistant Professor, Materials Science and Engineering, Michigan Technological University, Houghton, MI
2005 – 2009	Assistant Professor, Aerospace Engineering, Texas A&M University, College Station, TX
2003 – 2005	Postdoctoral Research Associate, Materials Science and Engineering, Rutgers University, New Brunswick, NJ
1999 – 2003	Graduate Research Assistant, Materials Science and Engineering, Rutgers University, New Brunswick, NJ

**Summary of Accomplishments:**

• Teaching

Dr. Jin teaches three core courses of the MSE program (at the sophomore, junior, and graduate level) and one graduate level course (Transmission Electron Microscopy) with students from multiple departments (including Materials Science and Engineering, Chemistry, Physics, Chemical Engineering, Forestry). Dr. Jin has received good teaching evaluation scores and positive comments. She has attained the Dean's list of top 10% in teaching evaluations in spring 2018 and in fall 2018, and the MSE's highest excellent vote per enrolled student for transitioning from face-to-face instruction to remote learning in spring 2020. Dr. Jin actively reaches out to individual students and creates an inclusive learning environment. She works to motivate in-class participation, relate the subject matter to real world issues (to make the material more interesting), and inspire lifelong learning. Dr. Jin creates opportunities for students to teach certain parts of the course, which increases their enthusiasm for and confidence in the course materials. Dr. Jin enjoys teaching and will continue to improve her teaching skills.

• Research/Scholarly Activity

Dr. Jin's research area is computational materials science, focusing on modeling and simulation of microstructure-property relationships in advanced functional materials. Her research outcomes are reported in well-known scientific journals and well cited (3132 citations, h-index of 26, and i10-index of 40). Since her department is strong in experimental research, Dr. Jin's expertise enhances its computational strength and contributes to developing collaborative materials research programs that

Combine experiments and computations. Her research interests and topics are also relevant to some faculty in other departments (Biomedical Engineering, Geological and Mining Engineering and Sciences, and Physics), with whom she will continue to collaborate. Dr. Jin's work has been presented at national/international conferences and has attracted a number of collaborations from other institutes (University at Buffalo, University of Virginia, Texas A&M, Carnegie Mellon, Oak Ridge National Lab, Argonne National Lab, Tel Aviv University, and Leibniz Institute for Solid State and Materials Research Dresden), which help increase the visibility of her department and Michigan Tech in her field. Dr. Jin's expertise in materials modeling and simulations contributes to the undergraduate and graduate curriculum by strengthening students' mathematical skills and computational capabilities. Through conducting outstanding research and providing excellent teaching, she will continue to contribute to the mission of the University.

- Service

Dr. Jin has served as the MSE Expo and Open House Faculty Participant/Coordinator, on a number of search committees for the department and school, and on the Phase Transformation Committee and the Magnetic Materials Committee of The Minerals, Metals & Materials Society (an international organization). She has been active in organizing symposia and serving as session chairs in conferences, reviewing journal papers and proposals, and serving on NSF review panels. Dr. Jin also volunteers for the local community, contributing to the Houghton school math teams and the Copper Country Skating Academy. She will continue to provide service to the University and community, which she finds truly rewarding.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

- M.N. Tianen, **Y.M. Jin**, "Variations of the Cellular Magnetic Domain Structure of Fe-Ga," *J. Appl. Phys.*, **128**, 163904-1-9, 2020 (PhD student paper, chosen as Featured Article).
- Z.J. Morgan, **Y.M. Jin**, "Phase Field Modeling of Pore Electromigration in Anisotropic Conducting Polycrystals," *Comput. Mater. Sci.*, **172**, 109362-1-4, 2020 (PhD student paper).
- M. Dascalu, O. Dieguez, L.D. Geng, R. Pati, **Y.M. Jin**, I. Goldfarb, "Tomographic Layer-by-Layer Analysis of Epitaxial Iron-Silicide Nanostructures by DFT-Assisted STS," *Appl. Surf. Sci.*, **496**, 143583-1-10, 2019 (collaboration paper with experimentalists at Tel Aviv University).
- I. Kashyap, **Y.M. Jin**, E.P. Vetter, J.A. Floro, M. De Graef, "Lorentz TEM Image Simulations of Experimental Nano-Chessboard Observations in Co-Pt Alloys," *Microscopy and Microanalysis*, **24**, 221-226, 2018 (collaboration paper with experimentalists at Carnegie Mellon University).
- L.D. Geng, W.A. Soffa, J.A. Floro, **Y.M. Jin**, "Exchange Coupling Effects in Co-Pt Nanochessboards," *J. Appl. Phys.*, **123**, 093901-1-7, 2018 (collaboration paper with experimentalists at University of Virginia, chosen as Editor's Pick).
- L.D. Geng, **Y.M. Jin**, "Domain Wall Creep in Magnetic Thin Films near the Depinning Transition," *Euro. Phys. Lett.*, **116**, 36002-1-7, 2016 (PhD student paper).
- Y.M. Jin**, Y.U. Wang, Y. Ren, "Theory and Experimental Evidence of Phonon Domains and Their Roles in Pre-Martensitic Phenomena," *npj Comput. Mater.*, **1**, 15002-1-14, 2015 (collaboration paper with an experimentalist at Argonne National Lab).
- Y.M. Jin**, H.D. Chopra, "Altering Magnetostrictive Strain Pathways via Morphology of Spontaneously Aligned Domains," *Phys. Rev. B.*, **84**, 140401(R) -1-4, 2011 (collaboration paper with an experimentalist at University at Buffalo).
- Y.M. Jin**, "Domain Microstructure Evolution in Magnetic Shape Memory Alloys: Phase Field Model and Simulation," *Acta Mater.*, **57**, 2488-2495, 2009 (single author paper with 70 citations).

**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**WAYNE W. WEAVER**  
**Michigan Technological University**



**Wayne W. Weaver**, who is currently an associate professor of mechanical engineering with tenure in the Department of Mechanical Engineering – Engineering Mechanics and College of Engineering, is being considered for promotion to full professor of mechanical engineering with tenure in the Department of Mechanical Engineering – Engineering Mechanics and College of Engineering.

**Academic Degrees:**

Ph.D.	2008	University of Illinois at Urbana-Champaign, IL
M.S.	2004	University of Illinois at Urbana-Champaign, IL
B.S.E.E	1997	GMI Engineering & Management Institute (Kettering University), Flint, MI
B.S.M.E	1997	GMI Engineering & Management Institute (Kettering University), Flint, MI

**Professional Record:**

2019 – present	Associate Professor, Department of Mechanical Engineering – Engineering Mechanics, Michigan Technological University
2013 – 2019	Associate Professor, Department of Electrical and Computer Engineering, Michigan Technological University
2016 – present	Director of the Agile and Interconnected Microgrid (AIM) Research Center, Michigan Technological University
2008 – 2013	Assistant Professor, Department of Electrical and Computer Engineering, Michigan Technological University
2003 – 2008	Graduate Research Assistant, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, IL
1997 - 2003	Design/Research Engineer, Caterpillar Inc, Peoria IL

**Summary of Accomplishments:**

- Teaching

The foundation of Dr. Weaver’s teaching philosophy is to make the value of the theory clear through links to real-world experiences and examples. He believes that one of the best ways to achieve this is by adapting research topics and discoveries into his course curriculum. For example, he has integrated many of his research project breakthroughs from Wave Energy Converters as well as Electric Railguns on Naval warships into his MEEM5715 Linear Systems and MEEM6702 Nonlinear Systems courses. He has also contributed to the development of a hybrid-electric vehicle (HEV) curriculum at Michigan Tech as a co-PI on a Department of Energy grant. For the HEV curriculum, he modified the undergraduate power electronics and motor drive courses to include vehicle-based material, and added advanced graduate-level courses in power electronics and motor drives with emphases on vehicular and renewable energy applications.

### Research/Scholarly Activity

Dr. Weaver's primary research focus is on the novel design, control, and optimization of interconnected energy assets in a network. These assets and networks include multiple domains such as mechanical, thermal, and electrical. Therefore, his research has often been heavily rooted in interdisciplinary fields. To date, he has had over 23 funded grants and contracts as PI or Co-PI totaling \$10,242,352 in funding, with \$2,934,255 as PI.

The primary focus of his research since his tenure has been 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 (WEC). He recently acquired funded projects in the application of HSSPFC in renewable wind energy systems as well as protection against electromagnetic pulse weapons. Current and recent customers include Sandia National Labs, U.S. Air Force Research Laboratory, the U.S. Office of Naval Research, the U.S. Army Research Laboratory, the National Science Foundation (NSF), and the U.S. Department of Energy (DOE). Products from his research include 37 peer-reviewed journal articles, 29 of which have been published since he received tenure in 2013. Dr. Weaver has also published 63 peer-reviewed proceedings in top-tiered conferences, 35 of which were published after he received tenure. Overall, since receiving tenure in 2013, he has 64 peer-reviewed publications.

### Service

Dr. Weaver's service to the University has most recently included membership in the successful search for a Graduate College Dean in the 2019-20 academic year. In the ECE department, he participated in committees for research, lab space, graduate programs, promotion, and tenure as well as chairing the ECE faculty search committee in 2015. Dr. Weaver was also a member of the committee in the search for the Dean of the College of Engineering in 2013. Since transferring to the ME-EM department last year, he has served on a staff research engineer search committee.

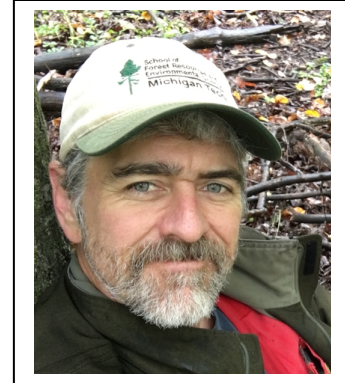
Dr. Weaver has been active in the service to his research community through a couple of guest editor positions of journals, as well as participation in IEEE conference organizing committees. The conference for which he most recently and often assists in organizing is the IEEE Electric Ship Technology Symposium for which he has been both the publications and publicity chairs. He often contributes reviews of journal submissions and regularly contributes to the reviews of proposals of multiple funding agencies including NSF panels and DOE programs. Further, Dr. Weaver is invited yearly to review proposals for the Research Grants Council (RGC) of Hong Kong, which he has done since 2010.

### Recent and Significant Publications/Exhibitions/Performances/Etc.

- J.A. Dillon, W.W. Weaver, R.D. Robinett, D. G. Wilson, "Electro-Mechanical-Thermal Performance and Stability of Aircraft Energy Networks with Pulse Power Loads," IEEE Transactions on Aerospace and Electronic Systems, vol. 56 no. 4, pp. 2537-2547, 2019
- W.W. Weaver, R.D. Robinett, D.G. Wilson, "Exergy surface shaping and thermodynamic flow control of electro-mechanical-thermal systems," International Journal of Exergy, vol. 29, no. 1, pp.43-68, 2019
- S.Darani, C.D.Majhor, W.W. Weaver, R.D.Robinett, O.Abdelkhalik, "Optimal Positioning of Energy Assets in Autonomous Robotic Microgrids for Power Restoration," IEEE Transactions on Industrial Informatics, vol. 15 no. 7 , pp. 4370-4380, 2019
- W. W. Weaver, R. D. Robinett III, D. G. Wilson, R. C. Matthews, "Meta-Stability of Pulse Power Loads using the Hamiltonian Surface Shaping Method," IEEE Transactions on Energy Conversion, vol. 32, pp. 132-143, 2017



**INFORMATION SHEET FOR BOARD OF TRUSTEES**  
**ROBERT E. FROESE**  
**Michigan Technological University**



**Robert E. Froese** (pronounced “FROZE”), who is currently an associate professor of forestry with tenure in the College of Forest Resources and Environmental Science (CFRES), is being considered for promotion to professor of forestry with tenure in the College of Forest Resources and Environmental Science.

**Academic Degrees:**

Ph.D.	2003	The University of Idaho, Moscow, ID
M.F.	2001	The University of British Columbia, Vancouver, BC
B.S.F.	1995	The University of British Columbia, Vancouver, BC

**Professional Record:**

2009 – present	Associate Professor (with tenure), College of Forest Resources and Environmental Science, Michigan Technological University
2003 – 2009	Assistant Professor (without tenure), College of Forest Resources and Environmental Science, Michigan Technological University
1999 - 2003	Graduate Research Assistant, College of Renewable Resources, University of Idaho, Moscow, ID
1998 – 1999	Forest Biometrician and Analyst, J.S. Thrower and Associates Ltd, Vancouver, BC Canada
1995 - 1998	Graduate Research Assistant, Faculty of Forestry, University of British Columbia, Vancouver, BC Canada

**Summary of Accomplishments:**

• Teaching

Dr. Froese has been recognized for excellence in teaching and learning throughout his tenure at Michigan Tech. Since his appointment in 2003, he has taught foundational courses in applied statistics, computing, and resource assessment in the College’s undergraduate majors as well as a popular graduate class in statistics that draws students from across campus. Inducted into the MTU Academy of Teaching Excellence in 2007, he was a finalist for the University Distinguished Teaching Award three times, and he has also received the Distinguished Faculty Award in the College of Forest Resources and Environmental Science four times. His teaching evaluations are consistently excellent; for example, in 2017 his scores ranked in the top quintile among similar-size undergrad classes at Michigan Tech. Dr. Froese emphasizes applications using technology in his classes including multimedia, computing, GIS, and GPS and linkages across the curriculum through distributed practice to enhance student learning. In his graduate class in statistics, he integrates statistical computing using the open-source and cross-platform computing environment, R. His graduate students have found positions of national and international significance in academia, public service, and industry including the Norwegian Institute of Bioeconomy Research, the University of Tennessee, Minnesota Department of Natural Resources, Rayonier Global Forest Products, and SilviaTerra LLC, a global remote sensing and natural resources technology company.

- Research/Scholarly Activity

To date, Dr. Froese has been a Co- or Principal Investigator on over \$6 million in externally funded research at MTU, overwhelmingly through competitive grants and the largest of which involve interdisciplinary or multi-institution collaborations, directly advancing University and College strategic plan goals for these areas. Notable among these are a \$1.5 million NSF collaboration on sustainable bioenergy and \$1.0 million total in two USDA awards to study sustainable management of forest systems. These grants have, in turn supported a vibrant research program involving 15 M.Sc. and 8 Ph.D. students and four Post-Doctoral Scientists. In the past two years alone, this work has resulted in six peer-reviewed papers, all in top-tier journals co-authored with advisees, and five conference papers at national conventions. One paper co-authored with a post doc in Forest Science was among the top-5 most cited papers in that journal in 2015 and another with a PhD student had the top number of social media hits in 2018. Dr. Froese's research in forest growth & yield, biomass & bioenergy, and recent work on remote sensing applications in forestry have received particular attention as measured by peer citations. During 2019 he sponsored a visiting scholar from China, which has led to three peer-reviewed papers and directly addressed the University strategic goal of international and cross-cultural engagement. His future research directions include retaining a foundation of applied quantitative methods in forest science and management and expanding work in the fusion of remote sensing, computing, and automation in forestry. This area has tremendous promise as "precision forestry" builds on lessons from agriculture, and addresses MTU strategic goals around computing generally but also interdisciplinary collaborations, entrepreneurship, technology, and economic growth. His work also supports the Tech Forward Initiatives in Natural Resources, Water, and Energy; Data Revolution and Remote Sensing; and Sustainability and Resilience.

- Service

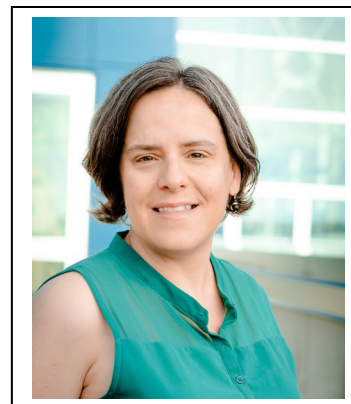
Since 2018, Dr. Froese has served as the Director of the Ford Center and Forest, which is the field campus and research forest of the CFRES in and around Alberta, MI. In this role he is responsible for the \$0.5 million annual budget, permanent staff in Center operations plus temporary staff who assist in kitchen and dormitory services for the half-semester residential field school required of all undergrad students in the CFRES. Since appointment, he has turned a persistent operating deficit into a surplus by improving efficiency, assisted the Dean in eliminating operational debt, and is implementing a new Business Plan to modernize and grow the Ford Center programs. In his professional role, Dr. Froese presently serves as an Associate Editor for the journals *Forest Science* and *Canadian Journal of Forest Research*, which are premier journals in Forestry. He also serves in a leadership role with the Society of American Foresters (SAF), the leading professional society in Forestry in the United States, in the Forest Inventory and Biometrics Working Group. This group has been honored repeatedly by the SAF with awards for outstanding levels of professional activity. At Michigan Tech, Dr. Froese served on the University Senate for five years, chairing several standing committees and serving on the Senate's Executive Committee, and on the Sabbatical Leave Committee for three years and. He currently serves on the CFRES's Leadership Council, at the invitation of the Dean. As the chair of the College's IT committee for most of his 18 years at MTU is a consistent resource for computing and technology needs at the College and University level.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

In September 2020, Froese and visiting scholar Dr. Cheng Deng published a review paper on modelling of growth and productivity for genetically improved stands, in the international journal *Annals of Forest Science* (2020, 77:89). In October 2020, in his leadership role on the SAF A1 working group Dr. Froese and others organized a session at the 2020 SAF National Convention on "Emerging Technology in Forest Measurements" and for the prior four years also organized a professional development workshop on "Data Science for Forestry Professionals". This very popular workshop serves to introduce and promote data science in the forestry profession.

**INFORMATION SHEET FOR BOARD OF TRUSTEES**

**AMY M. MARCARELLI**  
Michigan Technological University



**Amy M. Marcarelli**, who is currently an associate professor of biology with tenure in the Department of Biological Sciences in the College of Science and Arts, is being considered for promotion to professor of biology with tenure in the Department of Biological Sciences in the College of Science and Arts.

**Academic Degrees:**

Ph.D.	2006	Ecology, Utah State University, Logan, UT
B.A.	2000	Biology, Colgate University, Hamilton, NY

**Professional Record:**

2015 – present	Associate Professor (with tenure), Department of Biological Sciences, Michigan Technological University
2009 – 2015	Assistant Professor (without tenure), Department of Biological Sciences, Michigan Technological University
2006 – 2009	Postdoctoral Research, Department of Biological Sciences, Idaho State University, Pocatello, ID
2000 – 2006	Graduate Research and Teaching Assistant, Department of Watershed Sciences, Utah State University, Logan, UT

**Summary of Accomplishments:**

• Teaching

Dr. Marcarelli is a member of the Academy of Teaching Excellence and has twice been a finalist for the Distinguished Teaching Award in the Associate Professor or Professor category. Her teaching interests include ecology, aquatic ecosystems, and professional development. She teaches two courses designed to introduce students to Great Lakes science - Valuing the Great Lakes introduces environmental biology through current and historic environmental issues in the region, and Lake Superior Exploration offers upper-level undergraduate and graduate students an immersive field experience in cutting-edge research on Lake Superior aboard the R/V Agassiz. For ten years she has taught a graduate-level professional development course, The Scientific Profession. This course uses a student-centered, active learning approach to responsible conduct of research, and to explore the challenge and opportunities of a scientific career; to date approximately 180 graduate students have taken the course from programs across engineering, natural and social sciences, and humanities.

• Research/Scholarly Activity

Dr. Marcarelli's primary research interests include energy and biogeochemical cycles in freshwaters. Her research program aims to understand the role of small, poorly quantified fluxes or perturbations on ecosystem processes, and to link those ecosystem processes to the underlying structure of microbial, algal, macrophyte and animal communities. Her current research program encompasses 4 overlapping areas of interest: (1) the spatial and temporal patterns of nitrogen fixation and denitrification in aquatic habitats, (2) stream-watershed-lake interactions in the Great Lakes, (3) consequences of restoration for stream and lake ecosystem processes, and (4) ecosystem perspectives on community interactions and

063 source subsidies. In 2015-2020, she received an NSF CAREER award to study the spatial and temporal controls on nitrogen fluxes in riverine ecosystems across the United States. She will continue this work in 2020-2025 as co-PI of an NSF Research Coordination Network to synthesize understanding of nitrogen fixation from rivers to the open ocean. As a PI or Co-PI, Dr. Marcarelli has garnered \$2.97 M in external research funding at Michigan Tech, from funders including the National Science Foundation, US Environmental Protection Agency - Great Lakes Restoration Initiative, Michigan Sea Grant, Michigan Invasive Species Grant Program, and other federal and regional sources. She has published 38 papers in various journals and three book chapters to date. Dr. Marcarelli has graduated three PhD and five MS students and is currently supervising three PhD and one MS student. Dr. Marcarelli is an active member of the Great Lakes Research Center and the Ecosystem Science Center, and a member of the Advisory Group to the Tech Forward initiative in Natural Resources, Energy and Water.

- Service

Dr. Marcarelli served as vice president of the Society for Freshwater Science (SFS, an international scientific organization) in 2017-2018, and as a member of the Board of Directors in 2016-2019. She led the development and writing of the 2020-2025 Society for Freshwater Science Strategic Plan as co-chair of the Long-Range Planning Committee. She is also an active member of the Association for the Sciences of Limnology and Oceanography (ASLO), and the Ecological Society of America (ESA). She is currently an associate editor for *Biogeochemistry* and served for five years as an associate editor for *Freshwater Science*. Dr. Marcarelli regularly serves as a manuscript, proposal and tenure/promotion referee and has served on five National Science Foundation review panels to date. At the University level, she is the administrator of the Diversity Literacy Workshop certification for faculty and serves as co-leader of Women in the Academy (formerly Women in Science and Engineering or WISE), has served as a mentor for four Early Career Management committees. In the Department of Biological Sciences she is chair of the Curriculum committee, a past member of the Promotion and Tenure, Grievance, Graduate and Safety committees, and has served on 5 faculty hiring committees since 2010.

- Recent and Significant Publications/Exhibitions/Performances/Etc.

Marcarelli AM, Baxter CV, Benjamin JR, Miyake Y, Murakami M, Fausch KD, Nakano S. 2020. Magnitude and direction of stream-forest community interactions change with time scale. *Ecology* 101:e03064. <https://doi.org/10.1002/ecy.3064>

Marcarelli AM, Coble AA, Meingast KM, Kane ES, Brooks CN, Buffam I, Green SA, Huckins CJ, Toczydlowski D, Stottlemeyer R. 2019. Of small streams and Great Lakes: Integrating tributaries to understand the ecology and biogeochemistry of Lake Superior. *Journal of the American Water Resources Association* 55:442-458. <https://doi.org/10.1111/1752-1688.12695>

Ortiz JE, Marcarelli AM, Juneau KJ, Huckins CJ. 2019. Invasive *Myriophyllum spicatum* and nutrients interact to influence algal assemblages. *Aquatic Botany* 156:1-9. <https://doi.org/10.1016/j.aquabot.2019.03.003>

Eberhard EK, Marcarelli AM, Baxter CV. 2018. Co-occurrence of in-stream nitrogen fixation and denitrification across a nitrogen gradient in a western U.S. watershed. *Biogeochemistry* 139:179-195. <https://doi.org/10.1007/s10533-018-0461-y>

Coble AA, Marcarelli AM, Kane ES, Stottlemeyer JR, Toczydlowski D. 2016. Temporal patterns of dissolved organic matter biodegradability are similar across three rivers of varying size. *Journal of Geophysical Research - Biogeosciences* 121:1617-1631. <https://doi.org/10.1002/2015JG003218>

## INFORMATION SHEET FOR BOARD OF TRUSTEES

**Yang Yang**  
Michigan Technological University



**Yang Yang**, who is currently an associate professor of mathematics with tenure in the Department of Mathematical Sciences in the College of Sciences and Arts, is being considered for promotion to full professor of mathematics with tenure in the Department of Mathematical Sciences in the College of Sciences and Arts.

### Academic Degrees:

Ph.D.	2013	Brown University, Providence, RI
M.S.	2011	Brown University, Providence, RI
B.S.	2009	University of Science and Technology of China, Hefei, Anhui, China

### Professional Record:

2017 – present	Associate Professor (with tenure), Department of Mathematical Sciences, Michigan Technological University
2013 – 2017	Assistant Professor (without tenure), Department of Mathematical Sciences, Michigan Technological University
2011 – 2013	Graduate Research Assistant, Division of Applied Mathematics, Brown University, Providence, RI
2010 – 2011	Graduate Teaching Assistant, Division of Applied Mathematics, Brown University, Providence, RI

### Summary of Accomplishments:

#### Teaching

In the past five years, I have taught thirteen courses. The evaluation of all the courses are above 4.2. I always make sure students understand the material before moving on. I pay much attention to the notes. Clear notes with highlights can help students review the materials. To my understanding, class is often more like a conversation than a lecture. Moreover, I would like to add my research projects in some high level undergraduate and graduate courses. As the coordinator of Calculus I, I tried to help students understand the beauty of mathematics. For example, I presented the definition of  $e$  and how to approximate it. Finally, I actively present my research works in the department seminar. This can help graduate students understand computational math and provide more applications of the materials discussed in class. I also actively participate in conferences and present my research papers. I was awarded the RINAM best presentation prize in 2019. In the future, I will continue my teaching style. Moreover, I would like to observe others and learn more advanced teaching techniques.

#### Research/Scholarly Activity

Since I joined MTU in 2013, I have published thirty-four peer-reviewed papers (thirty-nine in total) and six more submitted. In particular, I published eighteen papers in the past two years and nine of them are in top journals such as *Journal of Computational Physics*, *Mathematics of Computation*, and *SIAM Journal on Scientific Computing*. Two of the nine top papers are joint work with my students only. I have joint papers with thirty-nine collaborators. I am currently a PI on an NSF grant (\$237,000). Moreover, I also received the SIAM Early Career Travel Award (\$2,000) and the REF-SCG Award (\$7,500). I have graduated two M.S.

954  
955 students and one Ph.D. student, and am advising two Ph.D. candidates. Finally, I have received  
956 outstanding research awards at the junior level in 2014 and 2016, and the senior level in 2018. In the  
957 future, I will continue to secure external support from NSF and other agents. I will also actively  
958 present my work in conferences to gain visibility of myself, the department and the university, and  
959 seek further collaborations and applications. To demonstrate the beauty of mathematics, I will  
960 actively present my work in the department seminar and incorporate the research results in my  
961 courses.

### Service

I have served in various committees in the department, including the advisory committee (14-15), hiring committee (15-16, 20-21), graduate committee (14-15, 16-17, spring 18) and PTR committee (17-20). I also served as the coordinator of Calculus I (18-20). Moreover, I was also the organizer and faculty advisor of the SIAM Student Chapter at MTU. Since Fall 2020, I have been serving as the undergraduate advisor of applied and computational mathematics. Moreover, I also review 30+ papers every year and have organized eight minisymposia in several conferences. I was also recognized as an outstanding reviewer for *Science China Mathematics*. I will continue to serve in the various committees. As an undergraduate advisor, I would like to provide my suggestions to the students. Finally, I will organize more minisymposia, and review more papers.

### Recent and Significant Publications/Exhibitions/Performances/Etc.

1. Z. Xu and Y. Yang, The hybrid dimensional representation of permeability tensor: A reinterpretation of the discrete fracture model and its extension on nonconforming meshes, *Journal of Computational Physics*, v415 (2020), 109523 (29pp).
2. J. Zhao, Q. Zhang, Y. Yang and Y. Xia, Energy preserving discontinuous Galerkin methods for the nonlinear Serre equations, *Journal of Computational Physics*, v421 (2020), 109729(21pp).
3. Y. Yang, X. Cai and J.-M. Qiu, Optimal convergence and superconvergence of semi-Lagrangian discontinuous Galerkin methods for linear convection equations in one space dimension, *Mathematics of Computation*, v89 (2020), pp.2113-2139.
4. J. Du and Y. Yang, Third-order conservative sign-preserving and steady-state-preserving time integrations and applications in stiff multispecies and multireaction detonations, *Journal of Computational Physics*, v395 (2019), pp.489-510.
5. N. Chuenjarern, Z. Xu and Y. Yang, High-order bound-preserving discontinuous Galerkin methods for compressible miscible displacements in porous media on triangular meshes, *Journal of Computational Physics*, v378 (2019), pp.110-128.
6. J. Du and Y. Yang, Maximum-principle-preserving third-order local discontinuous Galerkin methods on overlapping meshes, *Journal of Computational Physics*, v377 (2019), pp.117-141.
7. W. Cao, C.-W. Shu, Y. Yang and Z. Zhang, Superconvergence of Discontinuous Galerkin method for nonlinear hyperbolic equations, *SIAM Journal on Numerical Analysis*, v56 (2018), pp.732-765.

**E. Emeritus Rank,**  
Jackie Huntoon, Provost

1. Ashok Ambardar, Electrical & Computer Engineering, Professor Emeritus
2. William Bulleit, Civil & Environmental Engineering, Professor Emeritus
3. Craig Friedrich, Mechanical Eng. – Eng. Mechanics, Professor Emeritus
4. Mary Carol Friedrich, Visual and Performing Arts, Professor Emerita
5. Hugh Gorman, Social Sciences, Professor Emeritus
6. Patrick Martin, Social Sciences, Professor Emeritus
7. Warren Perger, Electrical & Computer Engineering, Professor Emeritus
8. William Predebon, Mechanical Eng. – Eng. Mechanics, Chair & Professor Emeritus
9. Beatrice Smith, Humanities, Professor Emerita



TO: Michigan Technological University Board of Trustees  
 FROM: Glen E. Archer, Principal Lecturer and Interim Chair  
 DATE: February 19, 2021  
 SUBJECT: Recommendation for Emeritus Status

The faculty of the Department of Electrical and Computer Engineering voted on January 19, 2021, to request that the Michigan Technological University Board of Trustees name Ashok Ambardar as Professor Emeritus.

Dr Ambardar began his 44 year-long career at Michigan Tech as a Visiting Instructor in 1976 shortly after the award of his PhD in Electrical Engineering from the University of Wyoming. He was selected to be an Assistant Professor in 1978. He was selected as the Eta Kappa Nu Electrical Engineering Professor of the Year in 1981 and again in 1983 and promoted to Associate Professor in 1984. He is the author of four books including *Digital Signal Processing: A Modern Introduction* and *DSP Concepts using MATLAB*. Dr Ambardar is the author of 16 refereed Journal Articles and eight invited presentations. He has served as the Electrical and computer Engineering Department's representative to the University Senate and guided the undergraduate electrical and computer engineering curriculum for 30 years. He received the Michigan Technological University Distinguished Teaching Award twice, once in 1983 and again in 1999.

**Approved**

**Glen Archer** Digitally signed by Glen Archer  
 Date: 2021.03.25 18:19:38 -04'00'

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Department Chair

**3-25-2021**

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Date

**Janet Callahan** Digitally signed by Janet Callahan  
 Date: 2021.03.29 22:09:45 -04'00'

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College Dean

Date

**Jacqueline E. Huntoon** Digitally signed by Jacqueline E. Huntoon  
 Date: 2021.03.30 09:12:06 -04'00'

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Provost and Senior Vice President for Academic Affairs

Date

**Richard J. Koubek** Digitally signed by Richard J. Koubek  
 Date: 2021.04.07 07:54:21 -05'00'

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President

Date





**TO:** Michigan Technological University Board of Trustees

**FROM:** Audra Morse, Department Chair, Civil and Environmental Engineering

**DATE:** February 22, 2021

**SUBJECT:** Recommendation for Emeritus Status

The faculty of the Department of Civil and Environmental Engineering voted on January 29, 2021 to request that the Michigan Technological University Board of Trustees name William Bulleit as Professor Emeritus upon his retirement on June 25, 2021.

William Bulleit joined Michigan Tech as an Assistant Professor in 1981 and advanced to Professor in 1993, additionally he served as Department Chair from 2008-2011. He has received numerous teaching awards at the University and Department level. His research has been primarily in wood engineering and structural reliability and he has advised six PhD students and 25 masters students. Over his career, he achieved 44 refereed journal publications, 55 conference proceedings, and 59 presentations. His professional service has been primarily in ASCE serving on various committees. His University service includes eight years on the Senate, one of which as Senate President. He has chaired a number of search committees, including chair of a Provost search committee and a Dean of Engineering search committee. He has been on a wide range of committees, University, College of Engineering, and Department over the years.

### Approved

**Audra Morse** Digitally signed by Audra Morse  
Date: 2021.03.15 14:02:04  
-04'00'

Department Chair

Date

**Janet Callahan** Digitally signed by Janet Callahan  
Date: 2021.03.18 15:26:18 -04'00'

College Dean

Date

**Jacqueline E. Huntoon** Digitally signed by Jacqueline E. Huntoon  
Date: 2021.03.19 11:18:58 -04'00'

Provost and Senior Vice President for Academic Affairs

Date

**Richard J. Koubek** Digitally signed by Richard J. Koubek  
Date: 2021.04.07 07:54:11 -05'00'

President

Date

**TO:** Michigan Technological University Board of Trustees

**FROM:** William W. Predebon, Ph.D.

**DATE:** March 16, 2021

**SUBJECT:** Recommendation for Emeritus Status

The faculty of the Department of Mechanical Engineering-Engineering Mechanics voted on February 5, 2021 to request that the Michigan Technological University Board of Trustees name Craig R. Friedrich as Professor Emeritus upon his retirement on January 31, 2021.

Dr. Friedrich is a recognized leader in micromechanical machining processes and applications and the development of micromechanical systems.

Professor Friedrich began his employment with Michigan Tech as an Associate Professor with tenure on January 1, 1997. He was promoted to Professor in 2005. He was appointed the Director of Michigan Tech's Multi-Scale Technologies Institute (MuSTI) in 2005, and as the ME-EM department Associate Chair and Director of Graduate Studies in 2007. He held both positions until his retirement on January 31, 2021.

Dr. Friedrich's honors and awards include: ASME Fellow; the US Army Paul A. Siple Award for Research in 2010; and the MTU Academy of Teaching Excellence in 2000. He was selected the Richard and Bonnie Robbins Chair in Sustainable Manufacturing and Design in 2008 and held the appointment until his retirement.

Dr. Friedrich has over 200 publications, three book chapters and two patents. He has secured over \$25 MM in external research funding. He has graduated 15 PhD students and 55 MS students.

Dr. Friedrich has been active in professional service, examples include: Associate Editor, Society of Manufacturing Engineers Journal of Manufacturing Processes; Guest Editor, Special Issue on Micromechanics and Microengineering, J. Micromachines, 2010-2011; and conference chair for several Symposiums.

Dr. Friedrich has been very active in service to the department and university, examples include: ME-EM coordinator for Higher Learning Commission graduate assessment plan and review, 2018-2021; Academic Integrity Assessment Committee, 2015-2017; Graduate School Dean Evaluation and Reappointment Committee, 2014; Co-Chair, College of Engineering Dean Search Committee.

## Approved

**William W. Predebon** Digitally signed by William W. Predebon  
Date: 2021.03.16 17:27:20 -04'00'

Department Chair

Date

**Danielle Davis for Janet Callahan** Digitally signed by Danielle Davis for Janet Callahan  
Date: 2021.03.18 15:39:03 -04'00'

College Dean

Date

**Jacqueline E. Huntoon** Digitally signed by Jacqueline E. Huntoon  
Date: 2021.03.19 12:52:10 -04'00'

Provost and Senior Vice President for Academic Affairs

Date

**Richard J. Koubek** Digitally signed by Richard J. Koubek  
Date: 2021.04.07 07:54:02 -05'00'

President

Date



**TO:** Michigan Technological University Board of Trustees

**FROM:** Jared Anderson, Chair, Visual and Performing Arts

**DATE:** 4/13/2021

**SUBJECT:** Recommendation for Emeritus Status

The faculty of the Department of Visual and Performing Arts voted on 4/14/2021 to request that the Michigan Technological University Board of Trustees name Mary Carol Friedrich as Professor Emerita upon her retirement on January 23, 2021.

MC Friedrich retired from Michigan Technological University on January 23, 2021 after 22 years of service as a faculty member in the Department of Visual and Performing Arts. During her time at the university she acted as the Costume Designer, the Costume Shop Supervisor, the Scenic Designer, and the Lighting Designer for most of the productions in the Theatre Division. She developed the Theatre and Entertainment Technology (SFET) Degree Major and Minor programs. She mentored student designers and technicians in their roles to create productions. She served as the Academic Advisor for the SFET degree, but also mentored students in all areas, coaching and preparing them to present their work at conferences.

She was an active member of the United States Institute for Theatre Technology, the Kennedy Center American College Theatre Festival, the Costume Society of America, and the American Montessori Society. As a member of USITT she served as the Costume Vice Commissioner of Programming and also participated frequently as a presenter and contributor. For KCACTF she spent years in the Regional Leadership and expanded the role of the Design, Technology, and Management Commission.

Prof. Friedrich has been the recipient of awards from Michigan Technological University, USITT, KCACTF, and Association for Theater in Higher Education for teaching, leadership, innovation, design, and service. She has authored articles, book chapters, posters, and journals sharing her expertise in the areas of Costume Construction, Costume Design, Scenic Design, Lighting Design and Education.

### Approved

**Jared Anderson**

Digitally signed by Jared Anderson  
Date: 2021.04.14 14:23:48 -04'00'

Department Chair/School Dean

Date

**David J. Hemmer**

Digitally signed by David J. Hemmer  
Date: 2021.04.14 14:27:57 -04'00'

College Dean

Date

**Jacqueline E. Huntoon**

Digitally signed by Jacqueline E. Huntoon  
Date: 2021.04.15 08:12:15 -04'00'

Provost and Senior Vice President for Academic Affairs

Date

**Richard J. Koubek**

Digitally signed by Richard J. Koubek  
Date: 2021.04.15 10:49:54 -04'00'

President

Date



**TO:** Michigan Tech Board of Trustees  
**DATE:** 4/2/2021  
**SUBJECT:** Recommendation of Emeritus Status for Dr. Hugh Gorman

The Promotion, Tenure, and Review (PTR) committee of the Department of Social Sciences recommends that the Board of Trustees grant Dr. HUGH GORMAN status as Professor Emeritus after his retirement on June 30, 2021. The PTR committee is charged by the department’s charter to make recommendations regarding emeritus status.

Trained as a historian and specializing in efforts to use history to inform policy debates, Dr. Gorman joined the faculty in 1996. He has served as Department Chair since 2015.

Over the course of his tenure, Dr. Gorman has contributed to the department’s graduate and undergraduate educational mission with courses such as: Science, Technology, & Society; U.S. Environmental History; History of Science in America; History of Technology in Western Civilization; Environmental Decision-Making; Global Environmental History; and Institutions: Capitalism, Democracy, and Globalization. He is the author of two historical monographs: *Redefining Efficiency: Pollution Concerns, Regulatory Mechanisms, and Tech. Change in the U.S. Petroleum Industry* (University of Akron Press, 2001) and *The Story of N: A Social History of the Nitrogen Cycle and the Challenge of Sustainability* (Rutgers University Press, 2013). He has also authored numerous articles and book chapters in the fields of environmental history, business history, policy history, and the history of technology. He has served on over 50 graduate committees for students in departments throughout the university and as the advisor to 5. He has held leadership positions in his main professional society, the Society for the History of Technology, and has received funding from organizations such as the National Science Foundation, the Joyce Foundation, The Chemical Heritage Foundation, and the Council for the Exchange of International Scholars (Fulbright).

The Promotion, Tenure, and Review committee of the Department of Social Sciences agrees that Dr. Gorman is deserving of the honor of being named Professor Emeritus.

Digitally signed by Steven A. Walton  
Date: 2021.04.02 17:55:58 -04'00'

2 April 2021

Steve Walton, Chair  
Department of Social Sciences PTR committee

Date

**David Hemmer**

Digitally signed by David Hemmer  
Date: 2021.04.05 12:55:57 -04'00'

Date

David Hemmer, Dean  
College of Sciences and Arts

**Jacqueline E. Huntoon**

Digitally signed by Jacqueline E. Huntoon  
Date: 2021.04.06 16:19:11 -04'00'

04/06/2021

Jacqueline Huntoon, Provost and  
Senior Vice President for Academic Affairs

Date

**Richard J. Koubek**

Digitally signed by Richard J. Koubek  
Date: 2021.04.07 07:53:51 -05'00'

Date

Ricahrd Koubek, President



**TO:** Michigan Tech Board of Trustees  
**DATE:** 4/2/2021  
**SUBJECT:** Recommendation of Emeritus status for Dr. Patrick Martin

The Promotion, Tenure, and Review (PTR) committee of the Department of Social Sciences recommends that the Board of Trustees grant Dr. PATRICK MARTIN status as Professor Emeritus. The PTR committee is charged by the department’s charter to make recommendations regarding emeritus status.

Dr. Martin, who began his career at Michigan Tech in 1977, was instrumental in the development of Michigan Tech’s graduate program in Industrial Heritage and Archaeology (IHA) and mentoring students in that program. He has served as the advisor for 27 IHA graduate students and on the committees of 30 others. In association with his work in industrial heritage and archaeology, he has served as the PI or co-PI on projects that have received over \$2 million in funding, including archaeological projects related to mining, smelting, and production in Alaska, Svalbard (Norway), New York State, and many areas of Michigan. He also served as the editor of the leading North American journal for the field, *Industrial Archeology*, for 15 years and as the president of the International Committee for the Conservation of the Industrial Heritage (TICCH, which is a UNESCO-affiliated international body) for nine years.

From 2009 to 2015, Dr. Martin served as the Chair of the Department of Social Sciences. Since then, he has remained active in his professional service, including his work with TICCH. He has also remained active in fund raising for the department, cultivating the relationships that he has made over the year with people interested in industrial heritage.

The Promotion, Tenure, and Review committee of the Department of Social Sciences agrees that Dr. Martin is deserving of the honor of being named Professor Emeritus.

Digitally signed by Steven A. Walton  
Date: 2021.04.02 17:55:32 -04'00'

2 April 2021

Steve Walton, Chair  
Department of Social Sciences PTR committee

Date

Digitally signed by Hugh Gorman  
Date: 2021.04.05 11:07:04 -04'00'

4/4/2021

Hugh Gorman, Dept. Head  
Department of Social Sciences

Date

Digitally signed by David Hemmer  
Date: 2021.04.05 12:55:30 -04'00'

Date

David Hemmer, Dean  
College of Sciences and Arts

Digitally signed by Jacqueline E. Huntoon  
Date: 2021.04.06 16:18:48 -04'00'

04/06/2021

Jacqueline Huntoon, Provost and  
Senior Vice President for Academic Affairs

Date

Digitally signed by Richard J. Koubek  
Date: 2021.04.07 07:53:41 -05'00'

Date

Ricahrd Koubek, President



TO: Michigan Technological University Board of Trustees

FROM: Glen E. Archer, Principal Lecturer and Interim Chair  
Department of Electrical and Computer Engineering

DATE: March 8, 2021

SUBJECT: Recommendation for Emeritus Status

The faculty of the Department of Electrical and Computer Engineering voted on January 19 2021, to request that the Michigan Technological University Board of Trustees name Warren Perger as Professor Emeritus.

Dr. Perger began his 34 year-long career at Michigan Tech as a Visiting Instructor in 1981 shortly after the award of his Masters in Electrical Engineering from the University of Wisconsin. He left to pursue his PhD in Physics from Colorado State University, graduating in 1986. He was appointed as an Assistant Professor in Electrical Engineering in 1987 promoted to Associate Professor in 1995 and to Professor in 2005. He is the author of 38 refereed Journal Articles; mentored four PhD graduates, served on the committees of 22 other successful PhD candidates, and 39 Masters candidates. He was awarded the Eta Kappa Nu Outstanding Professor of the Year in 1989, 1994, and 2002. Since 2012 he has served as the Program Coordinator for the Computational Science and Engineering Research Institute as well as the Computational Science and Engineering PhD program since. His leadership of the ECE Department's Graduate Education Committee provided the model for efficient admission processes across the graduate school. His deep knowledge of wide-band antenna design led him to become an expert witness whose testimony was pivotal in several international patent lawsuits. His most recent sabbatical with CMX Avionics LLC., resulted in a patent for a voice recognition system designed to reduce the cognitive load on general aviation pilots during high-stress events, such as in-flight emergencies.

**Approved**

**Glen Archer** Digitally signed by Glen Archer  
Date: 2021.03.11 11:33:25 -05'00'

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Department Chair

\_\_\_\_\_

Date

**Janet Callahan** Digitally signed by Janet Callahan  
Date: 2021.03.12 11:26:36 -05'00'

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College Dean

\_\_\_\_\_

Date

**Jacqueline E. Huntoon** Digitally signed by Jacqueline E. Huntoon  
Date: 2021.03.15 15:34:02 -04'00'

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Provost and Senior Vice President for Academic Affairs

**03/15/2021**

\_\_\_\_\_

Date

**Richard J. Koubek** Digitally signed by Richard J. Koubek  
Date: 2021.04.07 07:53:29 -05'00'

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President

\_\_\_\_\_

Date



**TO:** Michigan Technological University Board of Trustees

**FROM:** Janet Callahan, Dean, College of Engineering

**DATE:** April 1, 2021

**SUBJECT:** Recommendation for Chair and Professor Emeritus, William W. Predebon

I have received the recommendation from the department of Mechanical Engineering - Engineering Mechanics for Dr. Predebon as *Professor Emeritus*, which I fully endorse.

Further, I recommend that Dr. Predebon, receive the additional distinction of Chair Emeritus, so that he may be known as ***Chair and Professor Emeritus***, in recognition of his many notable contributions over an extended period of time that have not only transformed the department of Mechanical Engineering - Engineering Mechanics (ME-EM), but has also greatly contributed to the prominence that Michigan Technological University enjoys today.

Three factors distinguish Dr. Predebon's accomplishments as Chair: first, the department's success across his years of leadership, resulting in very high national rankings and graduate enrollment; second, his longevity as Chair; and third, his outstanding record of fundraising for Michigan Technological University.

The ME-EM department was recognized as 34th in the nation by 2020 US News & World Report, and 19th in the nation by College Factual, both of which show that Michigan Tech's ME program is in the top 10% of all ME programs in the United States. This is a notable distinction that allows the ME program to attract a substantial fraction of MTU's students.

Across Dr. Predebon's tenure as chair, which began in 1997 and is coming to an end this June, he conducted two major fundraising campaigns. The first was called the ME-EM Building for the Future Phase I, followed by a corresponding Phase II campaign. Through Dr. Predebon's tireless efforts, his cultivation of thousands of ME-EM alumni and friends, and his innumerable personal interactions, the fundraising goal of \$52 million was exceeded. The department would not have been able to execute so strongly on its mission and vision without this philanthropic giving. They would not have been able to attract and retain the world class faculty and staff that currently makes up the department without the success of these campaigns.

To conclude, I would add that it has been an honor to work with Dr. Predebon in my role as Dean. He is a wonderful colleague; he leads by example, and his passion for Michigan Tech has no bounds.

It is my strongest recommendation that the Board of Trustees support the recommendation for Dr. William W. Predebon to become known as Chair and Professor Emeritus, Mechanical Engineering and Engineering Mechanics, Michigan Technological University.



Sincerely,



Janet Callahan, PhD, F.ASEE  
Dean, College of Engineering

Approved:

Jacqueline E. Huntoon Digitally signed by Jacqueline E. Huntoon  
Date: 2021.04.09 09:54:51 -04'00'

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Jacqueline E. Huntoon  
Provost & Senior Vice President for Academic Affairs

Richard J. Koubek Digitally signed by Richard J. Koubek  
Date: 2021.04.09 08:38:58 -05'00'

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Richard Koubek  
President



**TO:** Michigan Technological University Board of Trustees  
**FROM:** Jeffrey S. Allen, Ph.D. and Jason R. Blough Ph.D.  
**DATE:** March 29, 2021  
**SUBJECT:** Recommendation for Emeritus Status

The faculty of the Department of Mechanical Engineering-Engineering Mechanics voted on March 25, 2021 to request that the Michigan Technological University Board of Trustees name Dr. William W. Predebon as Professor Emeritus upon his retirement on June 30, 2021.

Dr. William W. Predebon is nationally and internationally recognized for the growth in ME-EM research and educational innovation.

Dr. Predebon began his academic career at Michigan Tech in 1975 as a visiting professor. He joined as an Assistant Professor in 1976. He was promoted to Associate Professor in 1978 and Professor in 1984. In 1997 he was appointed Chair of the Department of Mechanical Engineering – Engineering Mechanics and has held the appointment until his retirement on June 30, 2021.

During his tenure as Chair, Dr. Predebon has led the transformation of mechanical engineering at Michigan Tech. The undergraduate program is now ranked 34th in the nation by 2020 US News and 19th in the nation by College Factual, both of which place Michigan Tech’s ME program in the top 10% of all ME programs in the US. Also, during his tenure as chair, ME research expenditures have grown from \$4.6 to \$20 million, which moved Michigan Tech’s ME program from 27th to 16th in the nation per the 2019 NSF rankings. As MEEM Chair, he led the development of the first Peace Corp International Masters MS program in mechanical engineering. In 1995 he developed and implemented a distance learning PhD program that continues to this day. And he designed and implemented MEEM Future Campaigns, securing \$3.6 million in Phase I and \$27 million in Phase II that has been used for endowed chairs, scholarships, facility and laboratory upgrades, refurbishment of faculty, staff, and department offices, and implementation of curriculum innovations.

Dr. Predebon’s honors and awards are many. Among the highlights are: Michigan Tech Distinguished Teaching Award (1984), Distinguished Faculty Award from the Michigan Association of Governing Boards of Colleges and Universities (1985), Michigan Tech Academy of Teaching Excellence (1998), first annual Michigan Tech “King” awarded by the MTU Black Student Organization (2007), Fellow of the American Society of Mechanical Engineers (2007), Clair M. Donovan Award for Outstanding Service (2013), Outstanding Service Award from the American Society of Mechanical Engineers (2014), Michigan Tech Diversity Award (2015), and Induction into the Pan American Academy of Engineering (2019).

Dr. Predebon has over 40 peer-reviewed publications, 2 patents, has supervised 16 graduate students and numerous professional presentations and invited talks. Dr. Predebon has been very active in service to the department and university serving on over 90 different committees; major service activities include chairing the Building Programs for the Dow Environmental Science and Engineering and the Great Lakes Research Center.

Dr. Predebon has also been active in professional service; examples include serving on and chairing the American Society of Mechanical Engineers (ASME) Engineering Education Committee, Students Program Group, Department Heads Executive Committee. He has also led the Biennial Mechanical Engineering Department Benchmarking Study from the inaugural study in 2000 until the present.

### Approved

  
 Jeffrey S. Allen, ME-EM Associate Chair & Director of Undergraduate Studies

3/29/2021  
 Date

  
 Jason R. Blough, ME-EM Associate Chair & Director of Graduate Studies

3/29/2021  
 Date

**Janet Callahan** Digitally signed by Janet Callahan  
 Date: 2021.04.01 10:03:57 -04'00'  
 Janet Callahan, Dean, College of Engineering

\_\_\_\_\_  
 Date

**Jacqueline E. Huntoon** Digitally signed by Jacqueline E. Huntoon  
 Date: 2021.04.09 09:54:29 -04'00'  
 Jacqueline E. Huntoon, Provost & Senior Vice President for Academic Affairs

\_\_\_\_\_  
 Date

**Richard J. Koubek** Digitally signed by Richard J. Koubek  
 Date: 2021.04.09 08:39:11 -05'00'  
 Richard J. Koubek, President, Michigan Technological University

\_\_\_\_\_  
 Date



**TO:** Michigan Technological University Board of Trustees

**FROM:** Scott Marratto, Interim Chair  
Department of Humanities

**DATE:** January 27, 2021

**SUBJECT:** Recommendation for Emerita Status

The faculty of the Department of Humanities/College of Sciences & Arts voted on January 27, 2021 to request that the Michigan Technological University Board of Trustees name Dr. Beatrice Smith as Professor Emerita upon her retirement on January 15, 2021.

Dr. Beatrice Quarshie Smith joined Michigan Tech as Associate Professor of Literacy Studies in 2008. Her 2012 book, *Reading and Writing in a Global Workplace: Gender, Literacy and Outsourcing in Ghana* (Lexington) explores the literacy conditions of women working in data-processing outsourcing centers. Her research on this topic has been supported by the American Association of University Women and by the Jean Campbell Research Fellowship of the Center for the Education of Women at the University of Michigan. She is also contributor and co-editor (with Nancy DeJoy) of *Collaborations and Innovations: Supporting Multilingual Writers Across Campus Units* (U of Michigan Press, 2017). She has authored a number of book chapters and articles on literacy education and technology in globalized contexts. From 2013 to 2016 she served as director of Michigan Tech's ESL program. She has supervised four PhD students and three MS students in the Department of Humanities.

**Approved**

**Scott Marratto**

Digitally signed by Scott Marratto  
Date: 2021.04.05 09:15:28 -04'00'

4/5/21

Scott Marratto, Interim Chair/Humanities Dept.

Date

**David Hemmer**

Digitally signed by David Hemmer  
Date: 2021.04.08 17:18:59 -04'00'

David Hemmer, Dean/College of Sciences & Arts

Date

**Jacqueline E. Huntoon**

Digitally signed by Jacqueline E.  
Huntoon  
Date: 2021.04.09 08:43:57 -04'00'

Jacqueline Huntoon, Provost/Senior VP for Academic Affairs

Date

**Richard J. Koubek**

Digitally signed by Richard J. Koubek  
Date: 2021.04.09 08:38:42 -05'00'

Rick Koubek, President

Date

*Revised 9/21/16*

**IX-F. PROPOSAL FOR A BACHELOR'S OF SCIENCE DEGREE IN ENVIRONMENTAL SCIENCE AND SUSTAINABILITY**

The faculty in the College of Forest Resources and Environmental Science seek to establish a Bachelor's of Science Degree in Environmental Science and Sustainability. This degree will provide students with a broad understanding of environmental science and sustainability in order to prepare them for careers in this field. The degree will be distinguished by its science-based curriculum and integration of contemporary issues in social justice, diversity, equity, and inclusion.

The degree program will give students a strong technical foundation in understanding the natural environment, the forces that shape and are shaped by it, and the contemporary environmental challenges faced by society. This technical background will include a strong grounding in the biophysical sciences as well as courses that focus on specific environmental topics and challenges. Students will then build upon this technical foundation through one of three tracks with which to further develop their knowledge base: 1) Climate Science; 2) Environmental Policy; and 3) Geospatial Science.

The proposal has been approved by the University Senate and the University administration. The University is seeking Board of Trustees approval to advance the proposal to the State Academic Affairs Officers.

**RECOMMENDATION:** The Board of Trustees approves the Bachelor's of Arts Degree in Chemistry.

## **IX-G. PROPOSAL FOR A BACHELOR OF SCIENCE DEGREE IN HUMAN FACTORS**

The faculty in the Department of Cognitive and Learning Sciences, under the umbrella of the College of Sciences and Arts, seek to establish a Bachelor of Science degree in Human Factors. The purpose of the proposed program is to leverage the in-house expertise of current faculty, graduate students, and courses. The department currently offers a PhD in Applied Cognitive Science and Human Factors. The proposed program will allow Michigan Tech to offer a specialized course of study at the undergraduate level that is unique in the State of Michigan and the Midwest in general.

Human factors psychology is an applied field of study that broadly covers how we work, use technology, and interact within small and large socio-technical systems. It encompasses and overlaps with a number of related specializations, such as ergonomics, engineering psychology, human-systems engineering, cognitive engineering, UI/UX, human-computer interaction, usability, industrial/organizational psychology, and human-centered design. Human factors is a necessary discipline in order to explore the central role that humans play in the 4th industrial revolution, and how technology can serve us and improve work, society, and life.

The proposal has been approved by the University Senate and the University administration. The University is seeking Board of Trustees approval to advance the proposal to the State Academic Affairs Officers.

**RECOMMENDATION:** The Board of Trustees approves the Bachelor's of Arts Degree in Chemistry.

**IX-H. PROPOSAL TO UPDATE FACULTY HANDBOOK [APPENDIX I] SECTION 5.1.2, EXCEPTIONAL EXTENSION FOR THE PROBATIONARY PERIOD**

The COVID-19 pandemic has caused substantial disruptions in many aspects of University life. During spring semester 2020, faculty members at Michigan Tech were notified that they could make use of the existing language in the *Faculty Handbook, Appendix I, Section 5.1.2* to request a one-year extension of the tenure clock.

As the pandemic and its associated disruptions have now entered a second year, it has become apparent that there is a need to update *Section 5.1.2* to allow for at least one additional year of extension. The proposed change would also bring this section of the faculty handbook into alignment with *Section 5.1.1, Extension of the Probationary Period*, which states that the probationary period can be extended for not more than 2 years total.

**RECOMMENDATION:** The Board of Trustees approves the update to Faculty Handbook, Appendix I, Section 5.1.2, Exceptional Extension of the Probationary Period.

## IX- I. PROPOSAL TO REVISE BOARD POLICY 6.7, SABBATICAL LEAVE

This proposal provides a mechanism for non-tenure-track faculty at the ranks of professor of practice, senior lecturer, or principal lecturer, or equivalent ranks for librarians and archivists to apply for a sabbatical leave. To be eligible, applicants must have been a continuous, full-time faculty employee at the University for a minimum of six years. The leaves will normally be for one semester. Only in the most compelling situations will requests for more than one semester be considered. Sabbatical leave compensation will be paid from a central pool managed by the Office of the Provost.

As with tenured/tenure-track sabbatical leave, non-tenure-track sabbatical leave will be governed by Board of Trustees Policy 6.7, which will require the following updates if this revision to the policy is approved (new text in red; removed text shown with strikethrough).

### 6.7 Sabbatical Leave

The granting of sabbatical leaves of ~~absence is intended for the mutual benefit~~ of the University and the person granted such a leave. Sabbatical leaves may be granted faculty members in order to provide a period of creative activity for the purpose of furthering professional competence. The granting of such leave will in no case be automatic, and each request for sabbatical leave will be judged on its own merits.

1. To be eligible for sabbatical leave, a faculty member must have
  - (1) ~~Have~~ been granted tenure at the ~~u~~University,
  - ~~and or~~
  - (2) ~~ii) Hold the rank of senior lecturer or principal lecturer, or equivalent ranks for librarians and archivists, or the rank of professor of practice at the time of application.~~

~~In all cases, the individual applying for sabbatical must have served for at least six years as a faculty member at the university prior to taking the sabbatical.~~

~~Eligible non-tenure-track (NTT) faculty must have been in continuous service as a full-time faculty member at Michigan Tech for a minimum of six years in a lecturer (any rank) position, or equivalent ranks for librarians and archivists, or the rank of professor of practice.~~

~~Eligibility for a subsequent sabbatical leaves requires a minimum of six years of service since the completion of the previous sabbatical leave.~~

2. Sabbatical leaves ~~for tenured faculty~~ may be granted for either one or two consecutive semesters. For this purpose, spring and the following fall semester will be considered to be consecutive.

~~Sabbatical leaves for eligible non-tenure-track faculty may be for a maximum of one semester unless an exception is granted by the president in response to a compelling situation~~



Compensation for faculty on sabbatical leave will be as follows:

<b>Duration of Leave</b>	<b>Rate of Pay while on Sabbatical Leave</b>
<1 Semester	100% of pro-rated academic year rate
1 Semester	100% of academic year rate
2 Semesters	67% of academic year rate

Faculty may not accept full-time employment during the course of their sabbatical leave, with such exceptions as the **P**resident of the University, with advice from the University Sabbatical Leave Committee, may permit. Persons receiving sabbatical leave must agree to return to their position for the following year, with such exceptions as the **P**resident of the University, with advice from the University Sabbatical Leave Committee, may permit.

### **Money from Outside Sources**

Faculty members on sabbatical leave of absence may receive money from fellowships, grants, or other sources.

This policy shall be administered in accordance with procedures recommended by the Senate and approved by the **P**resident.

**RECOMMENDATION:** The Board of Trustees approves the update to Board Policy 6.7, Sabbatical Leave.

**IX-J. ELECTION OF CHAIR AND VICE CHAIR**

The Bylaws of the Board of Trustees record that at the last meeting of the fiscal year, the Board shall elect a chair to take office at the first meeting in the following fiscal year. It further states that the Board shall also elect a vice chair to preside in the absence of the chair.

**RECOMMENDATION:** That the Board of Trustees elects a chair for the fiscal year 2021-2022; and that further, the Board elects a vice chair for the same period.

**IX-K. FY2022 GENERAL FUND OPERATING BUDGET**

The general fund budget was developed based on assumptions regarding tuition and state appropriations. However, when the State budget is approved by the Legislature, if there are changes from these assumptions, the Administration is requesting that the Board allow them the flexibility to revise the budget to reflect a change in appropriations and/ or tuition cap while continuing to maintain a balanced budget.

**RECOMMENDATION:** That the Board of Trustees approves the FY2022 General Fund Operating Budget as presented, and authorizes the Administration to revise the general fund operating budget to reflect any changes in state appropriations and/or tuition cap while maintaining a balanced budget and informing the Board Audit and Finance Committee of any such changes that may be necessary.

Michigan Technological University  
Fiscal Year 2022 General Fund Budget

	Proposed Budget
	<b>Fiscal Year 2022</b>
<b>Operating Revenues</b>	
Tuition and Fees	\$ 145,821,773
Federal Grants and Contracts	40,000
State & Local Gov't Grants & Contracts	-
Nongovernmental Grants & Contracts	-
Indirect Cost Recoveries	16,700,000
Educational Activities/Misc. Revenues	315,000
Student Resident Fees	-
Sales and Services of Dept Activities	-
	\$ 162,876,773
<b>Operating Expenses</b>	
Staff S&W	\$ (38,273,086)
Faculty S&W	(47,610,656)
Grad Student S&W	(4,788,285)
Undergrad Student S&W	(938,068)
Fringe Benefits	(38,079,046)
Supplies & Services	(14,038,683)
Scholarships	(51,957,568)
Utilities	(4,127,048)
Contingency/Carryforward Reserve	(5,000,000)
	\$ (204,812,439)
<b>Transfers</b>	
Mandatory/Non-Mandatory	\$ (13,281,640)
<b>Nonoperating Revenues (Expenses)</b>	
State Appropriations	\$ 51,303,152
Gift Income	3,129,077
Investment Income	800,000
Interest Expense	-
	\$ 55,232,229
<b>Net Income (Loss)</b>	<b>\$ 14,923</b>

## Formal Session of the Board of Trustees - Agenda

Michigan Technological University  
Proposed FY22 Tuition Rates

	Resident Undergraduate Lower Division		Non-Resident Undergraduate Lower Division	
	Tuition Rate Per Credit Hour <12 and >18	Plateau Tuition Rate 12 - 18 Credits	Tuition Rate Per Credit Hour <12 and >18	Plateau Tuition Rate 12 - 18 Credits
All Lower Division Undergraduate Students	\$629.00	\$8,327.00	\$1,400.00	\$18,900.00

NOTE: English Second Language Rate: \$646.00/Cr. Hr.

	Resident Undergraduate Upper Division		Non-Resident Undergraduate Upper Division	
	Tuition Rate Per Credit Hour <12 and >18	Plateau Tuition Rate 12 - 18 Credits	Tuition Rate Per Credit Hour <12 and >18	Plateau Tuition Rate 12 - 18 Credits
Engineering, Computer Science, Computer Network & Systems Admin., Surveying Engineering Majors	\$835.00	\$10,112.00	\$1,642.00	\$21,116.00
Forest Resources, Environmental Science, Biological Sciences, Chemistry, Kinesiology & Integrative Physiology, Cognitive & Learning Sciences, Physics, Construction Management, Electrical Engineering Technology, Mechanical Engineering Technology Majors	\$724.00	\$9,405.00	\$1,517.00	\$20,302.00
Business, Economics, Humanities, Mathematical Sciences, Social Sciences, Visual & Performing Arts Majors	\$700.00	\$9,210.00	\$1,491.00	\$20,116.00

NOTE: Per Credit Hour Rate Will Apply To Undergraduate Students Enrolled Summer Semester

## Resident &amp; Non-Resident Graduate Students

	Tuition Rate Per Credit Hour & Fees
Standard Per Credit Hour Rate Non-Engineering/Computer Science	\$1,182.00
Standard Per Credit Hour Rate Engineering/Computer Science	\$1,343.00
National Service Graduate Tuition Rate - Non-Engineering/Computer Science	\$793.00
National Service Graduate Tuition Rate - Engineering/Computer Science	\$900.00
Graduate Students who are in Research Mode Non-Engineering/Computer Science	\$390.00
Graduate Students who are in Research Mode Engineering/Computer Science	\$443.00

**IX-L. FY2022 ROOM AND BOARD AND APARTMENT RENTAL RATES**

Michigan Tech is committed to providing exceptional facilities and services and a vibrant residential education experience that values academic success and a welcoming environment. Our on-campus community includes high quality and diversified dining services and housing alternatives that offer opportunities for learning and personal growth in a safe and comfortable environment.

Following is the schedule of recommended residence hall room and dining rates for Douglass Houghton Hall, McNair Hall, Wadsworth Hall, and Hillside Place, and apartment rates for Daniell Heights for the 2021-2022 academic year. These rates are recommended for approval, with the confidence that our staff will continue to provide the type of innovative management and student development that has permitted Michigan Tech to attract, retain, and support a world-class student population.

**RECOMMENDATION:** That the Board approves the recommended residence hall housing and meal rates and apartment rental rates for 2021-2022.

## Housing and Dining Rates 2021- 2022

### Douglass Houghton Hall, McNair Hall, Wadsworth Hall

Occupancy Dates: August 21, 2021 - December 18, 2021 and January 8, 2022- April 30, 2022

Housing (Regular Occupancy) and Dining	2020-2021 Housing & Unlimited Dining	Proposed Increase	2021-2022 Housing & Unlimited Dining	Percent Change
<b>Wadsworth Hall and McNair Hall</b>				
*Double Occupancy	\$ 11,284	\$ 341	\$ 11,625	3.02%
Single Occupancy	\$ 12,741	\$ 620	\$ 13,361	4.87%
<b>Wadsworth Hall w/ private bath</b>				
Double Occupancy	\$ 12,028	\$ 558	\$ 12,586	4.64%
Single Occupancy	\$ 13,826	\$ 682	\$ 14,508	4.93%
<b>Douglass Houghton Hall</b>				
Double Occupancy	\$ 11,098	\$ 310	\$ 11,408	2.79%
Single Occupancy	\$ 12,741	\$ 620	\$ 13,361	4.87%
Housing (Reduced/Temporary Occupancy) and Dining	2020-2021 Housing & Unlimited Dining	Proposed Increase	2021-2022 Housing & Unlimited Dining	Percent Change
Temporary Housing	\$ 9,424	\$ 279	\$ 9,703	2.96%
Quad to 2	\$ 11,594	\$ 248	\$ 11,842	2.14%
Quad to 3 (not currently offered)	\$ 11,222	\$ 496	\$ 11,718	4.42%
Triple to 1 (not currently offered)	\$ 12,741	\$ 620	\$ 13,361	4.87%
Wads Quad to 2	\$ 11,687	\$ 155	\$ 11,842	1.33%
Triple Suite to 2	\$ 12,431	\$ 465	\$ 12,896	3.74%
DHH Quad Suite to 3	\$ 12,431	\$ 465	\$ 12,896	3.74%

Unlimited Gold dining plan has \$200 dining dollars and 8 guest meal swipes per semester. Unlimited Silver dining plan has \$100 dining dollars and 4 guest meal swipes per semester, as shown above, minus \$248. Guest meal swipes expire at the end of the semester. Dining Dollars carry over from fall to spring semester. Dining Dollars expire at the end of the spring semester.

\* Rate reported to US Department of Education Integrated Postsecondary Education Data System

### Hillside Place Residence Hall

Occupancy Dates: August 21, 2021 - December 18, 2021 and January 8, 2022- April 30, 2022

Single Bedroom and Meal Rate	2019-2020 Housing & 150 Block Dining	Proposed Increase	2020-2021 Housing & 150 Block Dining	Percent Change
Single Bedroom in Shared Apartment	\$ 12,145	\$ 349	\$ 12,494	2.87%
Single Bedroom Apartment	\$ 12,920	\$ 504	\$ 13,424	3.90%

Block meal plans are only available to Hillside Place (required) and Daniell Heights or off-campus students. Meals expire at the end of each semester. The unlimited Dining plan is available as an upgrade in lieu of the Block meal plan.

### Daniell Heights Apartments

Lease Agreement Dates: July 1, 2021 to June 30, 2022 or August 15, 2021 to June 30, 2022

Monthly Rental Rate	2019-2020	Proposed Increase	2020-2021	Percent Change
<b>Student Rates</b>				
One Bedroom	\$ 730	\$ 25	\$ 755	3.42%
Two Bedroom	\$ 1,040	\$ 30	\$ 1,070	2.88%
Three Bedroom	\$ 1,320	\$ 40	\$ 1,360	3.03%
<b>University Employee Rates</b>				
One Bedroom	\$ 910	\$ 40	\$ 950	4.40%
Two Bedroom	\$ 1,135	\$ 40	\$ 1,175	3.52%
Three Bedroom	\$ 1,455	\$ 45	\$ 1,500	3.09%

## **IX-M. REVISION TO BOARD POLICY 8.9**

The Experience Tech Fee was implemented in 2008, with the purpose of providing all Michigan Tech students access to a variety of venues and experiences that improve their overall well-being, while also supporting the operational costs and facility improvements across the Experience Tech venues. The fee supports the Tech Forward Initiatives of Diversity and Inclusion and Health and Quality of Life by providing students a diverse offering of cultural events and opportunities to develop healthy lifestyle habits through recreational activities unique to our area and a culture that is vibrantly learning through living.

Future year fees will be considered for an increase at the same time as tuition is revisited for first-time, in-state freshmen students entering the institution. The Experience Tech Fee Review Group, comprised of representatives from the Undergraduate Student Government (USG), the Graduate Student Government (GSG), faculty, and staff reviewed the program and is recommending that the program continue.

For FY2022, the group is recommending that the fee be set to \$96.00 per fall and spring semesters for undergraduate students and to \$78.00 for graduate students. This represents an increase of \$3.00 and \$2.00 per semester respectively. The last increase to the fee occurred in the fall of 2020.

The recommended changes of the increased fee have the support of both the USG and the GSG.

**RECOMMENDATION:** That the Board of Trustees amends policy 8.9 Experience Tech Fee as presented herein, effective Fall Semester 2021.



**BOLD = ADD**

~~STRIKETHROUGH~~ = DELETE

## 8.9 Experience Tech Fee

~~Beginning in FY2021, t~~The President is authorized to make adjustments to the fee structure and assess an Experience Tech Fee of ~~\$93.00~~**96.00** in each of the fall and spring semesters for each enrolled undergraduate student and ~~\$76.00~~**78.00** in each of the fall and spring semesters for each enrolled graduate student. Future year fees will be considered for an increase at the same time as tuition is revisited for first-time, in-state freshmen students entering the institution. The fee is to improve student access to facilities and events to include, and includes but is not limited to, Mont Ripley Ski Hill, Intramural Sports, Portage Lake Golf Course, Gates Tennis Center, Visual and Performing Arts Department events and Hockey Games, Michigan Tech Trails and Recreational Forest, the Rozsa Center for the Performing Arts presenting series, Outdoor Adventure Programs, and Student Health and Wellness.

The Fee is designed to replace revenue from individual student ticket sales and fees to support their operational costs. Procedures for the distribution of funds will be established by the Vice President for Student Affairs in consultation with Student Government.

A limited number of exceptions in assessing the fee may be made by the President or the President's designate for university employees and/or graduate students not on the main campus.

Students not enrolled in courses on the main campus, University employees and/or Senior Citizens who are not assessed the fee are not eligible to receive the associated benefits.

The amended policy shall read as follows:

## 8.9 Experience Tech Fee

The President is authorized to make adjustments to the fee structure and assess an Experience Tech Fee of \$96.00 in each of the fall and spring semesters for each enrolled undergraduate student and \$78.00 in each of the fall and spring semesters for each enrolled graduate student. Future year fees will be considered for an increase at the same time as tuition is revisited for first-time, in-state freshmen students entering the institution. The fee is to improve student access to facilities and events to include, and includes but is not limited to, Mont Ripley Ski Hill, Intramural Sports, Portage Lake Golf Course, Gates Tennis Center, Visual and Performing Arts Department events and Hockey Games, Michigan Tech Trails and Recreational Forest, the Rozsa Center for

the Performing Arts presenting series, Outdoor Adventure Programs, and Student Health and Wellness.

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Students not enrolled in courses on the main campus, University employees and/or Senior Citizens who are not assessed the fee are not eligible to receive the associated benefits.

**IX-N. MICHIGAN COUNCIL FOR THE ARTS AND CULTURAL AFFAIRS**

The Rozsa Center for the Performing Arts is preparing a proposal for submission to the Michigan Council for the Arts and Cultural Affairs. The funds requested in this proposal will support the costs associated with artist fees for the annual Presenting Series as well as partially support the following:

- Vieux Farka Touré (rescheduled September 22, 2021)
- Osman Koc installation (rescheduled October 22-23, 2021)
- The Rocky Horror Picture Show (film, October 29, 2021)
- Anchorage; a collaboration between the a Rozsa Center and Rabbit Island Artists in Residence, choreographer Yoshito Samuraba of Abakuras Dance and composer Na'ama Zisser rescheduled, November 13, 2021)
- The Nutcracker, with the Minnesota Ballet and Keweenaw Symphony Orchestra December 3-5, 2021)
- Danu (rescheduled March 1, 2022)
- Sinkane (March 25, 2022)
- Digital *Joy* workshop with Naila Ansari week of March 23-25, 2022
- The Thanksgiving Play, by Wolfshead Theatre Company (TBD April 2022)
- Virtual and in-person Speaker Series including speakers Joy Harjo and Medaria Arradondo TBD 2021-22)

The amount of the grant request is \$30,000.

The Michigan Council for the Arts and Cultural Affairs requires that proposals submitted to them for funding be authorized by the Board of Trustees.

**RECOMMENDATION:** That the Board of Trustees endorse the proposal from the Rozsa Center for the Performing Arts for submission to the Michigan Council for the Arts and Cultural Affairs.

## **X. Reports**

### **A. NEXTCAR Program**

Dr. Jeffrey D. Naber, Mechanical Engineering-Engineering Mechanics

### **B. A Question of Balance: Improving Evidence-based Practice to Decrease Falls and Improve Functional Mobility**

**Dr. Carolyn Duncan**, Kinesiology and Integrative Physiology

### **C. Undergraduate Student Government**

Zack Olson, President-elect

### **D. Graduate Student Government**

Nathan Ford, President

### **E. University Senate**

Samuel Sweitz, President

**X-A. NEXTCAR PROGRAM**

Dr. Jeffrey D. Naber, Mechanical Engineering-Engineering Mechanics

**Michigan Technological University**  
*APS LABS: Advanced Power Systems Research Center*

## **ARPA-E NEXTCAR Project**

Jeff Naber

Director APS LABs

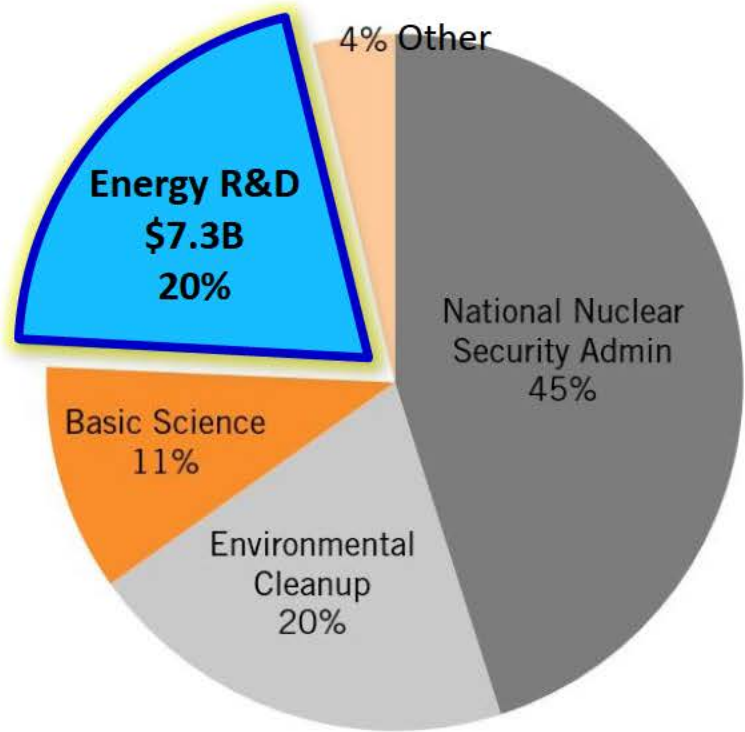
Richard & Elizabeth Henes Professor in Energy Systems  
Mechanical Engineering - Engineering Mechanics Dept

[jnaber@mtu.edu](mailto:jnaber@mtu.edu)

**APS LABS Mission:** Conduct & facilitate research and training in technologies for the development of clean, efficient, and sustainable mobility & power systems



DOE Budget = \$35.7B  
FY 2019



## Advanced Research Projects Agency

- Modelled after DARPA
- Created in 2007 as part of the COMPETES Act
- Annual Budget \$300 - \$400M = 1% of DOE
- External funding

Multi-year process including soliciting input from the research community

Agency Releases Funding Opportunity Announcements <https://arpa-e-foa.energy.gov>

Open to all US Based Institutions: Industry, Federal Research Labs, Universities, ...

**Concept Paper → Invitation to Full Proposal → Award Negotiation → Project Execution Go / No-Go Milestones**



# ARPA-E Phase I

## 10 Teams Selected from a 2016 FOA

### MTU Partnered with GM: \$2.8M Fed + \$650K CS

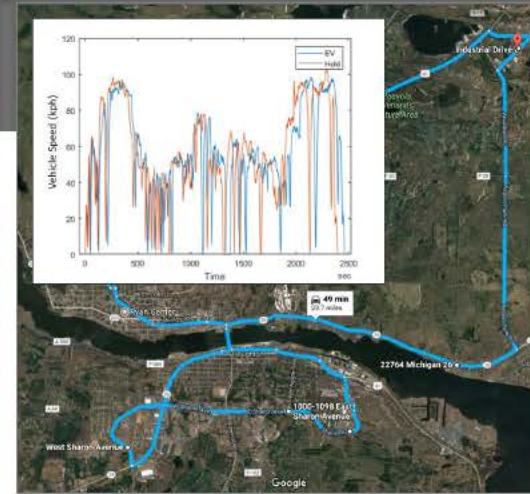
*Connected and Automated Control for Vehicle Dynamics and Powertrain Operation on a Light-Duty Multi-Mode Hybrid Electric Vehicle*

**Expertise + Vehicles + Autonomy + Connectivity = Energy Reduction + Range Extension**

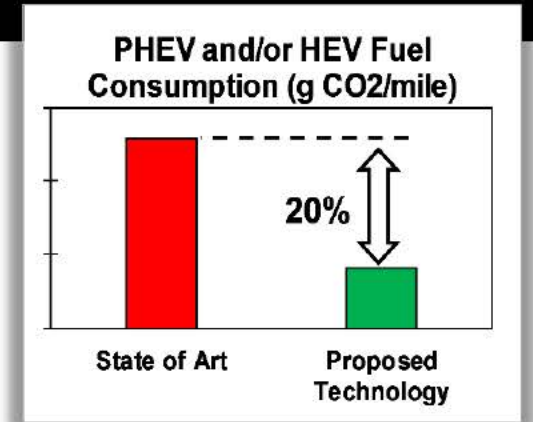
Bo Chen, *MEEM*  
M.Shahbakhti, *MEEM*  
Kuilin Zhang, *CEE*  
Chris Morgan, *APS LABS*  
Jim Baker, *VPR*



*Demonstrated on fleet of L2 Volts*



*Real-world driving*



***Increasing vehicle's awareness and intelligence through connected information & sensing***



## Michigan Tech receives \$4.5 million from U.S. Energy Department for NEXTCAR program

**U.S. Energy Secretary Jennifer Granholm** *"says the money will fund projects to reduce energy consumption in light-duty cars."*

Michigan workers, manufacturers and universities are the best in the world and continue to lead the development of next generation vehicles. *Michigan Tech is one of those institutions leading the way in creating longer range electric and autonomous vehicles, improving safety and making our cars more energy efficient. This investment will ensure Michigan remains a global leader,"* **said Senator Debbie Stabenow.**





0

### No Automation

Zero autonomy; the driver performs all driving tasks.



1

### Driver Assistance

Vehicle is controlled by the driver, but some driving assist features may be included in the vehicle design.



2

### Partial Automation

Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and monitor the environment at all times.



3

### Conditional Automation

Driver is a necessity, but is not required to monitor the environment. The driver must be ready to take control of the vehicle at all times with notice.



4

### High Automation

The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.



5

### Full Automation

The vehicle is capable of performing all driving functions under all conditions. The driver may have the option to control the vehicle.

Phase I

Phase II



# NEXTCAR Phase II Development Vehicles

## L2 → L3

Multi-Mode PHEV  
NEXTCAR I



## Baseline



## L4/L5

### Dev. Vehicles

Chrysler PHEV



RAM mHEV eTorque



*Tech Forward*

Bolt EV



## Baseline Vehicles

### Provided by FCA

PHEV



mHEV eTorque



### MTU Team:

- Darrell Robinette, MEEM
- Bo Chen, MEEM
- Jeremy Bos, ECE
- Grant Ovist, APS LABS
- Basha Dudekula, APS LABS
- Nate Yenor, Innovation & Comm

### Partners:

- Stellantis: HEV and PHEV Technologies
- GM: EV Technologies
- American Center for Mobility





# Other Connected and Automated Vehicle Projects







PI	Sponsor	Title	Total Project Value
Jeff Naber, ...	DOE ARPA-E	Connected and Automated Control for Vehicle Dynamics & Powertrain Operation for L4/L5 LD Vehicles, NEXTCAR Phase II	\$5,626,504
Bill Buller, Jeff Naber	DOE EERE	Validation of Connected and Automated Mobility System Modeling and Simulation (ACM Lead: MTU-MTRI/APS LABS Sub)	\$7,633,143
Jeremy Bos Darrell Robinette	SAE/GM	AutoDrive Challenge™ I & II	
Jeff Naber, ...	NSF	Planning Grant: Engineering Research Center for Emerging Disaster Engineering Encompassing Human Directed Expert Systems (ERC-DEES)	\$99,000
Darrell Robinette, ...	DOE EERE	Energy Optimization of Light and Heavy-Duty Vehicle Cohorts of Mixed Connectivity, Automation and Propulsion System Capabilities via Meshed V2V-V2I and Expanded Data Sharing	\$ 2,587,653
Jeff Naber	MTU	Tech Forward – Autonomous and Intelligent Systems	\$1,000,000



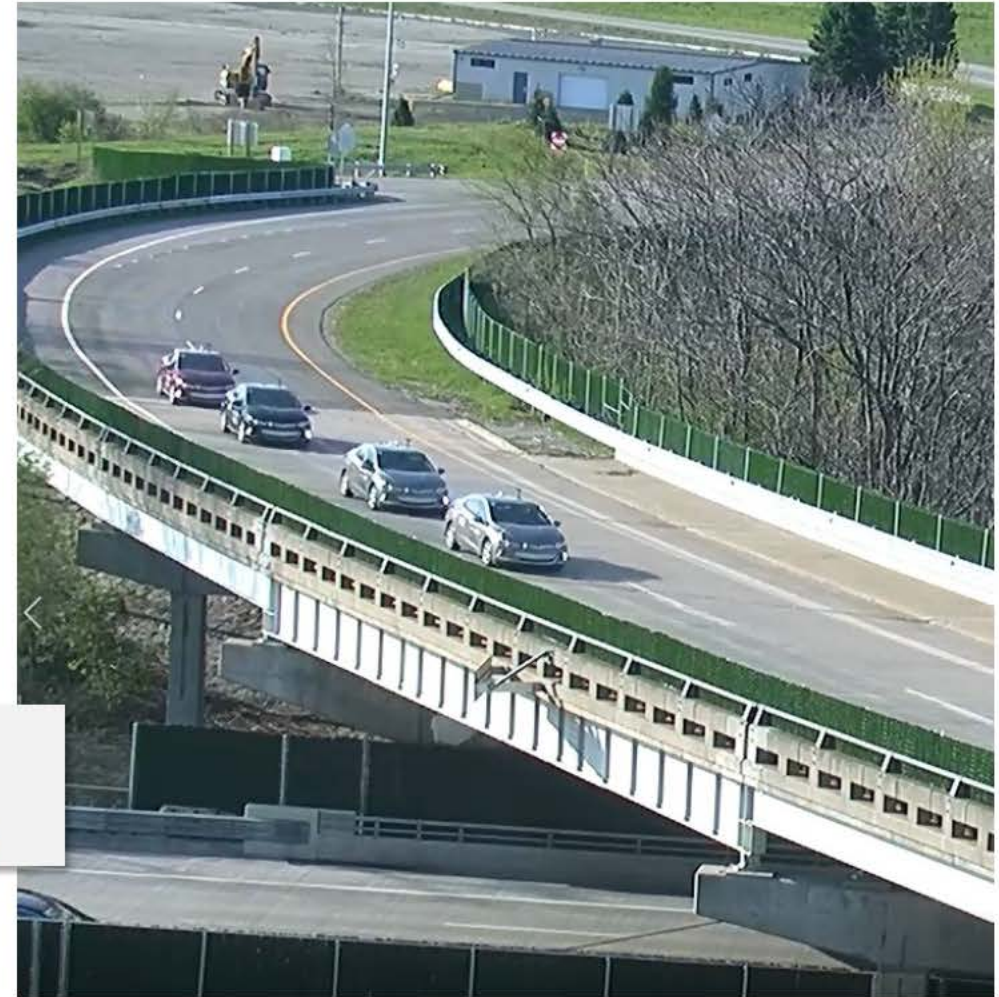
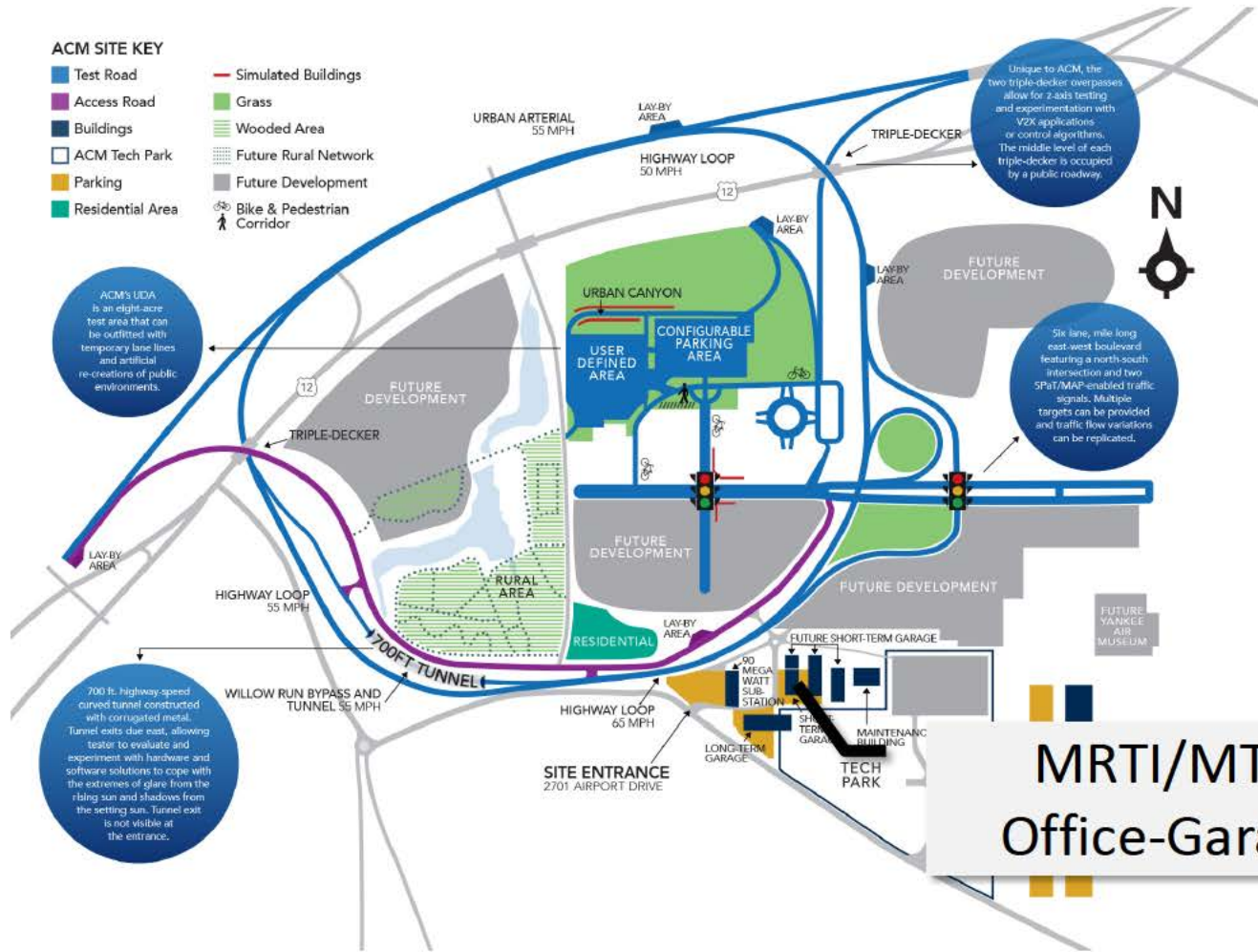
## ADAS / AV Vehicle Testing

 	<p><b>Vehicle Electronic Systems Safety</b>  <b>Volume I: Technical Proposal</b>                  Response to Request for Proposal                  # 693JJ920R000020</p> <p>Presented to:  <b>National Highway Traffic Safety Administration</b>                  Attention: Marlin Ricketts-Evans, Contract Specialist</p> <p>Submitted on:  <b>November 9, 2020; 1:00 PM Eastern</b></p>
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*Strong Partnership between  
 ACM – MTRI – APS LABS*

American Center for Mobility (ACM)	
Center for Automotive Research (CAR)	
GRIMM	
Humanetics	
Intertek	
Michigan Technological University (MTU)	
Siemens	
Underwriters Laboratories LLC (UL)	

# American Center for Mobility (ACM) Autonomous Vehicle Testing



MRTI/MTU  
Office-Garage

Ypsilanti/Ann Arbor, Michigan

## Team / Build Hardware & Talent



Education & Professional Development

Michigan Tech is the place to go to solve challenges in the unstructured world under extreme conditions.

## Expanding Partnerships



# Thank you





**X-B. A Question of Balance: Improving Evidence-based Practice to Decrease Falls and Improve Functional Mobility**

Dr. Carolyn Duncan, Kinesiology and Integrative Physiology

# **A Question of Balance:**

## **Improving Evidence-based Practice to Decrease Falls and Improve Functional Mobility**

Dr. Carolyn Duncan, PhD

Assistant Professor

Department of Kinesiology and Integrative Physiology



# Lecture Overview

Acknowledgements and introduction

Falls and balance control

Research mission and long term objectives

Approach to research

Current research projects and findings

Future directions



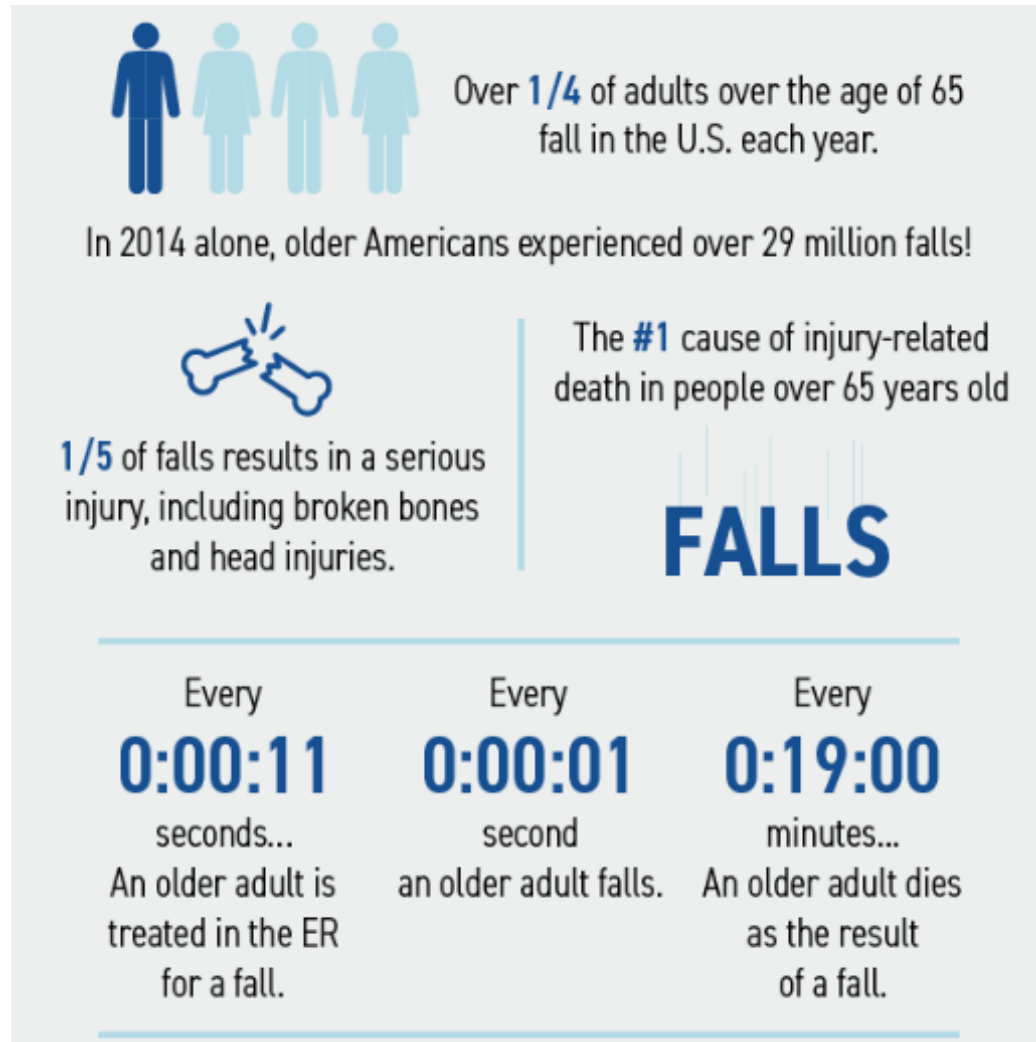
# <sup>100</sup> Before we get started...Thank you

- Jessica Pitts
- Abbie Botts
- Alyssa Smith
- Nehemiah McIntyre
- Ari Laiho
- Amanda Kautzner
- Lexi Gainer
- Derek Verbrigghe
- Carly Siko
- Stacy Harwood
- Paige Papineau
- Isaac Flint
- Lily Baker
- Kayley Elmblad
- Adison Cook

- Dr. Kevin Trewartha
- Dr. Kelly Kamm
- Dr. Vicki Komisar
- Dr. Alicia DenHerder
- Dr. Maury Nussbaum
- Dr. Tanvi Bhatt
- Dr. Alison Schinkel-Ivy
- Dr. Caroline Gwaltney
- Dr. William Cook
- Dr. Lydia Lytle



# Falls and the elderly

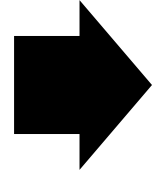


- Annually, 3 million older people are treated for falls.
- In Michigan, 30% of older adults have been injured in a fall.
- Falls are the most common cause of traumatic brain injuries.
- In 2015, the total medical costs for falls totaled more than \$50 billion.
- Falls are caused by the inability to maintain effective balance (ie. postural control)

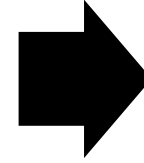


# My Mission

Improve balance control



↓ Falls & ↑ Functional Mobility

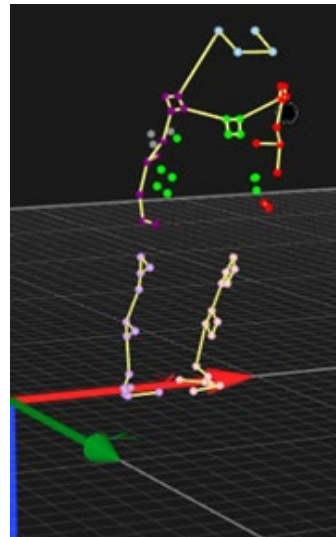


↑ Independence & Quality of Life



### Observe & Listen

Work with practitioners & key community stakeholders to identify problems.



### Advance

Advance fundamental & applied knowledge to develop evidence-based solutions.

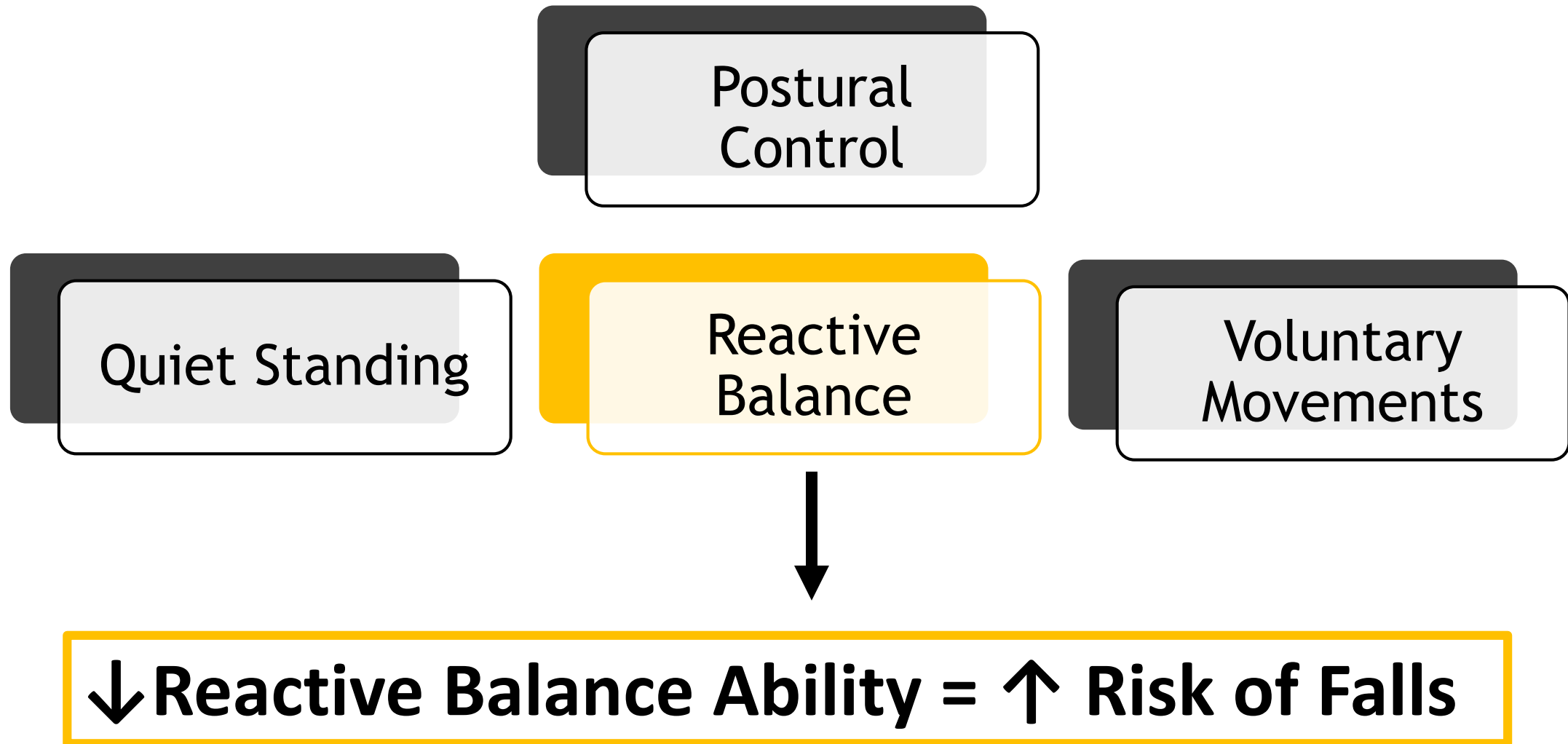


### Translate

Develop and translate evidence to assist practitioners in addressing real-world problems.



# Types of Postural Control



# My Approach

## Biomechanics    Neuroscience

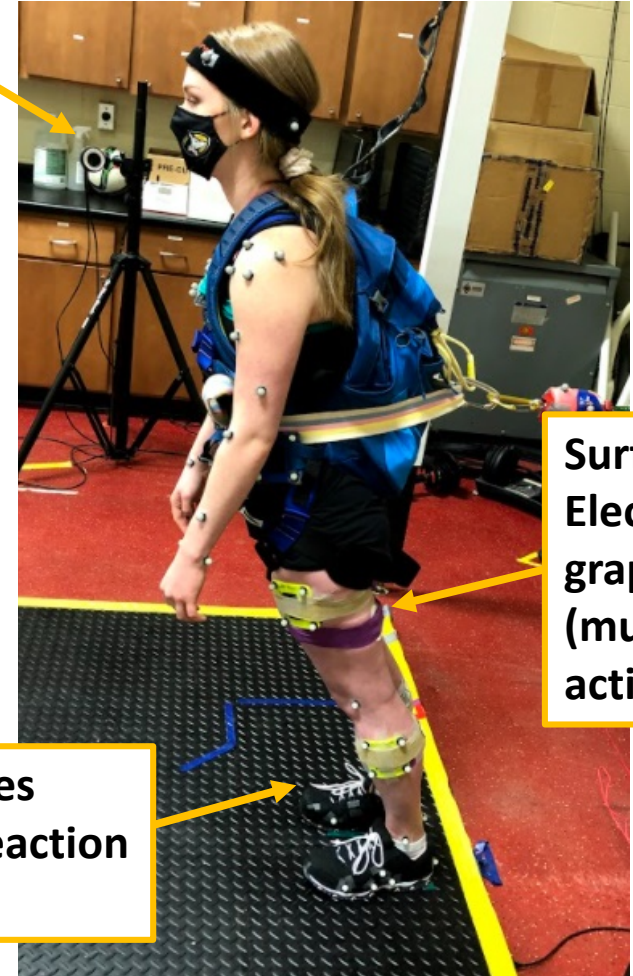
### *What is happening...*

- Body movement
- Joint loading
- Muscle activation
- Strength
- Range of motion

### *Why it is happening...*

- Control strategies
- Responses
- Sensory motor integration
- Cortical input

Motion capture  
(movement  
kinematics)



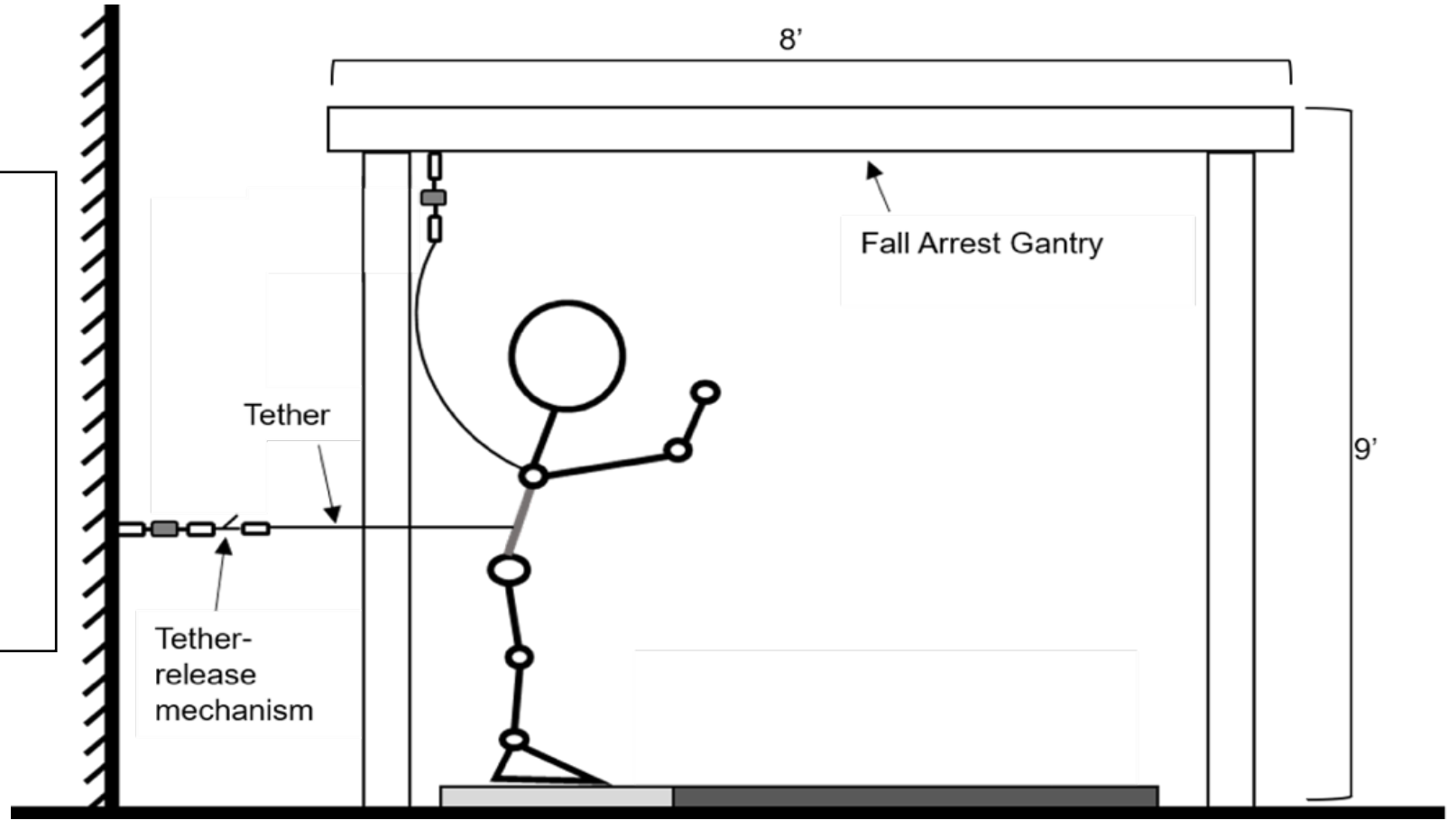
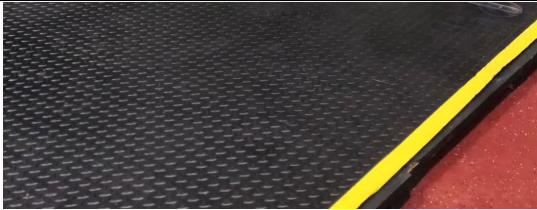
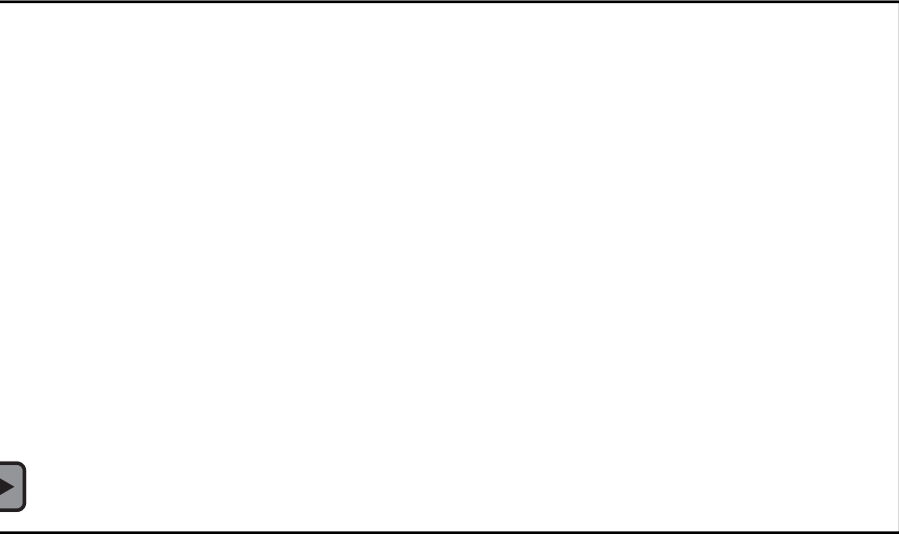
Surface  
Electromyography  
(muscle  
activations)

Force plates  
(ground reaction  
forces)

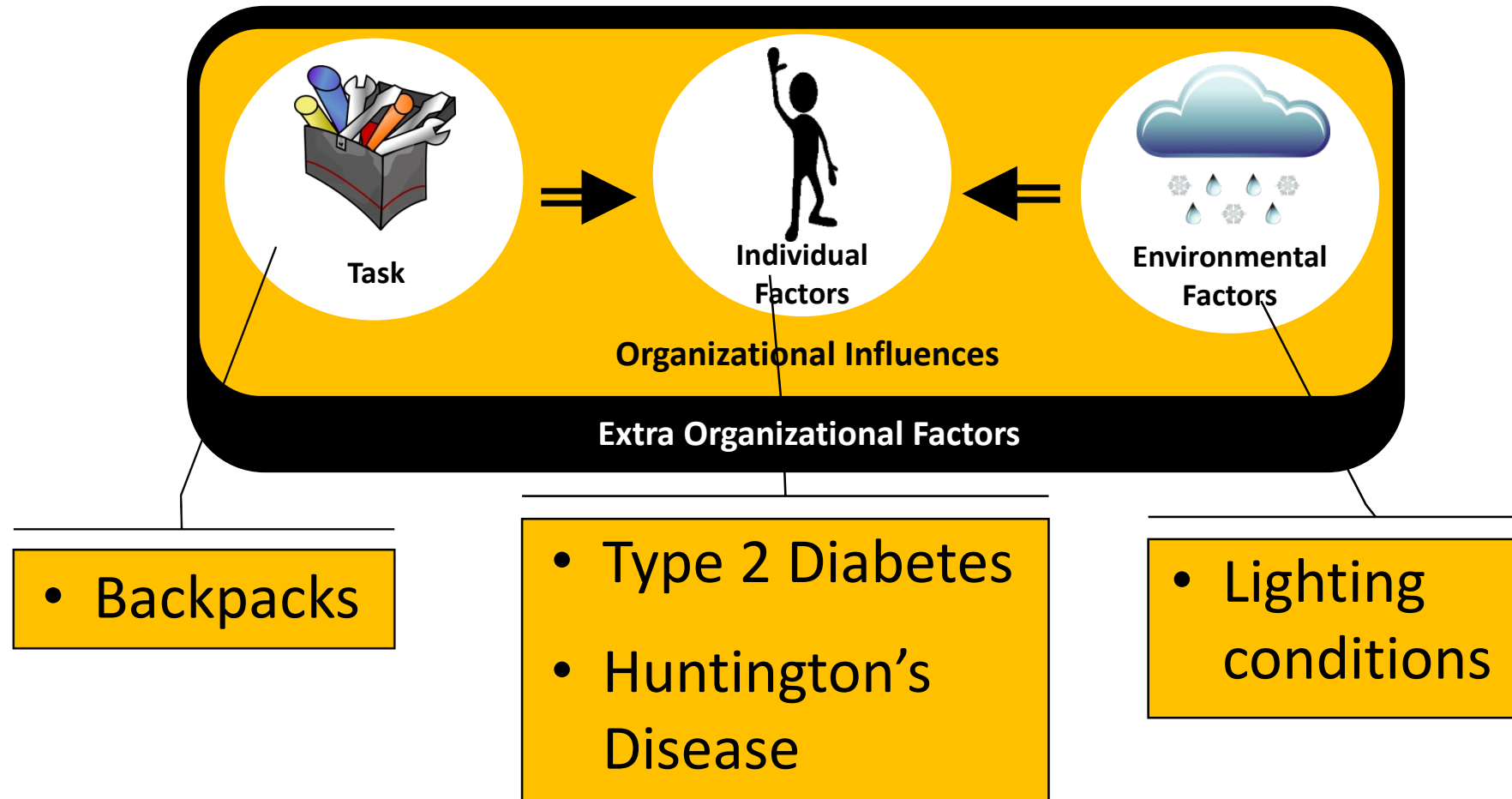




# Simulating Instability at Michigan Tech

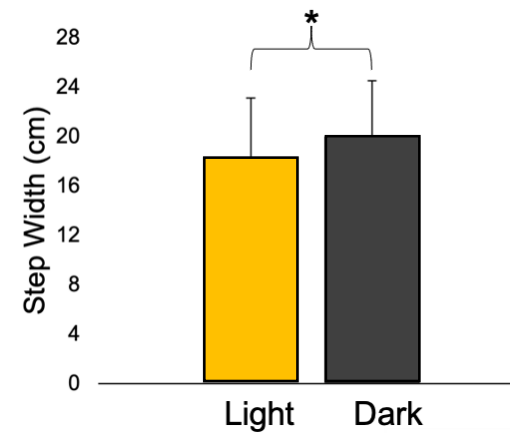
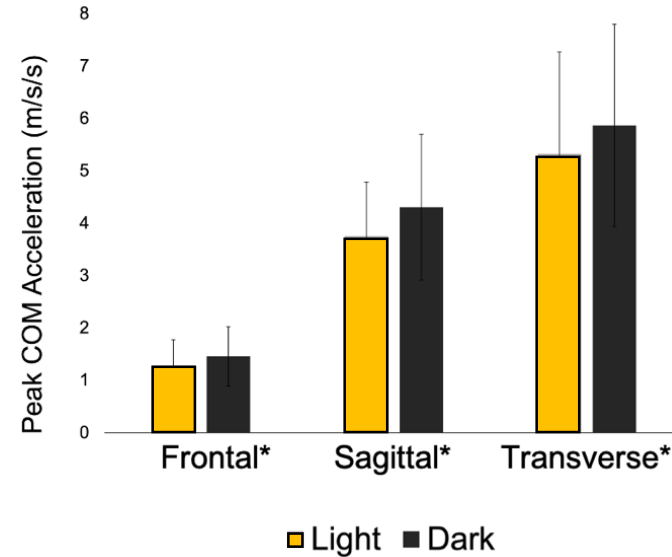


# Factors Influencing Reactive Balance and Fall Risk



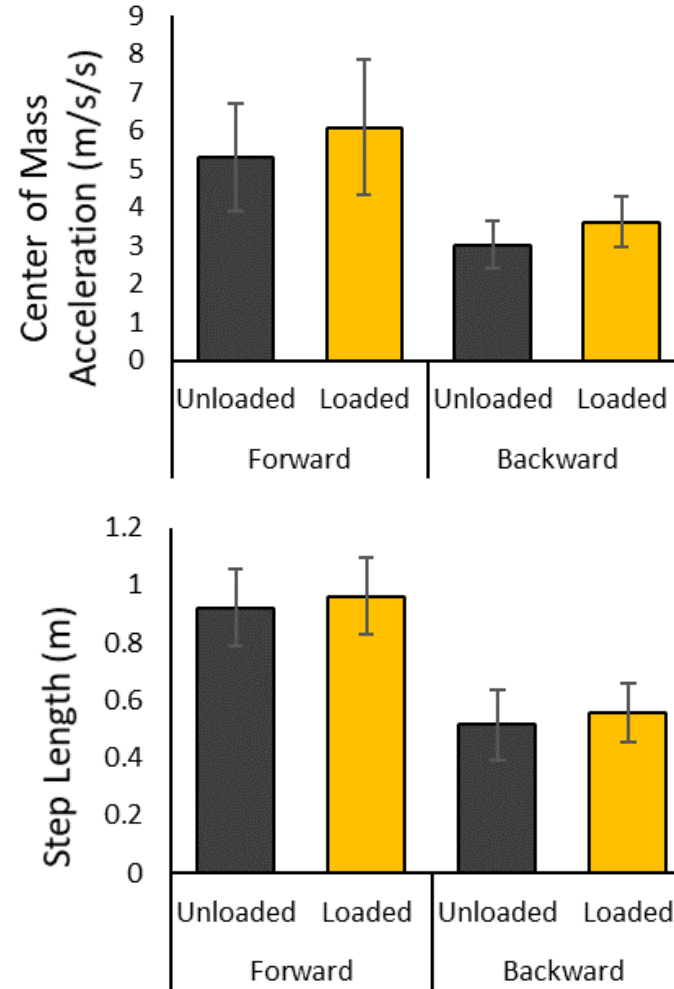
# Balance Recovery in Dark Environments

- In dark environments healthy young adults display:
  - ↑ center of mass acceleration
  - ↑ step width
- This does not affect their:
  - Timing of the initiation of the movement
  - Lower limb muscle activations
  - Maximum angle of recovery
  - **Overall ability to recover balance**



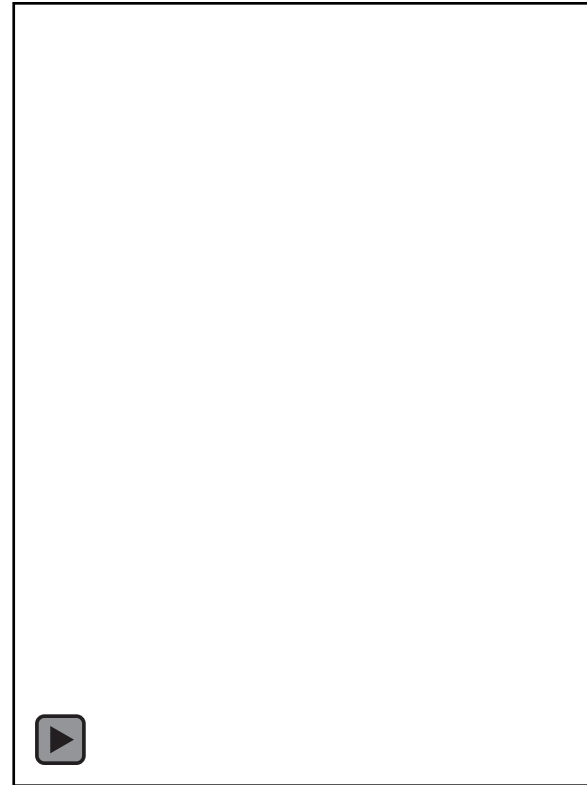
# Backpacks and Balance Recovery

- 12 participants (6 men, 6 women) age: 24.3 (2.6)
- Backpack with 15% of body weight
- While wearing a backpack
  - ↑ forward center of mass acceleration
  - ↑ step length
  - ↑ peak quadriceps and gastrocnemius muscle activation
  - **Overall ability to recover balance is not affected**

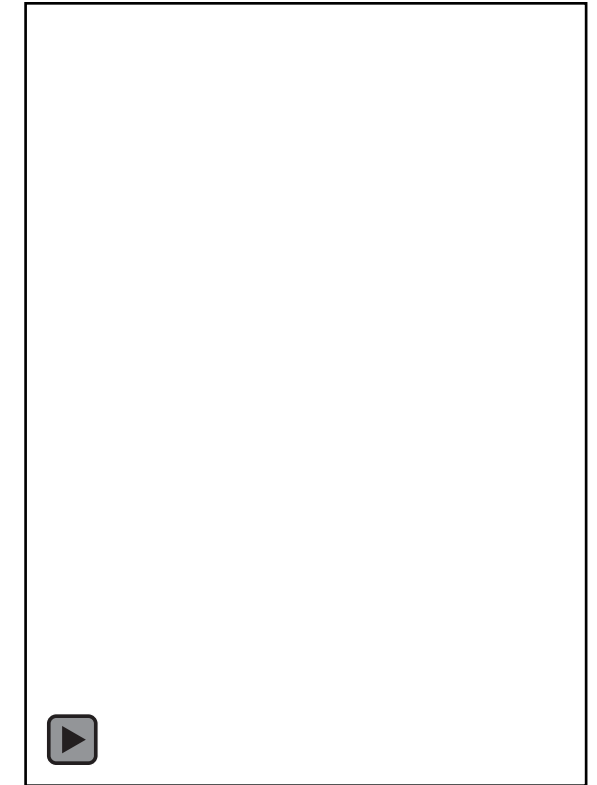


# <sup>9</sup>Huntington's Disease

- Case study: 1 female participant (67 y) & 1 sex-matched healthy adult (20 y)
- At the same lean angle individual with Huntington's disease displays:
  - Delayed initiation of recovery response
  - ↓ maximum release angle
  - ↑ muscle activations for equivalent responses
  - ↑ # steps required to recover balance



Healthy Adult



Huntington's Disease



# Take Home Message

- When perturbations characteristics are known:
  - Healthy adults can adapt postural control techniques to recover balance
- In some situations may affect ability to recover balance and ↑ risk of falls



**Unknown/ unpredictable environments**



**Middle Aged/ Older Adults**




**Clinical Populations (e.g. Type 2 Diabetes)**




# What's Next...

- **Type 2 Diabetes**
  - Physical activity levels & falls (PHF-REF-RS)
  - Fall prevention program effectiveness
- **Environmental Factors**
  - Older adults
  - Clinical populations (Type 2 Diabetes)
  - Lighting conditions and obstacles



Michigan Technological University  
**Kinesiology and Integrative Physiology**

Is in search of participants for a new remote research study:  
**Understanding the relationship between Type 2 Diabetes and physical activity in the Upper Peninsula.**



Michigan Technological University  
IRB Approval Approved On: 2/11/2021  
Expires On: NA  
IRB# ID: 170903-4  
MTU IRB: M2089

**Participants will be asked to continue their normal activities while wearing a Fitbit and complete surveys about their health and activities.**

**We are recruiting men and women with Type 2 Diabetes and healthy individuals without Type 2 Diabetes**

<p>YOU may be eligible for this study if you:</p> <ul style="list-style-type: none"><li>• are 65-80 years of age</li><li>• have access to a smartphone or tablet capable of running the fitbit App</li><li>• are NOT diagnosed with a neurological condition or disorder that affects movement and mobility</li><li>• do NOT have any foot ulcers or amputations</li><li>• do NOT currently have cancer or recently underwent cancer treatment that affects mobility and physical activity levels</li><li>• are NOT legally blind</li><li>• do NOT have Type I Diabetes</li></ul>	<p>Qualified participants will receive:</p> <ul style="list-style-type: none"><li>• a Fitbit to wear during each day that will monitor their activity remotely</li><li>• insight into their current physical activity levels, and health statistics</li><li>• compensation for their participation</li></ul> <p>The anticipated length of this study is 18 weeks, starting in 2021.</p> <p>For more information, please contact:</p> <p>Carolyn Duncan, PhD (540) 449-8132 <a href="mailto:caduncan@mtu.edu">caduncan@mtu.edu</a></p>
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**X-C. UNDERGRADUATE STUDENT GOVERNMENT**  
Zachary Olson, President-elect



# USG BOARD OF TRUSTEES PRESENTATION

Zachary Olson, USG President  
April 12, 2021



# *2021-2022 Executive Board*



**President:** Zachary Olson

**Vice President:** Sydney Dankert

**Major:** Chemical Engineering, Fourth-Year

**Major:** Chemical Engineering, Third-Year

**Treasurer:** Zbigniew Bell

**Secretary:** Natalie Wohlgemuth

**Major:** Mechanical Engineering and Materials Science Engineering (Dual Major), Fifth-Year

**Major:** Biomedical Engineering, Fourth-Year

# *Spring 2021 Efforts and Initiatives*



- Title IX Mock Trial conclusion
- Fall Break advocacy (continued from last semester)
- Project Cycle
- Constitution and Bylaw revisions
- Pass/Fail advocacy
- Resolution on rejection of gubernatorial BOT appointments
- Budget Hearings and Final Allocations

# *Fall 2021 USG Goals*



- Remain relevant by anticipating and responding to potential problems that arise from (expected) return to face-to-face learning in the fall.
- Be active participants in university decision-making and other processes that affect students.
- Empower and encourage student organizations to successfully return to normal or near-normal operations.
- Work with other student government associations in Michigan.

# *Thank You! Questions/Comments?*



Zachary Olson

Undergraduate Student Government,  
President

[zaolson@mtu.edu](mailto:zaolson@mtu.edu)

989 439-6884

**X-D. GRADUTATE STUDENT GOVERNMENT**

Nathan Ford, President



**Advocacy • Enrichment • Community**

# **Graduate Student Government**

**Nathan Ford**

April 30th 2020

Board of Trustees

Michigan Technological University



# Agenda

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- **Year in Review**
- **Travel Grant Report**
- **Looking Ahead**





# Year in Review - Seminars

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**608 students attended 13 seminars!**

- **Programming Series: Machine Learning**
- **Programming Series: Data Mining**
- **Programming Series: Deep Learning**
- **Teaching in an Online Environment**
- **Career Fair Prep**
- **Using Your IDP**
- **Work/Family/Health Balance**
- **3MT Prep**
- **Grant Writing**
- **Publishing your Research**
- **Public Speaking**
- **Visa issues and OPT/CPT**
- **Maximizing Conferences**

# Year in Review - Research

**250 people watched 81 research presentations across 3 events!**

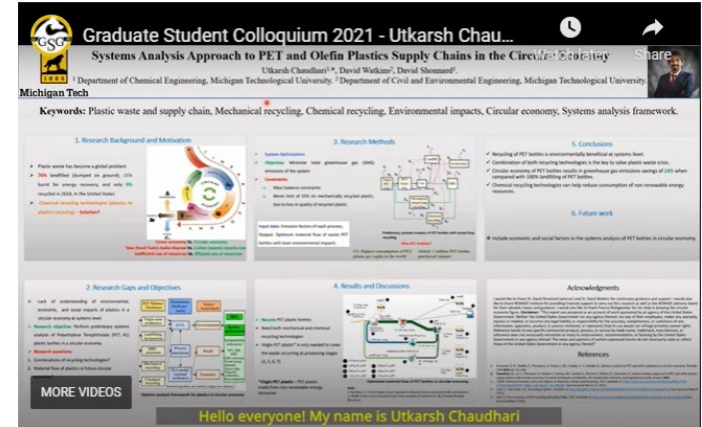
## 3MT

- 28 participants
- 8 finalists
- Hybrid finals
- 180 audience members



## GRC

- 31 Oral Presentations
- 17 Poster Presentations
- 60 attendees
- Virtual Awards Banquet
- 126 Banquet Guests



**Graduate Student Colloquium 2021 - Utkarsh Chau...**

**Systems Analysis Approach to PET and Olefin Plastics Supply Chains in the Circular Economy**

Utkarsh Chaudhari\*, David Watkins\*, David Shomard\*  
 \* Department of Chemical Engineering, Michigan Technological University \* Department of Civil and Environmental Engineering, Michigan Technological University

**Keywords:** Plastic waste and supply chain, Mechanical recycling, Chemical recycling, Environmental impacts, Circular economy, Systems analysis framework.

**1. Research Background and Motivation**

- Plastic waste has become a global problem.
- 20% landfill (disposal) in plastic, 10% burn, 60% energy recovery, and 10% are recycled in 2018 in the United States.
- Recycling of plastics is a promising solution for addressing plastic pollution.

**2. Research Gaps and Objectives**

- Lack of understanding of environmental, economic, and social impact of plastics in a circular economy at system level.
- Research objective: System performance system analysis of Mechanical, Regenerative PET, and energy recovery in circular economy.
- Research questions:
  - 1. Sustainability of recycling technology?
  - 2. Environmental impact of plastic in circular economy?

**3. Research Methods**

- System optimization
- Modeling: Recycle loop performance (e.g. 2018)
- Simulation: Process simulation
- Model validation: Comparison with experimental data
- Model test of 2018 on mechanical recycling plants.
- Model test of 2018 on mechanical recycling plants.
- Model test of 2018 on mechanical recycling plants.

**4. Results and Discussions**

- Model test of 2018 on mechanical recycling plants.
- Model test of 2018 on mechanical recycling plants.
- Model test of 2018 on mechanical recycling plants.

**5. Conclusions**

- Recycling of PET bottles is environmentally beneficial at system level.
- Contribution of both recycling technologies is the key to reduce plastic waste crisis.
- Circular economy of PET bottles results in significant greenhouse gas emission savings of 20% when compared with 2018 landfilling of PET bottles.
- Chemical recycling technologies can help reduce consumption of non-renewable energy resources.

**6. Future work**

- Include economic and social factors in the systems analysis of PET bottles in circular economy.

**Acknowledgments**

References

**MORE VIDEOS**

Hello everyone! My name is Utkarsh Chaudhari

# Year in Review - Merit Awards

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**Exceptional  
Staff Member**  
Joseph Licavoli



**Exceptional  
Graduate Mentor**  
Dr. Robert  
Nemiroff



**Exceptional  
Student Leader**  
Marie Richards



**Exceptional  
Student Scholar**  
Gabriel Edzordzi  
Agbozo

# Year in Review - Social

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**200+ students attended 4 social events!**





# Year in Review - Advocacy

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## Advocacy and Initiatives

- **FLEX Groups**
  - Academic and Communication
- **HuskyFAN**
- **Grad Student Health Insurance**
- **Career Enrichment Grants**
- **CARES Giveback Campaign**
  - Raised ~\$16 for HEF
- **Department Chair Hiring Committees**
- **COVID Kits**
- **Cost of Living Report**
- **Parental Leave Policy**
- **Daniell Heights Contracts**
- **Experience Tech Fee**
- **DEI Action Plan**

## 5 Ad Hoc Committees

- **Sustainability**
- **International Student Concerns**
- **Transportation**
- **Childcare Resources**
- **Diversity and Inclusion - Joint w/ USG**

## 2 Bylaw Amendments

- **Term Limits**
- **Nomination Process**

## 25+ Liaisons

- **Vice President for Student Affairs**
- **Sustainability Director**



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# Travel and Enrichment Grants

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## Travel Grant Stats (as of 4/12/21)

- **Total Applications : 35 (PhD - 23, MS - 12)**
  - **Presenting - 18 (PhD - 15, MS - 3)**
  - **Attending - 17 (PhD - 8, MS - 9)**

## Career Enrichment Grant Stats

- **Total Applications : 25 (PhD - 9, MS - 16)**

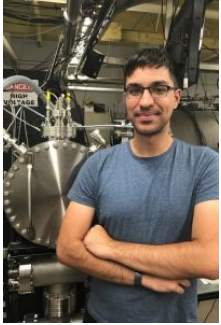
**Over \$8k distributed to students via grants this year**



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# 2021-22 Team

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**President**  
Nathan Ford  
(PhD, ME-EM)



**Vice- President**  
Ranit Karmakar  
(PhD, ECE)



**Secretary**  
Divya Pandya  
(PhD, ME-EM)



**Treasurer**  
Michael Conard  
(PhD, CS)



**Research Chair**  
Shreya Joshi  
(PhD, Physics)



**Prof. Dev.  
Chair**  
Umair Riyas



**Social Chair**  
Eric Pearson  
(PhD, Chem Eng)



**Pub. Relations Chair**  
Laura Vidal Chiesa  
(PhD, Humanities)



# Looking Ahead

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- **Campus Master Plan**
- **HSTEM Planning**
- **Accreditation Process**
- **Continuing DEI efforts**
- **Departmental Charter Initiatives**
- **Daniell Heights Contract Rework**





# Advocacy • Enrichment • Community

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# Thank You

**X-D. SENATE**

Sam Sweitz, President

# University Senate Update

Sam Sweitz, Senate President

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2/26/2021



**Michigan Tech**

# Senate Term 2020-2021

**An unprecedented year in the Senate** – An incredibly productive year despite an unprecedented confluence of singular events.

**Shared Governance** - A record 85 Proposals and Resolutions, while expanding the voice of the Senate in decision-making and shared governance.

**Dialogue** – Using our voice to support those from across our campus community by furthering dialogue around pressing issues.



# COVID-19 Related Proposals

Emergency Proposal 33-21: Proposal to Change the Date for Withdrawal with a 'W' for Fall Semester 2020

Proposal 36-21: Emergency Proposal: Student Evaluations during the COVID-19 Pandemic

Proposal 37-21: Pass/ Low Pass/ Fail Option for Fall 2020

Proposal 53-21: Proposal: Covid Policies for Spring 2021

Proposal 54-21: Course Re-Take Policy

Proposal 79-21: Update Faculty Handbook Section 5.1.2. Exceptional Extension of the Probationary Period

# Academic Proposals<sup>134</sup>

Proposal 43-21: Proposal to Update Senate Procedure 504.1.1: Teaching Effectiveness Evaluations [misconduct]

Proposal 55-21: Proposed Addition of Section 2.6 the Role of Diversity, Equity, and Inclusion to the Faculty Handbook

Proposal 60-21: Procedure for Pilot Testing Modifications to the General Education Program

Proposal 74-21: Sabbatical Leave for Non-Tenure-Track Faculty

Proposal 84-21: Proposal to Update Senate Procedure 506.1.1

Proposal 85-21: Proposal to Create a University Teaching-Facilitators Group for Support of Teaching Effectiveness to Resolve Student Concerns

**XI. INFORMATIONAL ITEMS**

- A. Analysis of Investments
- B. Research & Sponsored Programs
- C. Advancement and Alumni Relations
- D. Media Coverage
- E. Employee Safety Statistics
- F. Disposal of Surplus Property Report
- G. Summary of Scholarships, Awards, and Grants - Board Policy 9.3

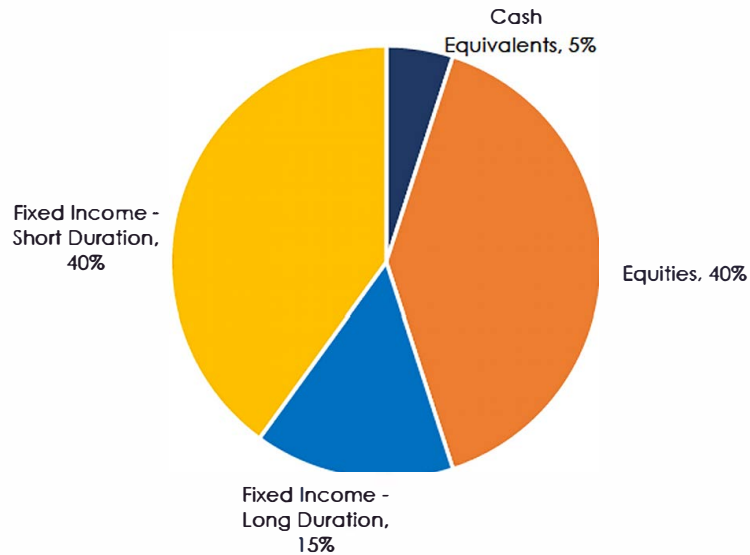
**XI<sub>136</sub> Informational Items**

**A. Analysis of Investments**

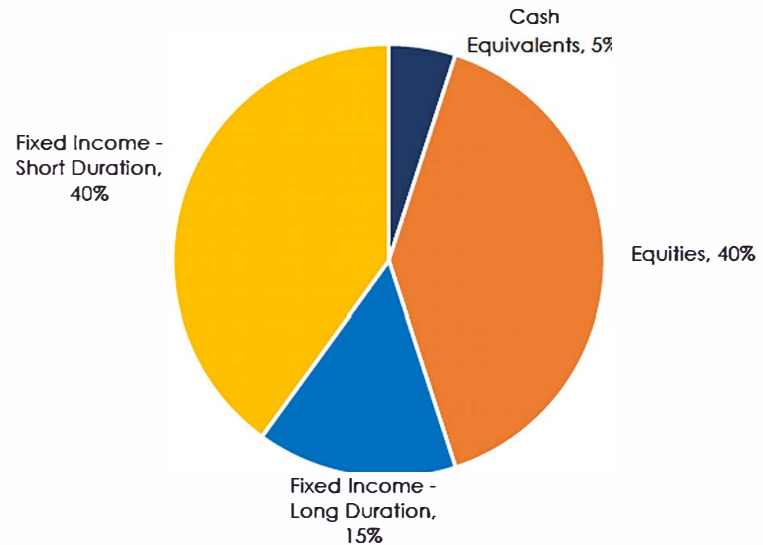
**MICHIGAN TECH UNIVERSITY  
INVESTMENT PORTFOLIO  
JUNE 30, 2020 THROUGH FEBRUARY 28, 2021**

	Market Value 6/30/2020	Market Value 2/28/2021	Fiscal-Year Investment Return	Benchmark Return	Benchmark
Money Market Fund	\$ 1,987,852	\$ 2,148,169	0.02%	0.07%	ICE BofA Merrill Lynch US T-Bill Index
Equity Funds:					
Core Equity Fund	9,923,270	10,887,182	23.67%	24.26%	S&P 500
Commonfund Strategic Solutions Equity Fund	5,967,304	6,349,400	13.48%	24.26%	S&P 500
Total Equity Funds	15,890,574	17,236,582			
Fixed Income Funds:					
Intermediate Term Fund	8,254,386	8,584,077	0.73%	0.08%	ICE BofA Merrill Lynch 1-3 Yr Treasury
Commonfund Contingent Asset Portfolio	7,650,773	8,593,926	0.72%	0.08%	ICE BofA Merrill Lynch 1-3 Yr Treasury
High Quality Bond Fund	5,974,880	6,334,961	0.65%	-0.89%	Bloomberg Barclays US Aggregate Bond Index
Total Fixed Income Funds	21,880,039	23,512,964			
<b>Total</b>	<b>\$ 39,758,465</b>	<b>\$ 42,897,715</b>	<b>8.19%</b>		

Current Asset Allocation



Target Asset Allocation





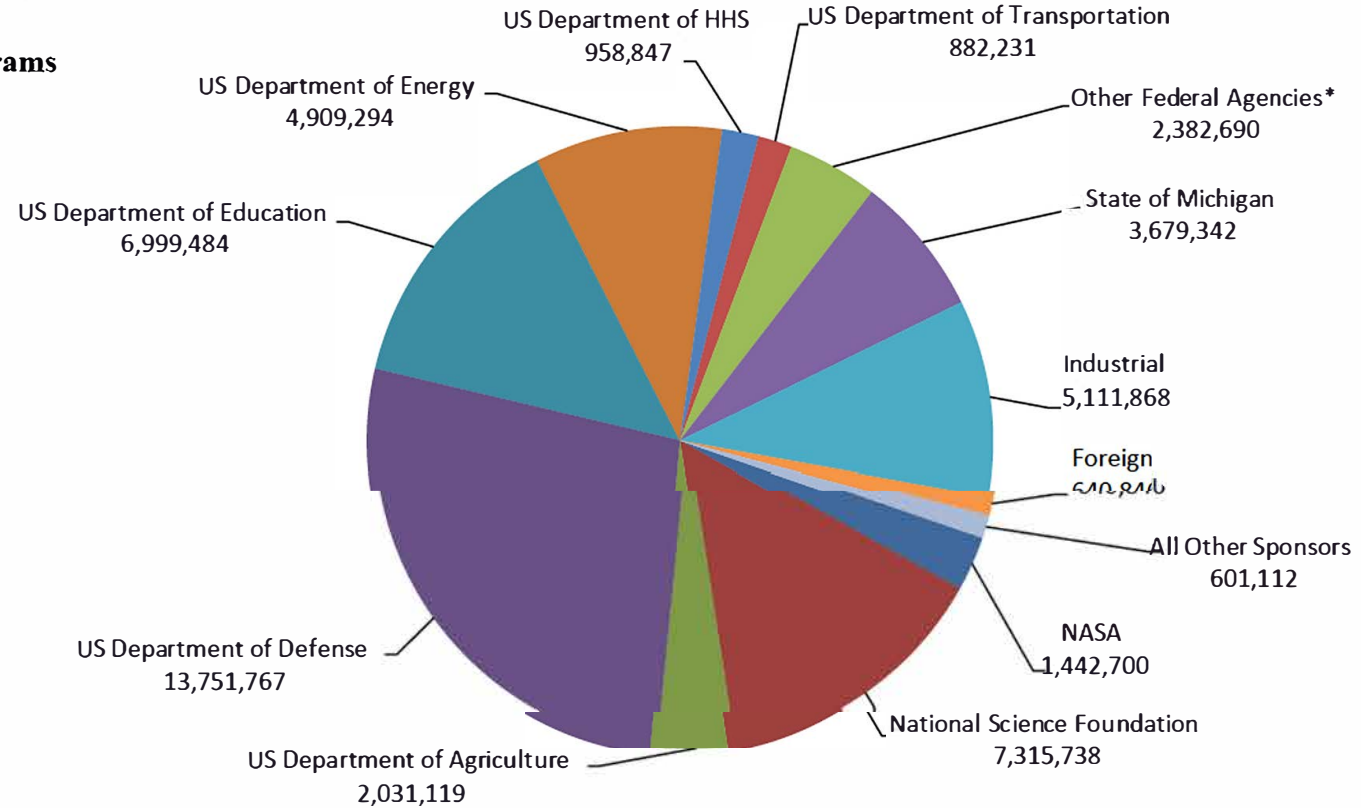
**XI-B. Research Sponsored Programs**

**Sponsored Awards  
Fiscal Year 2021  
3rd Quarter  
Ended March 31, 2021  
TOTAL: \$53,023,505**

**Pre-Proposals Submitted**

*(excluded from Proposals Submitted figures below)*

**FYTD 2020: 38  
FYTD 2021: 28**



Sponsor	Proposals Submitted		Awards Received		Awards Received (\$)		Variance \$	Variance %
	FY '21 as of 03/31	FY '20 as of 03/31	FY '21 as of 03/31	FY '20 as of 03/31	FY '21 as of 03/31	FY '20 as of 03/31		
NASA	59	47	22	45	1,442,700	3,384,769	-1,942,069	-57.4%
National Science Foundation	97	105	37	43	7,315,738	8,012,777	-697,039	-8.7%
US Department of Agriculture	36	41	43	32	2,031,119	1,772,411	258,708	14.6%
US Department of Defense	82	83	75	72	13,751,767	8,679,299	5,072,468	58.4%
US Department of Education	3	3	3	3	6,999,484	58,614	6,940,870	11841.7%
US Department of Energy	42	32	35	25	4,909,294	5,771,817	-862,523	-14.9%
US Department of HHS	41	35	5	17	958,847	5,099,329	-4,140,482	-81.2%
US Department of Transportation	10	10	5	12	882,231	2,408,039	-1,525,808	-63.4%
Other Federal Agencies*	45	35	28	34	2,382,690	2,708,525	-325,835	-12.0%
<b>Federal Agency Total</b>	<b>415</b>	<b>391</b>	<b>253</b>	<b>283</b>	<b>40,673,870</b>	<b>37,895,580</b>	<b>2,778,290</b>	<b>7.3%</b>
State of Michigan	49	38	33	23	3,679,342	3,380,384	298,958	8.8%
Industrial	140	159	126	122	5,111,868	4,890,682	221,186	4.5%
Foreign	18	15	13	8	640,846	517,057	123,789	23.9%
All Other Sponsors	68	74	24	41	601,112	941,809	-340,697	-36.2%
<b>Subtotal</b>	<b>690</b>	<b>677</b>	<b>449</b>	<b>477</b>	<b>50,707,038</b>	<b>47,625,512</b>	<b>3,081,526</b>	<b>6.5%</b>
Gifts**	N/A	N/A	183	193	2,307,206	2,893,388	-586,182	-20.3%
Crowd Funding	N/A	N/A	8	12	9,261	11,063	-1,802	-16.3%
<b>Grand Total</b>	<b>690</b>	<b>677</b>	<b>640</b>	<b>682</b>	<b>53,023,505</b>	<b>50,529,963</b>	<b>\$2,493,542</b>	<b>4.9%</b>

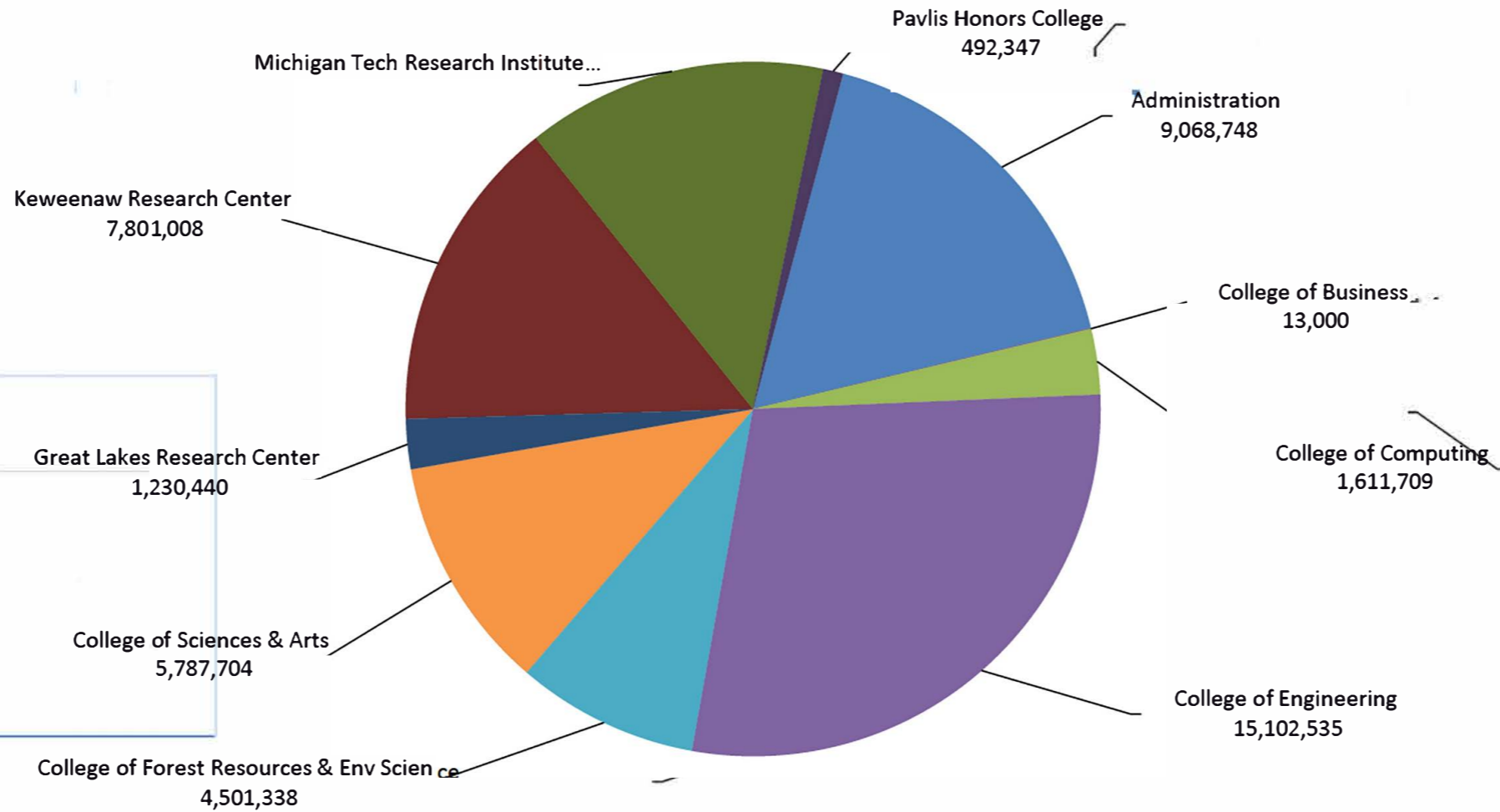
\* Federal award dollars include \$6,991,814 received from US Department of Education CRRSAA HEERF II (Covid Relief) funding

\* US Dept of Commerce, US Environmental Protection Agency, US Dept of the Interior, National Endowments for the Arts & Humanities, US Dept of Labor, US Dept of State, US Dept of Homeland Security, US Dept of Justice, Office of the Director of National Intelligence, US Small Business Administration, US Dept of Treasury

\*\*Gifts represent non-contractual funding from corporations, foundations, associations and societies in support of academic programs, scholarships/fellowships, student design & enterprise, research, youth programs and special programs.

**Vice President for Research  
Fiscal Year 2021  
3rd Quarter  
Ended March 31, 2021**

**TOTAL: \$53,023,505**



**Percentages of Tenured & Tenure Track Faculty (as either PI or Co-PI)**

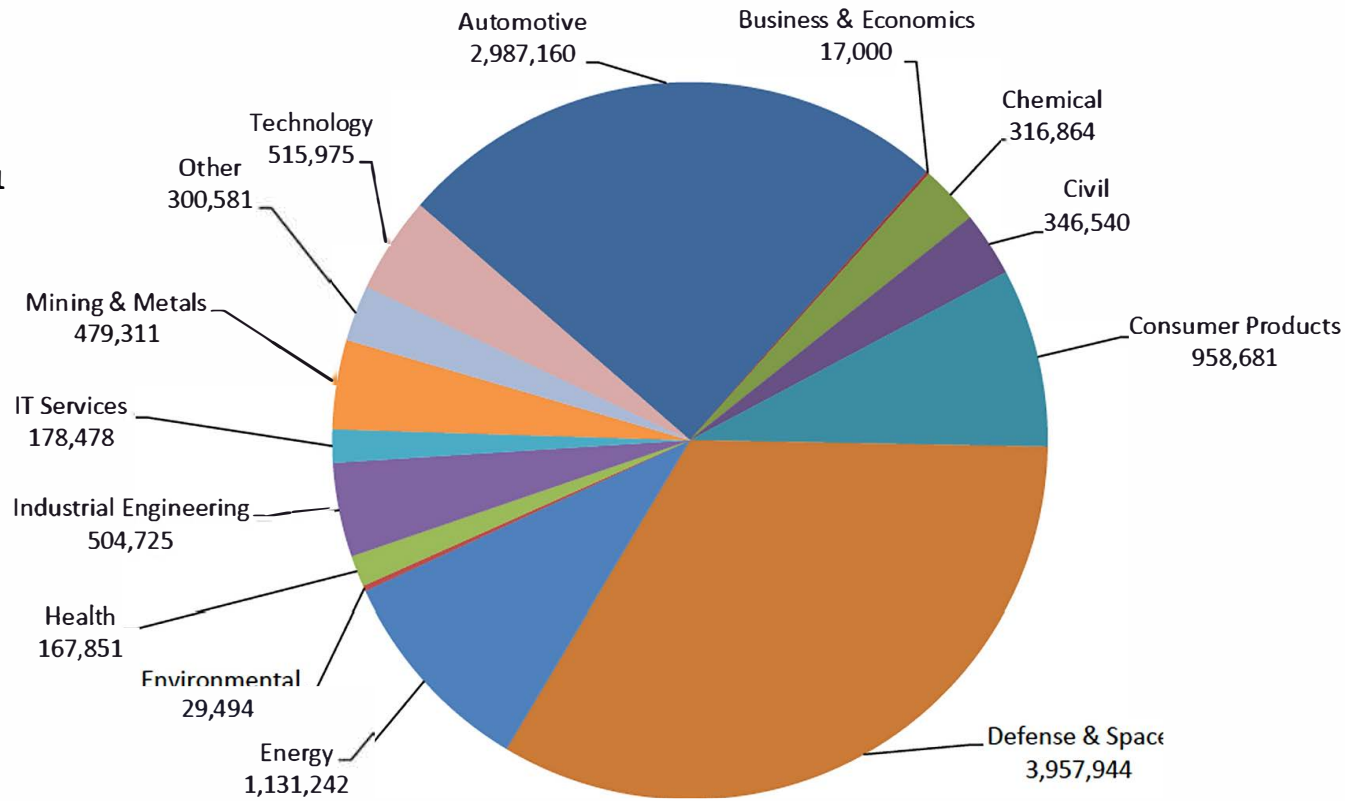
Submitting Proposals since 07/01/2020: **59.6%**

On Active Projects as of 3/31/2021: **61.1%**

SPO & OIC Metrics <sup>1</sup>	Administration	College of Business	College of Computing	College of Engineering	College of Forest Resources & Env Science	College of Sciences & Arts	Great Lakes Research Center	Keweenaw Research Center	Michigan Tech Research Institute	Pavlis Honors College	Totals	Fiscal Comparison	Percent Change
Proposals Submitted	21		34	- 327	85	82	31	36	70	4	690	677	1.9%
Awards Received	81	4	16	254	89	52	18	37	55	34	640	682	-6.2%
Federal *	6,993,905		973,783	6,469,664	2,950,193	4,753,379	749,801	5,454,682	3,228,332	311,247	31,884,986	26,716,926	19.3%
Federal Pass-Through	123,082		559,462	3,163,943	184,218	733,802	303,709	144,898	3,558,270	17,500	8,788,884	11,178,654	-21.4%
Foreign			-	32,041	45,000	48,119			515,686	-	640,846	517,057	23.9%
Gifts	1,103,922	13,000	10,000	678,675	276,123	54,886		7,000	-	163,600	2,307,206	2,893,388	-20.3%
Crowd Funding			1,509	- 231	231	3,590	3,700			-	9,261	- 11,063	-16.3%
Industry			26,955	1,906,481	969,117			2,194,428	14,887		5,111,868	4,890,682	4.5%
Other	22,898		40,000	254,772	76,456	114,116	20,349		72,521	-	601,112	941,809	-36.2%
State of MI	824,941			2,596,728	-	79,812	152,881		24,980	-	3,679,342	3,380,384	8.8%
<b>Total \$ by Division</b>	<b>9,068,748</b>	<b>13,000</b>	<b>1,611,709</b>	<b>15,102,535</b>	<b>4,501,338</b>	<b>5,787,704</b>	<b>1,230,440</b>	<b>7,801,008</b>	<b>7,414,676</b>	<b>492,347</b>	<b>53,023,505</b>	<b>50,529,963</b>	<b>4.9%</b>
Fiscal Comparison	3,868,190	56,053	2,098,667	18,162,240	3,321,769	8,124,656	681,700	6,528,661	7,433,978	254,049	50,529,963		
Percent Change	134.4%	-76.8%	-23.2%	-16.8%	35.5%	-28.8%	80.5%	19.5%	-0.3%	93.8%	4.9%		
Disclosures Received <sup>2</sup>	5.88%		5.88%	64.71%		17.65%	-		5.88%	-	17	- 23	-26.1%
Nondisclosure Agreements	9		3	- 35		1	-	5	- 11		64	- 72	-11.1%
Patents Filed or Issued <sup>2</sup>			-	79.33%	-	19.05%	-	1.62%	-	-	21	- 18	16.7%
License Agreements	5		- 2	-	-	2	-	-	-	-	9	- 13	-30.8%
Gross Royalties <sup>2</sup>	4.00%		-	-	-	20.00%	-	16.00%	60.00%		113,925	210,411	-45.9%

\* Federal award dollars include \$6,991,814 received from US Department of Education CRRSAA HEERF II (Covid Relief) funding  
<sup>1</sup> Combined Metrics from both the Sponsored Programs Office (SPO) and Office of Innovation & Commercialization (OIC)  
<sup>2</sup> Percentages reflect the proportional contribution from each Division (calculated by dividing the sum of the fractional contributions of all inventors for each unit by the total number of inventors).

**Sponsored Awards  
-Industry-  
COMBINED  
Fiscal Year 2021  
3rd Quarter  
Ended March 31, 2021  
  
TOTAL: 11,891,846**



Industry Segment	Proposals Submitted		Awards Received		Awards Received (\$)		Variance \$	Variance %
	FY '21 as of 03/31	FY '20 as of 03/31	FY '21 as of 03/31	FY '20 as of 03/31	FY '21 as of 03/31	FY '20 as of 03/31		
Automotive	42	64	67	90	2,987,160	3,810,057	-822,897	-21.6%
Business & Economics	1	1	10	8	17,000	35,083	-18,083	-51.5%
Chemical	6	25	12	12	316,864	310,729	6,135	2.0%
Civil	5	6	27	14	346,540	232,579	113,961	49.0%
Consumer Products	34	13	37	30	958,681	782,217	176,464	22.6%
Defense & Space	38	21	42	39	3,957,944	2,273,032	1,684,912	74.1%
Energy	18	9	33	24	1,131,242	249,082	882,160	354.2%
Environmental	3	-	8	12	29,494	27,358	2,136	7.8%
Health	10	14	14	17	167,851	321,867	-154,016	-47.9%
Industrial Engineering	14	12	17	15	504,725	231,367	273,358	118.1%
IT Services	4	11	11	11	178,478	294,880	-116,402	-39.5%
Mining & Metals	12	12	25	29	479,311	237,650	241,661	101.7%
Other	6	10	22	18	300,581	278,597	21,984	7.9%
Technology	14	10	16	17	515,975	589,979	-74,004	-12.5%
<b>Total</b>	<b>207</b>	<b>208</b>	<b>341</b>	<b>336</b>	<b>11,891,846</b>	<b>9,674,477</b>	<b>2,217,369</b>	<b>22.9%</b>

\*Gifts represent non-contractual funding from corporations, foundations, associations and societies in support of academic programs, scholarships/fellowships, student design & enterprise, research, youth programs and special programs.

\*\*Gift numbers include Industry gifts ONLY, not others including Association or Society gifts.

**Michigan Technological University**  
**Total Research Expenditures by College/School/Division**  
**Fiscal Year 2021 & 2020**  
**As of March 31, 2021 and March 31, 2020**

<b>College/School/Division</b>	<b>FY2021</b>	<b>FY2020</b>	<b>Variance</b>	<b>%</b>
Administration*	3,230,352	3,000,787	229,565	7.7%
College of Business	1,239,109	1,311,298	(72,189)	-5.5%
College of Computing	3,171,313	2,143,871	1,027,442	47.9%
College of Engineering	22,609,380	21,788,009	821,371	3.8%
College of Forest Resources & Environmental Science	4,116,774	3,885,640	231,134	5.9%
College of Science & Arts	10,731,888	11,166,123	(434,235)	-3.9%
Great Lakes Research Center**	904,127	638,854	265,273	41.5%
Pavlis Honors College	443,558	322,717	120,841	37.4%
Keweenaw Research Center (KRC)	7,304,967	6,718,623	586,344	8.7%
Michigan Tech Research Institute (MTRI)	7,865,775	7,160,260	705,515	9.9%
<b>Total</b>	<b>61,617,243</b>	<b>58,136,182</b>	<b>3,481,061</b>	<b>6.0%</b>

\*Includes the Vice Presidents, Provost, and others who report to a VP, Provost or the President. Except for the research institutes that report to the VPR.

\*\*Includes GLRC department (non-academic researchers) expenditures only. All other GLRC center expenditures are shown in the researchers' respective colleges.

**XI- C. Advancement & Alumni Relations**

**Advancement and Alumni Engagement  
Michigan Tech University Board of Trustees  
April 30, 2021**

2020-2021 Goals and Initiatives to be achieved in collaboration with administrative and academic leadership and the Michigan Tech Fund Board of Directors.

- Set a goal to grow the endowment to \$150 million over three years
- Engage alumni, principal and major gift donors and corporate/foundation partners in a virtual environment
- Identify and cultivate principal gift donors for the Institute for Policy Ethics and Culture
- Strengthen our partnership with the Deans and academic units as Advancement further refines our fundraising initiatives

**Highlights**

Over 100% of fundraising goals and over \$50 million in future gifts under discussion in all categories.

Campaign preparation underway with RFP for feasibility study in process.

Limited restart of in-person alumni and donor visits including air travel.

Endowment continues to grow through new gifts and investment returns.

Adjusting priorities, business models and staff responsibilities to meet division needs.

Customer Relationship Management (CRM) System – we are currently participating in an 8 session, 16-week program with Ellucian to determine readiness for a CRM conversion.

Reunion 2021 planning is underway and will focus on a one-day celebration (Friday, August 6).

**Fundraising****Fundraising total as of March 31, 2021**

\$11,295,131 in planned gifts

\$4,496,221 in realized planned gifts

\$5,735,269 in major gifts

\$2,194,159 in annual gifts

\$4,950,797 in corporate and foundation gifts

76 illustrations, proposals, and gift agreements were provided for donors

49 executed gift agreements

4/30/2021

**Recent Action:**

- VP Roberts and AVP Halonen have met with former MTU BoT/MTF BoD members in conjunction with the Dean of the College of Business and the Chair of Chemical Engineering to discuss endowments and scholarships totaling over \$7 million.
- Working to finalize an \$8+ million estate gift in conjunction with the Dean of College of Sciences and Arts. This will be for scholarships for the College of Sciences and Arts, with an emphasis on Physics, Chemistry, and Mathematics. Halonen and President Koubek met with the donor in January 2020. Due to COVID-19, the finalization of this gift has been delayed. We plan to close during the 4th quarter of FY 2021 or by the 2nd quarter of FY 2022.
- In conjunction with the chair of Civil and Environmental Engineering, we are working with a donor on a \$2 million estate gift for an endowed chair or professorship and a \$1 million endowed scholarship.
- Working with an alumni and spouse in conjunction with the chair of Chemical Engineering, on a \$1+ million planned gift for the Chemical Engineering department. Halonen to meet with them on campus in April 2021. This is expected to close in FY 2022.
- Working with an alumni (non degree) and spouse in conjunction with the Dean of the College of Business and the Office of Gift Planning on a multi level planned gift which, along with immediate outright giving, would provide charitable life income arrangements for children and grandchildren with eventual proceeds to the College of Business. Halonen and Roberts met with them in March 2021. Expected to close in FY 2022.
- We are selling a limited number of 4x8 pavers around the William J. Bernard Clock Tower. 100 pavers are available and approximately 30 have been reserved so far.
- Monthly COVID-19 Town Hall series will continue on a monthly basis and for a broader audience
  - Fully funded sponsorship from local businesses (UP Health System-Portage, MTEC SmartZone, UPPCO).
- Portage Health Foundation Annual Report submitted, scholarships (\$64,700 grow to \$80,000 annually) and research (\$100,000) Agreements drafted and H-STEM discussion moving forward.
- Over \$100,000 in funding committed by corporate partners (3M, ITC, Hemlock Semiconductor, GM) for 2021 Summer Youth Programs scholarships.
- Planned and conducted a dedication event on campus, Saturday, April 3. A bench, located near the Husky statue, was sponsored by the family of Michigan Tech student Charlotte Jenkins. Charlotte was killed in a car accident returning to campus after the semester break.
- Alumni Engagement is participating in the April 30 campus celebration of Spring 2021 graduates. We will have a class banner available for students to sign. We are also

providing Michigan Tech flags to all graduates which they'll receive in their commencement packets.

- The next alumni virtual book club event is scheduled to begin the week of April 26<sup>th</sup>. The selected book is Bridging Barriers by Michigan Tech alum, Michael Paddock '87.
- Reunion 2021 planning is underway and will focus on a one-day celebration (Friday, August 6) which will include all signature events. Several scenarios are being mapped out based on what Covid-19 campus health and safety levels may look like in August.
- Alumni Board of Directors activities/work:
  - Selected the 2021 award recipients.
  - Assisted the Admissions Department with a letter writing campaign to recently accepted students.
  - Assisted the Graduate Student Government (GSG) by recruiting an alumni speaker for their 2021 Research Colloquium event.
  - Delivered an inaugural newsletter to life/past Board of Directors members from the current Board, to enhance the relationship with these key alumni.
- Campaign Feasibility Study – Request for Proposal: there are four consulting firms who are participating in the process and an exchange of questions and answers concluded on March 24. The deadline for the proposals is April 12 and a review of all submissions and interviews with prospective firms will take place through April 23. Our goal is to make a decision on moving forward in May with the work to begin in July, with the report due in November.
- Customer Relationship Management (CRM) System – we are currently participating in an 8 session, 16-week program with Ellucian to determine readiness for a CRM conversion. This includes change management, data integrity, business practices review, and security assessments. We were given access to the Ellucian Advance CRM to assess its functionality and potential to support fundraising at Michigan Tech.

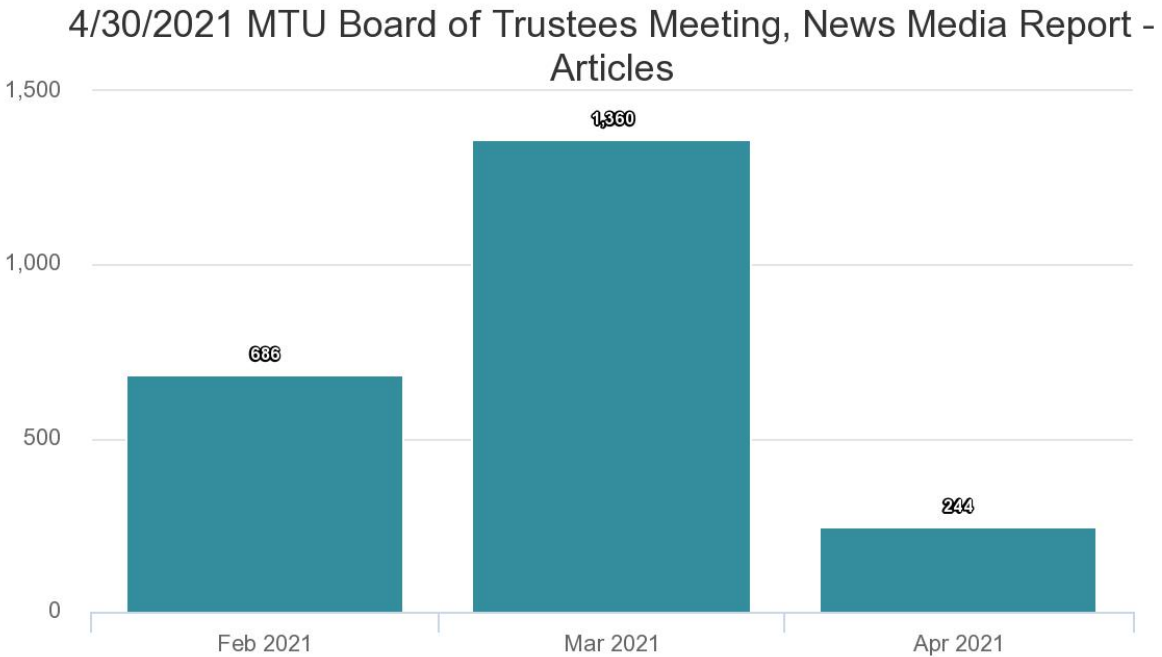
**XI D. Media Coverage**

Media Report: February 6 to April 12, 2021  
 Michigan Technological University  
 Regular Meeting of the Board of Trustees  
 April 30, 2021

*Overview*

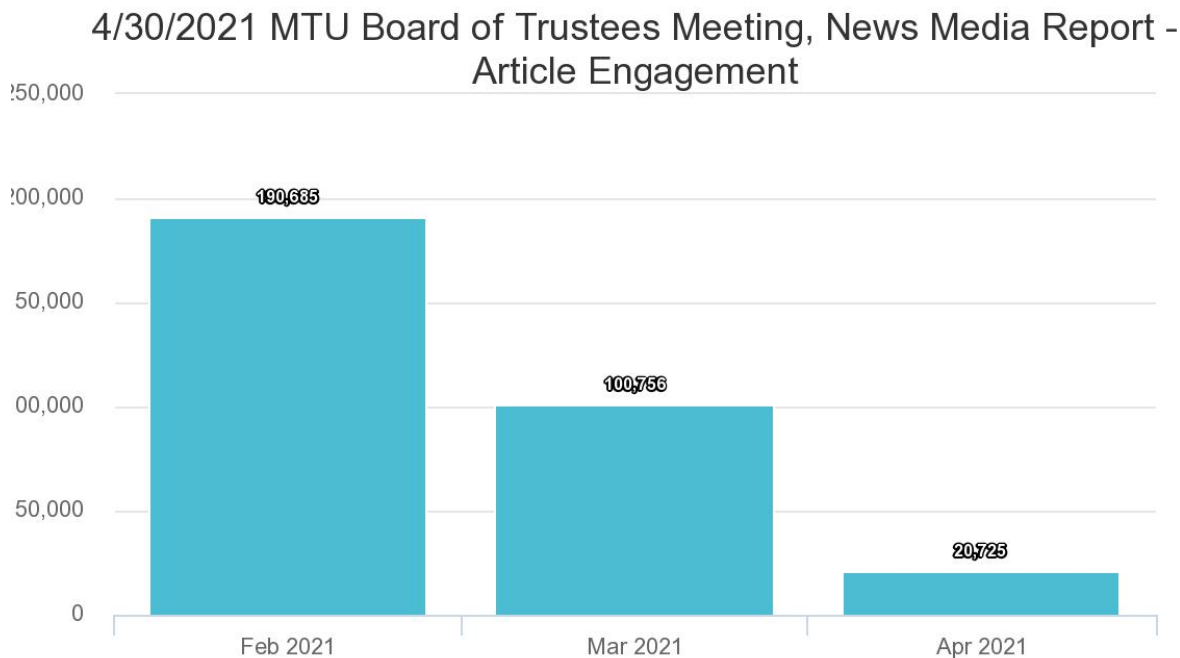
Articles	2,290
Total engagement	~ 312.17K
Average engagement	136
Journalist shares	954
Journalist reach	~ 35.55M
Average unique visitors per month (UVM)	~ 5.24M
Total UVM	~ 12B

Between February 6 and April 12, 2021, a total of 2,290 online articles mentioned Michigan Technological University:



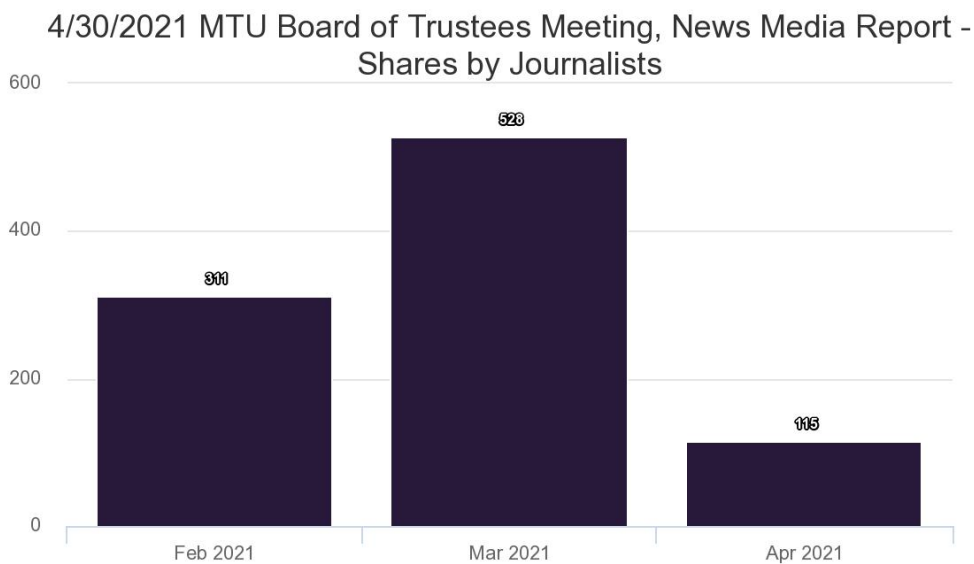


Those 2,290 articles were shared, commented on, or liked social media more than 312,170 times, for an average engagement of 136 shares, comments, or likes per article:

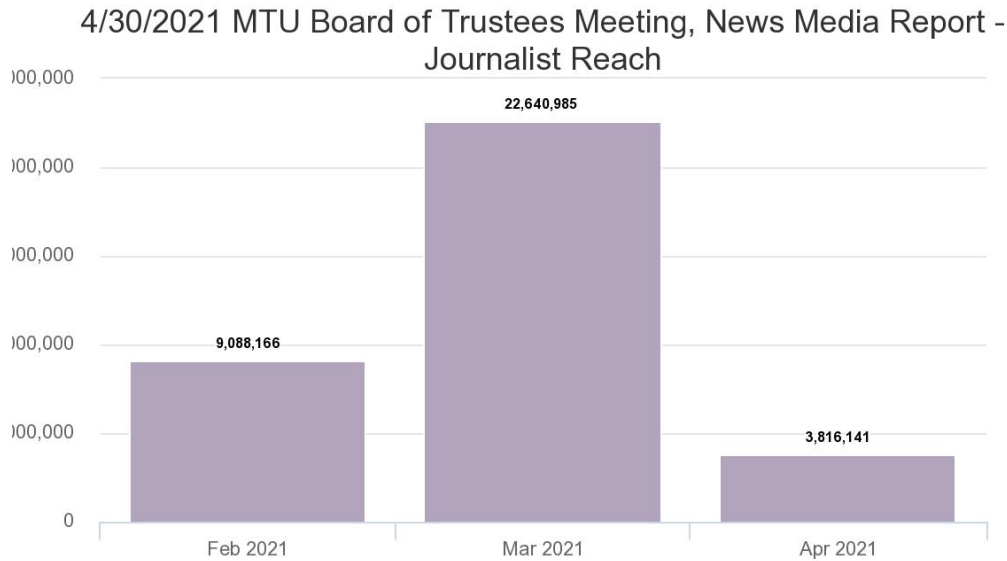


**MUCK RACK**

Journalists shared the articles on Twitter 954 times, resulting in a reach of roughly 35.55 million people:



**MUCK RACK**



**MUCK RACK**

*News Highlights:*

General and Research News

Michigan Tech received \$4.5 million from the US Department of Energy for its NEXTCAR Program:

- <https://thehill.com/policy/energy-environment/542767-energy-department-awards-18-million-for-automated-vehicle>

MTU Athletic Director Suzanne Sanregret was named Athletic Director of the Year by NACDA:

- <https://abc10up.com/2021/03/10/suzanne-sanregret-named-ad-of-the-year-by-nacda>

Through its LuSTR program, NASA selected Michigan Tech and two other universities to research innovative ways to identify lunar resources:

- <https://scitechdaily.com/universities-to-develop-lunar-power-and-resource-utilization-tech-for-nasas-artemis-program>

The appointment of Michigan Tech alumna Monique Wells as director of diversity, equity, and inclusion for DTE Energy made national news:

- <https://finance.yahoo.com/news/dte-energy-appoints-monique-wells-131000155.html>

Michigan Tech's Winter Carnival was, as always, very popular. It was covered in multiple stories in the Daily Mining Gazette and the Marquette Mining Journal. Statue winners were covered by TV3 and Lake Superior Magazine:

- <https://www.lakesuperior.com/blogs/superior-notes/around-the-circle-this-week-february-12-2021>

Mass at the Ice Chapel at St. Albert the Great University Parish was covered by TV 6 and other outlets:

- <https://www.uppermichiganssource.com/2021/02/07/michigan-tech-holds-annual-ice-mass-2>

A March 2 op-ed by Professor Joshua Pearce on corporate “death penalties” that was published on The Conversation garnered extensive interest online:

- <https://theconversation.com/tobacco-killed-500-000-americans-in-2020-is-it-time-to-control-cigarette-makers-153611>

A Michigan Tech student was featured in an AP story on Spring Break that went viral:

- <https://apnews.com/article/travel-us-news-fort-lauderdale-florida-coronavirus-pandemic-fbd0c3b7ac4bbe97a54c492202607c3c>

## XI-E. Employee Safety Statistics



### EMPLOYEE SAFETY STATISTICS YEAR-TO-DATE

Jan 1 - March 19, 2020/2021

	Category	Years	Employee Classification						Total	
			AFSCME	Faculty	Non-Exempt	POA	Professional	Temporary		UAW
Number of Recordable Injuries	Injury Only w/Medical - No Lost Time	2020	1	0	0	0	1	0	0	2
		2021	1	0	0	0	1	0	0	2
	Lost Time Cases	2020	1	0	0	0	1	0	0	2
		2021	0	0	0	0	1	0	0	1
	Restricted Work Cases	2020	0	0	0	0	0	0	0	0
		2021	1	0	0	0	0	0	0	1
Occupational Safety and Health Administration (OSHA) Recordable Injuries (Total of above)	2020	2	0	0	0	2	0	0	4	
	2021	2	0	0	0	2	0	0	4	
Number of Days	Injury Lost Time <sup>3</sup>	2020	10	0	0	0	2	0	0	12
		2021	0	0	0	0	11	0	0	11
	Restricted Work Days <sup>3</sup>	2020	0	0	0	0	0	0	0	0
		2021	30	0	0	0	0	0	0	30
Hours Worked	Total Work Hours	2020	65,328	210,805	31,893	4,051	251,650	8,484	44,788	616,999
		2021	50,392	175,881	19,914	3,409	212,472	11,590	32,093	505,751
	Percentage of Work Hours	2020	10.6%	34.2%	5.2%	0.7%	40.8%	1.4%	7.3%	100.0%
		2021	10.0%	34.8%	3.9%	0.7%	42.0%	2.3%	6.3%	100.0%
Rates	Lost Time Case Rate <sup>1</sup>	2020	3.1	0.0	0.0	0.0	0.8	0.0	0.0	0.6
		2021	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.4
	Frequency Rate <sup>2</sup> (Recordable)	2020	6.1	0.0	0.0	0.0	1.6	0.0	0.0	1.3
		2021	7.9	0.0	0.0	0.0	1.9	0.0	0.0	1.6

OSHA has established specific calculations that enable the University to report the Recordable Injuries, Lost Time Case Rates and Frequency Rates. The Standard Base Rate (SBR) calculation is based on a rate of 200,000 labor hours which equates to 100 employees who work 40 hours per week for 50 weeks per year. Using the SBR allows the University to calculate their rate(s) per 100 employees.

<sup>1</sup> The Lost Time Case Rate is calculated by multiplying the number of Lost Time Cases by 200,000 then dividing by the labor hours at the University.

<sup>2</sup> The Frequency Rate is calculated by multiplying the number of recordable cases by 200,000 then dividing by the labor hours at the University.

<sup>3</sup> The number of days are total days for the life of the cases first reported during this period.

**XI-F. Disposal of Surplus property**

**Michigan Technological University  
Surplus Property Sales  
January 1, 2021 - March 31, 2021**

<b>Date</b>	<b>Description</b>	<b>Amount</b>
02/04/21	2008 Ford Escape XLT 4x4	\$ 100.00
02/08/21	1998 Electron Microscope, JEOL #JEM-2010, LaB6 (Used)	50,000.00
02/16/21	2014 Dodge Grand Caravan SE Wagon	3,655.00
03/03/21	2014 Jeep Cherokee Sport	5,788.00
03/09/21	2012 Ford Escape Hybrid XLT	3,938.00
03/23/21	2005 Chevrolet Tahoe K1500	600.00
<b>Total</b>		<b>\$ 64,081.00</b>

## Board of Trustees Summary of Scholarships, Awards and Grants

### 2020-21 Fall and Spring

	*TOTAL 20-21 Fall/Spring	
	# Students Paid	\$ Total Paid
<b>INSTITUTIONAL</b>		
GRANT <sup>1</sup>	2419	\$15,253,568
LOAN <sup>2</sup>	48	\$124,500
SCHOLARSHIP <sup>3</sup>	4320	\$28,703,910
**OTHER	152	\$1,457,984
<b>TOTAL INSTITUTIONAL</b>	<b>\$45,539,962</b>	
<b>SPONSORED</b>		
SCHOLARSHIP	701	\$2,072,690
<b>TOTAL SPONSORED</b>	<b>\$2,072,690</b>	
<b>FEDERAL</b>		
GRANT	1303	\$5,650,223
LOAN	2932	\$26,156,652
WORK-STUDY <sup>4</sup>	132	\$162,783
<b>TOTAL FEDERAL</b>	<b>\$31,969,658</b>	
<b>STATE</b>		
GRANT	1301	\$3,346,617
SCHOLARSHIP	21	\$40,725
<b>TOTAL STATE</b>	<b>\$3,387,342</b>	
<b>EXTERNAL</b>		
LOAN	874	\$12,867,485
<b>TOTAL EXTERNAL</b>	<b>\$12,867,485</b>	
<b>TOTAL AID</b>	<b>\$95,837,135</b>	

\*Numbers include aid paid for fall 2020 and spring 2021. Summer semester awarding is still in progress and ongoing.

\*\*Includes Tuition Reduction Incentive Program, Senior Citizen credits, and Military Family Education Award.

<sup>1</sup> Grants are gift aid offered based on financial need.

<sup>2</sup> Loans consist of borrowed funds that must be repaid.

<sup>3</sup> Scholarships are gift aid offered based on merit, financial need, or a combination of both.

<sup>4</sup> Work-Study is a program that provides funding that students can earn through part-time employment.

<b>Fund Name</b>	<b>Type</b>	<b># PAID for 2021 Fall/Spring</b>	<b>\$ Amount PAID Fall/Spring</b>
Diversity Incentive Grant	GRANT	20	\$270,780
Part-Time Enrollment Support	GRANT	10	\$15,424
Michigan Indian Tuition Grant	GRANT	52	\$769,629
University Student Award	GRANT	2262	\$13,872,192
University Student Grant	GRANT	117	\$265,542
Marie Ryding Hardship Grant	GRANT	46	\$60,000
TECHAID Loan	LOAN	48	\$124,500
Air Force Room & Board	SCHL	17	\$130,326
Athletic Grant-A.D. Assistant	SCHL	15	\$78,651
Athletic Grant-eSports	SCHL	25	\$97,458
Athletic Grant-Football	SCHL	120	\$1,115,299
Athletic Grant-Hockey	SCHL	36	\$935,394
Athletic Grant-M Basketball	SCHL	19	\$396,134
Athletic Grant-Men CC & TF	SCHL	16	\$102,958
Athletic Grant-M Nordic Ski	SCHL	10	\$104,580
Athletic Grant-M Tennis	SCHL	10	\$106,200
Athletic Grant-Volleyball	SCHL	16	\$383,720
Athletic Grant-W Basketball	SCHL	18	\$400,193
Athletic Grant-Women CC & TF	SCHL	18	\$143,145
Athletic Grant-W Nordic Ski	SCHL	9	\$104,580
Athletic Grant-W Soccer	SCHL	29	\$312,358
Athletic Grant-W Tennis	SCHL	9	\$192,879
Army Room & Board	SCHL	22	\$177,769
Blizzard Scholarship	SCHL	6	\$3,207
VPA Talent Award	SCHL	41	\$40,000
Detroit Promise Scholarship	SCHL	4	\$27,893
FIRST Scholarship MI Tech	SCHL	42	\$256,500
Graduate School Academic Excellence Award	SCHL	23	\$102,228
Husky Innovation Leaders Award	SCHL	73	\$104,000
International Ambassador Scholarship	SCHL	30	\$137,550
Impact Scholarship - COB	SCHL	54	\$164,794
MI MTU Alumni Legacy Award	SCHL	637	\$151,000
Wade McCree Scholarship	SCHL	6	\$107,173
MTU Partner Pathway Award	SCHL	1	\$1,000
Michigan Tech Transfer Achievement	SCHL	128	\$164,344

<b>Fund Name</b>	<b>Type</b>	<b># PAID for 2021 Fall/Spring</b>	<b>\$ Amount PAID Fall/Spring</b>
Michigan Tech Transfer Distinction	SCHL	183	\$491,563
National Business Scholars	SCHL	41	\$810,000
National Business Scholars	SCHL	5	\$9,000
National Copper Scholars	SCHL	39	\$292,000
National Gold Scholars	SCHL	126	\$1,573,000
National Platinum Scholars	SCHL	138	\$1,995,000
National Silver Scholars	SCHL	67	\$741,250
National Achievement Scholarship	SCHL	34	\$218,750
National Distinction Scholarship	SCHL	52	\$485,000
National Excellence Scholarship	SCHL	162	\$1,739,844
National Leading Scholarship	SCHL	22	\$345,500
National Prominence Scholarship	SCHL	131	\$1,539,845
National Achievement Transfer	SCHL	9	\$30,000
National Distinction Transfer	SCHL	10	\$66,500
Presidential Copper Scholars	SCHL	89	\$87,000
Presidential Gold Scholars	SCHL	512	\$1,504,500
Presidential Platinum Scholars	SCHL	467	\$2,501,440
Presidential Silver Scholars	SCHL	346	\$657,000
Presidential Achievement Scholarship	SCHL	240	\$325,001
Presidential Distinction Scholarship	SCHL	553	\$1,254,948
Presidential Excellence Scholarship	SCHL	386	\$1,589,314
Presidential Leading Scholar	SCHL	57	\$490,000
University Room Scholarship	SCHL	21	\$128,472
MTU Leading Scholars Award	SCHL	22	\$639,504
Summer Youth Scholars Award	SCHL	34	\$75,500
Create Your Success Scholarship	SCHL	74	\$343,750
Supplemental University Student Award	SCHL	458	\$1,037,465
University Student Enrollment Award	SCHL	480	\$1,209,498
United States Scholarship	SCHL	28	\$481,934
Tuition Reduction Incentive Program		136	\$1,348,483
Military Family Education Benefit		4	\$61,918
Senior Citizen Benefit		12	\$47,583



**XII. Other Business**

**XIII. Date for Next Formal Meeting: August 5, 2021**

**XIV. Adjourn**