Formal Session of the Board of Trustees  
February 23, 2024  
9:00 a.m. – 11:00 a.m.  
Location: MUB Ballroom B  
Public Meeting

I. Call to Order  
Steve Tomaszewski, Chair

II. Roll Call  
Sarah Schulte, Secretary

III. Confirm Agenda  
Steve Tomaszewski, Chair

IV. Opening Remarks  
A. Opening Remarks of the Board Chair  
   Steve Tomaszewski, Chair  
B. Opening Remarks of the University President  
   Richard Koubek, President

V. Public Comment Period

VI. Committee Reports  
A. Academic Affairs Committee  
   John Bacon, Committee Chair  
B. Audit and Finance Committee  
   Jeff Littmann, Committee Chair

VII. Consent Agenda  
A. Approval of Minutes  
B. Degrees in Course  
C. Resignations, Retirements, and Off-Payroll  
D. Funding Productivity Report
E. Contracts

VIII. Action and Discussion Items

A. Employee Recognition
   Rick Koubek, President

B. Emeritus Rank
   Andrew Storer, Provost and Senior Vice President for Academic Affairs

C. Approval of 2024-2025 Room & Board Rates
   Nick Stevens, Treasurer

IX. Reports

A. Faculty Presentation: NASA
   Paul van Susante, Assistant Professor, MEEM
   Students, Parker Bradshaw, Robin Austerberry, and Austen Goddu

B. Undergraduate Student Government
   Mason Krause, President

C. Graduate Student Government
   Karlee Westrem, President

D. University Senate
   Robert Hutchinson, President

X. Informational Items

A. Analysis of Investments

B. Research & Sponsored Programs

C. Advancement & Alumni Relations

D. Media Coverage

E. Employee Safety Statistics

F. Disposal of Surplus Property

XI. Other Business

XII. Date for Next Formal Meeting: April 26, 2024

XIII. Adjourn
Agenda Documents

VII. Consent Agenda

A. Approval of Minutes
B. Degrees in Course
MEMORANDUM

To: Dr Richard J Koubek
Office of the President

From: Theresa Jacques
Registrar’s Office

Date: February 5, 2024

Subject: Candidates for Degree – Conferral Term 202308

The attached list of candidates for degrees, beginning with Satbir S Mangat and ending with Suwash Silwal is submitted for the granting of the appropriate degrees by the Board of Trustees. I certify that these candidates meet all requirements for their respective degrees and that the names have been submitted to and have received the approval of the faculty from their major department.

Theresa Jacques
Registrar

TJ/kg
Michigan Technological University
Degrees Awarded for Conferral Term 202308

Michigan Technological University Registrar's Office February 5, 2024

Associate of Arts in Humanities
• Satbir S Mangat
• Stephanie Franco - Magna Cum Laude

Bachelor of Arts in Communication, Culture, and Media
• Aedan M Haack
• Emily Lynn Bishop - Cum Laude
• Valerie A Helminen - Magna Cum Laude

Bachelor of Arts in Physics
• Teodora Momirovska

Bachelor of Arts in Sound Design
• Cole James Puertas - Cum Laude
• Matthew Wayne Fisher - Summa Cum Laude

Bachelor of Science in Accounting
• Alexa Belle Dembroski - Summa Cum Laude
• Colton John Schmidt
• Daron Jay Hebeler - Summa Cum Laude
• Dominic Haden Jolley
• Lukas Jon Bennett

Bachelor of Science in Applied Ecology and Environmental Sciences
• Allyson Grace O'Neill - Summa Cum Laude
• Jess Andrew Fureigh
• Madeline Elizabeth Lukens
• Stelle Acero Barone - Magna Cum Laude

Bachelor of Science in Audio Production and Technology
• Grayson B Asbury
• Isabel R Waldie
• Scott Stephen Bartholomew - Cum Laude

Bachelor of Science in Biochemistry and Molecular Biology
• Alexis Mae Gasco - Magna Cum Laude
• Brice Andrew Cart
• Derrick J Simet
• Hudson McGuire Holm
• Kyle Dean Usimaki - Cum Laude

Bachelor of Science in Biological Sciences
• Sophia C Smit - Magna Cum Laude

Bachelor of Science in Biomedical Engineering
• Abigail Rose Voisinet - Magna Cum Laude
• Alexander Thomas Beecham - Cum Laude
• Izaya Joseph Bengry
• Jessica Joy Illg - Magna Cum Laude
• Kamren Logan VanOs
• Megan Leigh Huggett - Magna Cum Laude
• Morgan Riley Thomas - Magna Cum Laude
• Nicholas David Arnold

Bachelor of Science in Chemistry
• Abel James Stewart
• Daniel R Tucker
• Ronald James Schwandt - Summa Cum Laude
• Ryan William Mackie
• William Michael Green

Bachelor of Science in Civil Engineering
• Alex David Thrasher - Summa Cum Laude
• Alexander Joseph Lehnert
• Allison A Spierling
• Alyssa Leigh Hill - Cum Laude
• Corey Alan Haskins - Cum Laude
• Garrett Henrik Impola - Cum Laude
• Hayden Arthur Mann
• Jackson Arthur Arens
• Jacob Thomas Roberts
• James David Domitrovich
• Kavan Reese Withrow
• Lucas G Betzoldt
• Madison C Poplawski - Cum Laude
• Matthew Jarret Paavo - Summa Cum Laude
• Matthew John Bacon - Summa Cum Laude
• Samara Joy Schlauderaff - Magna Cum Laude
• Sydney Rose Wittla-Sprague
• Tai Dale Coveyou
• Tyler Louis Hintsala

Bachelor of Science in Computational Biology
• Ina Henna Klasner - Summa Cum Laude

Bachelor of Science in Computer Engineering
• Aaron David Jacobsen - Summa Cum Laude
• Adam Edwin Krueger
• Andrew L Tran
• Damean John Ewan - Cum Laude
• David Donald Nayback - Magna Cum Laude
• J Weston Early
• Jayden Thomas Mayer Cozort
• Joshua Peter Maicach
• Micah J Thoreson

Bachelor of Science in Computer Network and System Administration
• Jarrett Scott Buckner
• Robert W Hobkirk

Bachelor of Science in Computer Science
• Andrew Michael Rein
• Brian Michael Conn
• Cecilia M Schmitz - Magna Cum Laude
• Colby James Dummer
• Colton Westley Eberlin
• Dauvin Lloyd Wurst - Summa Cum Laude
• Emily Nicole Wisz
• Emma Grace Smith
• Grace Louise Chandler
• Herman Seth Damstra
• Jack Nicholas Hendrickson
• Jacob Thomas Allen - Magna Cum Laude
• Jared Bradford Webb
• Joseph David Wood - Cum Laude
• Kelsey Ann Hagebusch
• Kevin Andrew Kulich - Summa Cum Laude
• Mark J Halonen
• Nathan James Spence - Summa Cum Laude
• Nicholas Zamora
• Noah Patrick Santoscoy
• Ryan Charles Roest
• Samuel James Milner
• Sara E DeZeeuw - Magna Cum Laude
• Thawng T Hmung - Cum Laude
• Thomas John Quillan - Summa Cum Laude
• Trevor Xavier Petrin - Summa Cum Laude
• Tristan K Singleton

Bachelor of Science in Construction Management
• Ashton Andrew Ordway
• Benjamin Richard Rathnaw
• Grant Marlow Manion
• Ian Patrick Dougherty
• John Weirauch

Bachelor of Science in Cybersecurity
• Dallas Michael Grandy
• Erik Michael Stalsberg Barnett
• Ewan JW Beyer
• Thaddeus Glen Sander
• Tyler James Lynch - Magna Cum Laude

Bachelor of Science in Ecology and Evolutionary Biology
• Alexander S Clark-Braendle
• Caitlin E Warner
• Kali R Kater - Summa Cum Laude
• Keera Eileen Lung - Summa Cum Laude

Bachelor of Science in Electrical Engineering
• Breanna Rae Gorman
• Brett Allen Chafin - Cum Laude
• Caleb Peter Smith
• Cody Allen Roehrs - Magna Cum Laude
• Collin Michio Uchida
• Colton Gregory Smith
• David Joseph Hadd - Magna Cum Laude
• Dylan James Seaberg
• Elijah Neil Herron - Cum Laude
• Elliot Michael Johnson
• Emily Paige Fischer
• Gabriel Robert Allis - Cum Laude
• George Alexander Witt - Magna Cum Laude
• Ian Quin Mattson
• Jack Anders Smitterberg - Cum Laude
• Jesse Ruan Ebenhoech
• Jhenna Isabella Gamache
• Kory A Skop
• Laina Gale Toivonen - Magna Cum Laude
• Madison L Augustyniak - Magna Cum Laude
• Nicholas Brian McKenzie - Summa Cum Laude
• Noah Alexander Zazula
• Noah Isaac Adams
• Nolan Stephen Pfundt
• Quinlan Mary-Margaret Bray
• Richard Alexander Goulette
• Rocco J Carlson - Magna Cum Laude
• Steven Joseph Ruszkowski
• Suhayb M Zeqlam - Cum Laude
• Timothy J Harikkala - Magna Cum Laude

Bachelor of Science in Electrical Engineering Technology
• Cade A Peppin
• Jacob Scott Podell
• Justin Michael Rish
• Tanner Jay Banfield

Bachelor of Science in Engineering
• Nickolas Charles McCole - Summa Cum Laude

Bachelor of Science in Engineering Management
• Lucas Alexander Kendall - Cum Laude
• Stuart Anthony Werner

Bachelor of Science in Environmental Engineering
• Grace Marie Kluchka
• Jacob Scott Irwin
• Jacqueline R Schulte - Summa Cum Laude
• Jake William McDowell
• Kiersen E Korieneck - Cum Laude
• Morgan Jean Hallberg
• Nathan William Kraft
• Nolan Christoff Eisenlohr - Magna Cum Laude
• Rebecca Jayne Costigan - Summa Cum Laude
• Seamus P Lux - Magna Cum Laude
• Wynter Baylee King

Bachelor of Science in Exercise Science
• Antonio Miguel Moreno
• Ethan Francis Martysz
• Nina R Kronenberg - Summa Cum Laude
• Preston Jeffrey Graf
• Ryan L Hakamaki - Magna Cum Laude

Bachelor of Science in Finance
• Jared K Hendricks
• Jaylin Nicole Lang - Cum Laude
• Thomas James Hegewald
• Tyler Lee Inthisone - Cum Laude

Bachelor of Science in Forestry
• Charles Albert Osborn
• Emma Louise Wade
• Sophia Rose Morrisette

Bachelor of Science in Geological Engineering
• Jack William Hawes
• John S Myaard - Magna Cum Laude

Bachelor of Science in Geology
• Elizabeth Elaine McClelland
• Samuel Ari Johnson - Cum Laude

Bachelor of Science in Geospatial Engineering
• Alex David Thrasher - Summa Cum Laude
• Brendan Ryan LeClaire
• Case Matthew Vander Heide
• Wyatt A Iseler - Cum Laude
• Wyatt J Lampel

Bachelor of Science in Human Biology
• Darius Willis

Bachelor of Science in Management
• Austin Eric Schlicht
• Benjamin Parker Knoth
• Jack Wayne Fenton*
• Jacob M Rokus
• James Robert Ward
• Josie L Connors
• Matyas Nesvadba
• Veronica Jo Shelby Buchweitz - Magna Cum Laude
• Victoria Louise Cameron - Cum Laude
• Zackary Paul Ohtonen

Bachelor of Science in Management Information Systems
• Aerith Joan Arboladura Cruz

Bachelor of Science in Marketing
• Jakob Roger Vettori
• Morgan Kai Campbell
• Stephanie Franco - Magna Cum Laude

Bachelor of Science in Materials Science and Engineering
• Andrew C Tellefson
• Dakota Emmet Dorner*
• Emma Shea Quinn - Magna Cum Laude
• Nicholas Steven Overesch
• Philip John Stites
• Robert Kay Payne
• Trent Thomas Graham

Bachelor of Science in Mechanical Engineering
• Aiden Michael Losh
• Alexander Easton Campagne
• Alivia Riley Morgan - Magna Cum Laude
• Andre Dabish
• Andrew John Daavettila
• Andrew Marc Amato
• Atlas Xavier Rosenberg - Cum Laude
• Benjamin Hunter Pokorny - Magna Cum Laude
• Benjamin R Bolduc
• Blake Coates Mahnken
• Bradley Seokhan Kim
• Brian Philip Johnson - Magna Cum Laude
• Cameron Alan Whiteside - Magna Cum Laude
• Cody Lee Creel
• Cyrus L Popovitz
• Dietrich Ragner - Magna Cum Laude
• Dominic W Bianchi - Magna Cum Laude
• Duncan K MacConnell
• Ellie Fisch
• Elliott Louis Kamaloski
• Emilia Marie Fanelli - Magna Cum Laude
• Eric J Balanecki - Cum Laude
• Grace Elizabeth Ackerman - Cum Laude
• Grant C Heyboer
• Gunnar D Gavalis
• Hunter James McGillivray
• Hunter James Minke
• Ian Nicholas Fleury
• J Weston Early
• Jackson D Collins - Summa Cum Laude
• Jackson Lee Holper
• Jacob Joseph Mills
• Jacob Lawrence Lindhorst - Summa Cum Laude
• Jenna Renee Johnson - Magna Cum Laude
• Joseph Lee Davey
• Joseph M LaJoice - Magna Cum Laude
• Kathryn Alyssa Seward
• Kiah Nathan Hollenbeck
• Kincade Raymond Engen - Summa Cum Laude
• Kory A Skop
• Luke A Collison
• Matthew Richard Hossink
• Maxwell Thomas Maas - Magna Cum Laude
• Nicholas Gage Holman
• Nick Paul Auricchio
• Nolan Michael Sarnac
• Paycee Joseph Assenmacher
• Pierfrancesco Stocchi - Cum Laude
• Rachel Mary Tietschert - Magna Cum Laude
• Rachel Veronica Ruman - Summa Cum Laude
• Shane Alexander Moore - Summa Cum Laude
• Soren Peter Vigesaa - Summa Cum Laude
• Spencer Michael Kosc
• Steven Alexandr Sweet
• Ted Charles Gronda
• Thomas M Outinen - Summa Cum Laude
• Tyler Hooyman
• Walker Jeffrey Gosda
• Zachary Lawrence Lee Wood
• Zachary Michael Gerber

Bachelor of Science in Mechanical Engineering Technology
• Haden McLeod Betts
• Ian Roger Lipka
• Jacob P Zellner
• Leo Famiani Guba
• Max L Sutton
• Owen S Davis
• Patrick Jon Knox
• Reeve Michael Thayer
• Spencer Thomas Calkins
• Tommy Fisher
• Tyler R Duffin

Bachelor of Science in Medical Laboratory Science
• Delaney Ann Pietila - Summa Cum Laude
• Emma Kaye Erkkila*
• Evelyn Grace Assenmacher*
• Jake R Vaillancourt - Summa Cum Laude
• Kamille Anne Keeler
• Madison Marie Palosaari - Cum Laude*
• Neve Catherine Badalow - Magna Cum Laude*
• Patrick Rocco Hoxie - Summa Cum Laude*

Bachelor of Science in Mining Engineering
• Maria E Verran

Bachelor of Science in Psychology
• Gabrielle Afina Bosley - Summa Cum Laude
• Kaitlyn Baccus - Magna Cum Laude
• Miranda E Rich - Summa Cum Laude

Bachelor of Science in Robotics Engineering
• Dana K Brouse - Magna Cum Laude
• Hunter David Gipp
  Bachelor of Science in Scientific and Technical Communication
  • Hannah Kendall Graves
  • Henry Sullivant Snapp

Bachelor of Science in Social Sciences
  • Johannah Helene Green
  • Maxwell Cason Woolworth - Cum Laude
  • Ryan Gregory Hozak

Bachelor of Science in Software Engineering
  • Austin K Gennrich
  • Dorothy Clair Paulson - Magna Cum Laude
  • Eric James Belt
  • Isaac T Elenbaas - Magna Cum Laude
  • Jesse J Hassell
  • Parker L Kirwin
  • Zayne Alexander Pepin - Magna Cum Laude

Bachelor of Science in Statistics
  • Kathleen Anna Rondy

Bachelor of Science in Sustainability Science and Society
  • Maya Joy Klanderman - Summa Cum Laude

Bachelor of Science in Theatre and Entertainment Technology
  • Laurel Anne Schmidt - Summa Cum Laude
  • Maisie E Whitaker
  • McKenna P Kusmack
  • Riley William Nelson

Bachelor of Science in Wildlife Ecology and Conservation
  • Garrett Jeffry Kucharski - Summa Cum Laude
  • Miranda E Rich - Summa Cum Laude

Doctor of Philosophy in Applied Cognitive Science and Human Factors
  • Anne Linja
  • Tauseef Ibne Mamun

Doctor of Philosophy in Applied Physics
  • Manpreet Boora
  • Sushree Shrabani Dash

Doctor of Philosophy in Atmospheric Sciences
  • Susan Mathai
Doctor of Philosophy in Biochemistry and Molecular Biology
  • Nazar Gora

Doctor of Philosophy in Chemistry
  • Ann Varghese
  • Monica Mame Soma Nyansa

Doctor of Philosophy in Civil Engineering
  • Dongzhao Jin

Doctor of Philosophy in Computer Science
  • Dylan Christopher Gaines
  • Niusen Chen
  • Soheil Sepahyar
  • Zhiyuan Lu

Doctor of Philosophy in Electrical Engineering
  • Cheng Fan
  • Mehnaz Tabassum

Doctor of Philosophy in Engineering - Computational Science and Engineering
  • Chen Zhao

Doctor of Philosophy in Engineering - Environmental Engineering
  • Benjamin Barrios Cerda
  • Hanrui Su

Doctor of Philosophy in Materials Science and Engineering
  • Ben Wang
  • Yuhuan Fei

Doctor of Philosophy in Mechanical Engineering - Engineering Mechanics
  • Abdolvahhab Rostamijavanani
  • Apurva Barun Baruah
  • Monty Russell Kennedy
  • Ponkrshnan Thiagarajan
  • Pradeep Krishna Bhat
  • Roya Bagheri
  • Shantanu Harishchandra Chavan
  • Swapnil Sambhaji Bamane

Doctor of Philosophy in Physics
  • Cameron John Shock
  • Elise Marie Rosky
  • Oindabi Mukherjee
Doctor of Philosophy in Rhetoric, Theory and Culture
  • Donna Susan Mathew

Master of Business Administr. in Business Administration
  • Abdulmunim Samer A AL Ratrout
  • Gabriel Hunter Frontuto
  • Jakobe Davidson
  • William James Marano

Master of Engineering Mgmt in Engineering Management
  • Andrew Jonathan Kleehammer
  • Arvita Nilesh Etane
  • Kevin Reginald Lee
  • Preetham Krishna Reddy Pullaiahgari
  • Trupti Sunil Deshpande

Master of Engineering in Engineering
  • Benjamin Prosper David

Master of Forestry in Forestry
  • Oliver-Hobbes William Jensen

Master of Geographic Info Sci in Geographic Information Science
  • John Andrew Sherer
  • Kaleb Edward Wiegand
  • Sri Renganath Rengarajan

Master of Science in Accounting
  • Amena Khatun Toma
  • Hillary Rayanne Prout

Master of Science in Applied Cognitive Science and Human Factors
  • Lauren Sprague
  • Lisa Marie Casper

Master of Science in Applied Ecology
  • Manuel Eduardo Anderson

Master of Science in Applied Statistics
  • Alex Mis
  • Allysa Dawn Quick
  • Brady ByBee
  • Dylan Lasher
  • Lauren Michelle Christian
  • Raquel Victoria Leisner
Rodney Cherry
Yunlong Qin

Master of Science in Biological Sciences
- Akayla Weatherby
- Vedant Rajeshkumar Buwa

Master of Science in Biomedical Engineering
- Cassandra Sue Bonifas
- Hannah Joy Loughlin
- Kiira Noelle Hadden
- Mitchell Lowell Connon
- Robert Dwyer
- Shaina P Royer-Weeden

Master of Science in Chemical Engineering
- Joseph Prashant Kulkarni

Master of Science in Civil Engineering
- Adam Michael Bau
- Chigozirim Egeruo Ugboaja
- Dale Karl Feil
- Habib Opeyemi Hamzat
- Sunday Afolabi Eniola

Master of Science in Computer Science
- Kirk Lawrence Thelen
- Marcus David Scese
- Roman Formicola
- Saket Sanjeev Chaturvedi

Master of Science in Cybersecurity
- Destiny Victoria Michaels
- Matthew John Gervasi
- Michael Bearden

Master of Science in Data Science
- Doniyorkhon Obidov
- Emily Wood
- Md Nehal Salik
- Stephanie Lynn LeMay

Master of Science in Electrical Engineering
- Lucas James Wolfe
Master of Science in Electrical and Computer Engineering
- Aditya Dhavale
- Antara Deepak Muley
- Gnaneswar Donadi
- Kathryn Ann Miller
- Leela Yaswanth Chilukuri
- M A Aziz Jahan
- Mehnaz Tabassum
- Nicholas Albert Wylie
- Rahim Iqbal

Master of Science in Environmental Engineering
- Jacob Novitch
- Samrat Pradip Surve
- Shivalik Bhattacharjee
- Vaishnavi Sanjay Angathekar

Master of Science in Environmental Engineering Science
- Sri Sumedha Mahima Gade

Master of Science in Environmental and Energy Policy
- Madeline Elizabeth DiLisi
- Robert Allan LaFave
- Sidney Marie Mechling

Master of Science in Forest Molecular Genetics and Biotechnology
- Melanie Anne Ottino

Master of Science in Geology
- Dillon Evan Breen

Master of Science in Geophysics
- Isabella Metts
- Jessica Lynn Devlieg

Master of Science in Health Informatics
- Ankit Chhillar
- Ifunanya Emmanuella Ezeumeh
- Joseph A Gregory
- Kalpana Danaboyina
- Mabel Shekinah Rose Komanduru
- Michael Saad Dabish
- Sai Nihar Reddy Kandi
- Vijaya Lakshmi Challagulla
• Walter Robertson Cayce
Master of Science in Integrated Geospatial Technology
  • Connor Welling
  • Hammed Adekunle Salami
Master of Science in Kinesiology
  • Michael Dion Bates
Master of Science in Mathematical Sciences
  • Sontosh Kumar Sahani
Master of Science in Mechanical Engineering
  • Arun Prabu Natarajan Chandramohan
  • Charles Leonard Carey
  • Earl Alexander Getchel
  • Elangovan Kandaswamy
  • Gaurav Parashar
  • James Joseph Daanen
  • John Michael Boston
  • Krishnakumar Rajendran
  • Logan Roger Canull
  • Lucas Michael Schloemp
  • Manish Vijay Ghuge
  • Mary Katherine Bellino
  • Parth Tulsyan
  • Piyush Lalit Savadekar
  • Purvesh Dullabh Gadhiya
  • Shahriar Alam
  • Sudhanshu Suhas Rankhambe
  • Suraj Suryakant Badadapure
  • Syed Muzzamml Uddin Qureshi
  • Tyler Joseph Fabian
Master of Science in Mechatronics
  • Samuel Ejike Nwankwo
  • Shivayogi Channappa Akki
Master of Science in Statistics
  • Md Mutasim Billah
  • Suwash Silwal

* Addendum to Conferral
  • Degree Awarded 202305
C. Resignations, Retirements, and Off-Payroll
# BOARD OF TRUSTEES OFF-PAYROLL REPORT
(November 26, 2023 – February 3, 2024)

## RETIRED

<table>
<thead>
<tr>
<th>Name</th>
<th>Class</th>
<th>Department</th>
<th>Title</th>
<th>Most Recent Hire Date</th>
<th>Term Date</th>
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</thead>
<tbody>
<tr>
<td>Stephen Hackney</td>
<td>FF</td>
<td>Material Science &amp; Engineering</td>
<td>Professor</td>
<td>09/01/0986</td>
<td>01/01/2024</td>
</tr>
<tr>
<td>Patricia Helsel</td>
<td>FF</td>
<td>Visual &amp; Performing Arts</td>
<td>Professor</td>
<td>08/12/2007</td>
<td>01/13/2024</td>
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</tbody>
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## OFF-PAYROLL

<table>
<thead>
<tr>
<th>Name</th>
<th>Class</th>
<th>Department</th>
<th>Title</th>
<th>Most Recent Hire Date</th>
<th>Term Date</th>
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</thead>
<tbody>
<tr>
<td>J. Alan Paavola</td>
<td>AF</td>
<td>Facilities Management</td>
<td>Building Mechanic</td>
<td>07/02/2018</td>
<td>01/01/2024</td>
</tr>
<tr>
<td>Katie Perron</td>
<td>AF</td>
<td>Residential Dining</td>
<td>Food Service Helper</td>
<td>09/20/2021</td>
<td>01/01/2024</td>
</tr>
<tr>
<td>Bulut Ozturk</td>
<td>CF</td>
<td>General Athletics</td>
<td>Head Coach of Women's Soccer</td>
<td>11/16/2020</td>
<td>01/31/2024</td>
</tr>
<tr>
<td>Xiaoyong Yuan</td>
<td>FF</td>
<td>Applied Computing</td>
<td>Assistant Professor</td>
<td>08/17/2020</td>
<td>12/22/2023</td>
</tr>
<tr>
<td>Lan Zhang</td>
<td>FF</td>
<td>Electrical &amp; Computer Engineering</td>
<td>Assistant Professor</td>
<td>08/17/2020</td>
<td>01/01/2024</td>
</tr>
<tr>
<td>Michael Christianson</td>
<td>FF</td>
<td>Visual &amp; Performing Arts</td>
<td>Associate Professor</td>
<td>08/18/2014</td>
<td>02/03/2024</td>
</tr>
<tr>
<td>Gabriel Escobedo</td>
<td>PF</td>
<td>Center for Diversity &amp; Inclusion</td>
<td>Director</td>
<td>12/13/2021</td>
<td>01/01/2024</td>
</tr>
<tr>
<td>William Hansley</td>
<td>PF</td>
<td>Advances Power Systems Research Center</td>
<td>Research Test Engineer</td>
<td>09/21/2020</td>
<td>01/01/2024</td>
</tr>
<tr>
<td>Brian Paavo</td>
<td>PF</td>
<td>Keweenaw Research Center</td>
<td>Research Security Specialist</td>
<td>06/13/2022</td>
<td>01/01/2024</td>
</tr>
<tr>
<td>Blaine Thrope</td>
<td>PF</td>
<td>Center for Technology &amp; Training</td>
<td>Software Developer</td>
<td>06/18/2018</td>
<td>01/02/2024</td>
</tr>
<tr>
<td>Alicia Sendrowski</td>
<td>PF</td>
<td>Michigan Tech Research Institute</td>
<td>Research Engineer/Scientist</td>
<td>09/06/2022</td>
<td>01/06/2024</td>
</tr>
<tr>
<td>Jessica Stormoen</td>
<td>PF</td>
<td>Residence Education &amp; Housing</td>
<td>Residence Education Coordinator</td>
<td>06/28/2021</td>
<td>01/06/2024</td>
</tr>
<tr>
<td>Ian Finch</td>
<td>PF</td>
<td>Information Systems &amp; Services</td>
<td>Business Systems Analyst</td>
<td>06/14/2021</td>
<td>01/20/2024</td>
</tr>
<tr>
<td>Jennifer Lane</td>
<td>PF</td>
<td>Career Services</td>
<td>Director</td>
<td>12/26/2022</td>
<td>02/02/2024</td>
</tr>
</tbody>
</table>
### Michigan Technological University
### Michigan Tech Fund
### Fundraising Productivity Report

**Fiscal Year 2024 through 1/31/2024**  
**Compared to Prior Fiscal Year**

<table>
<thead>
<tr>
<th>Source</th>
<th>FY 2024</th>
<th>FY Goal</th>
<th>% of Goal</th>
<th>FY 2023</th>
<th>FY Goal</th>
<th>% of Goal</th>
<th>FY Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Gifts (Over 10K)</td>
<td>2,676,732</td>
<td>7.96</td>
<td>34%</td>
<td>4,561,266</td>
<td>6.92</td>
<td>66%</td>
<td>5,444,018.85</td>
</tr>
<tr>
<td>Planned Gift Commitments</td>
<td>17,095,780</td>
<td>13.35</td>
<td>51%</td>
<td>13,121,744</td>
<td>12.04</td>
<td>109%</td>
<td>11,718,599.04</td>
</tr>
<tr>
<td>Annual Giving (10K or less)</td>
<td>1,809,058</td>
<td>2.37</td>
<td>76%</td>
<td>1,797,110</td>
<td>2.31</td>
<td>78%</td>
<td>8,181,044.88</td>
</tr>
<tr>
<td><strong>Subtotal: Ind Giving</strong></td>
<td>21,581,570</td>
<td>23.88</td>
<td>72%</td>
<td>19,480,120</td>
<td>21.27</td>
<td>92%</td>
<td>25,343,662.77</td>
</tr>
<tr>
<td>Corporate Giving</td>
<td>1,570,316</td>
<td>2.50</td>
<td>63%</td>
<td>1,375,859</td>
<td>2.05</td>
<td>67%</td>
<td>3,066,298.76</td>
</tr>
<tr>
<td>Foundation &amp; Other Org Giving</td>
<td>5,732,405</td>
<td>3.00</td>
<td>245%</td>
<td>643,170</td>
<td>5.13</td>
<td>13%</td>
<td>2,202,536.90</td>
</tr>
<tr>
<td>Corporate Sponsored Research</td>
<td>7,739,561</td>
<td>13.67</td>
<td>57%</td>
<td>11,271,307</td>
<td>13.33</td>
<td>85%</td>
<td>16,309,474.00</td>
</tr>
<tr>
<td><strong>FUNDRAISING TOTAL</strong></td>
<td><strong>36,623,852</strong></td>
<td><strong>42.85</strong></td>
<td><strong>85%</strong></td>
<td><strong>32,770,455</strong></td>
<td><strong>41.77</strong></td>
<td><strong>78%</strong></td>
<td><strong>46,921,972.43</strong></td>
</tr>
</tbody>
</table>

**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
E. Contracts

Board Policy 11.13 states that all contracts with a value of $1,000,000 or greater, with the exception of contracts for the provision or receipt of academic research services, require approval of the Board of Trustees prior to execution by the University except for sales of real property, which require Board of Trustees approval only if the fair market value is equal to or greater than $5,000,000. The University recommends that the Board authorize the Treasurer and Chief Financial Officer and General Counsel and Secretary to negotiate and execute, should it be in the best interests of the University, the following agreement:

- Daniell Heights StreetScape Project: Replacement of sanitary sewer lines, certain water lines, and pavement in the 1800 block of Woodmar Drive.
  - Anticipated contract dates: April 1, 2024 - August 20, 2024
  - Contract type: Project will be publicly bid at the end of February 2024
  - Anticipated contract amount: $750,000 - $1,000,000
  - Funding source: General Fund

- McNair Dining Remodel - Complete remodel of the McNair Dining Hall, kitchen, and storage areas.
  - Anticipated contract dates: April 8, 2024 - September 30, 2024 (operational by move-in weekend)
  - Contract type: Project will be publicly bid in March 2024
  - Anticipated contract amount: $3 million
  - Funding source: Chartwells (Dining vendor) will fund the project.

RECOMMENDED: that the Board of Trustees approves the Danielle Heights StreetScape Project and the McNair Dining Remodel as presented.
VIII. Action and Discussion Items

A. Employee Recognition
   Rick Koubek, President

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 individual:

1) Stephen Hackney, Professor Emeritus, Department of Materials Science & Engineering – 38 years of service

B. Emeritus Rank
   Andrew Storer, Provost and Senior Vice President for Academic Affairs

Recommendation for the granting of faculty emerita/emeritus status originates within the retiree’s academic department and proceeds through the respective college. Once approved, the recommendation is presented to the Provost, and if successful, to the President of the University for presentation to the Board of Trustees.

RECOMMENDATION: It is recommended that the Board of Trustees approves the following emerita/emeritus appointments:

1) Sheila Milligan, Teaching Professor Emerita, College of Business

2) Dr. Tony Rogers, Professor Emeritus, Department of Chemical Engineering
VIII-C. FY2025 ROOM AND BOARD AND APARTMENT RENTAL RATES

The Michigan Tech Residential Enterprise prides itself in providing a transformational residential experience that delivers exceptional facilities, first-rate dining, robust support services, and intentional staff engagement to help our students grow into tenacious leaders prepared to navigate a global environment. We are committed to providing a diversified residential and dining portfolio that provides students with a variety of high-quality living experiences that are centered on personal growth and development.

We are proud to serve the Michigan Tech community and present to you today the recommended rates for our residential and dining portfolios for the 2025 fiscal year. These rates have been reviewed and curated carefully by multiple stakeholders, including feedback from our students, weighing the various costs necessary to continue to deliver an exceptional residential experience.

Our commitment to tenacity in pursuing innovative opportunities remains steadfast as we strive to further distinguish Michigan Tech from other institutions in its endeavor to attract and retain a diverse global student population.

RECOMMENDATION: That the Board approves the recommended residence hall housing rates, meal plan rates, and apartment and house rental rates for FY2025.
# Residence Hall Student Housing and Dining Individual Rates 2024-2025

## Residence Halls

Academic Year Occupancy Dates: August 16, 2024 - December 14, 2024 (16 weeks) and January 5, 2025 - April 26, 2025 (15 weeks)

<table>
<thead>
<tr>
<th>Room Types/Occupancy</th>
<th>2023-2024 Housing</th>
<th>Proposed Increase</th>
<th>2024-2025 Housing</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wadsworth Hall, McNair Hall, Douglas Houghton Hall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Occupancy (Double/Quad)</td>
<td>$6,975</td>
<td>$279</td>
<td>$7,254</td>
<td>4.00%</td>
</tr>
<tr>
<td>Single Occupancy</td>
<td>$8,866</td>
<td>$341</td>
<td>$9,207</td>
<td>3.85%</td>
</tr>
<tr>
<td>Triple Occupancy</td>
<td>$6,479</td>
<td>$217</td>
<td>$6,696</td>
<td>3.35%</td>
</tr>
<tr>
<td>Wadsworth Hall w/ Private Bath</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Occupancy</td>
<td>$7,998</td>
<td>$341</td>
<td>$8,339</td>
<td>4.26%</td>
</tr>
<tr>
<td>Single Occupancy</td>
<td>$9,982</td>
<td>$403</td>
<td>$10,385</td>
<td>4.04%</td>
</tr>
<tr>
<td>Temporary Housing</td>
<td>$11,129</td>
<td>$434</td>
<td>$11,563</td>
<td>3.90%</td>
</tr>
<tr>
<td>Hillside Place Residence Hall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Bedroom in Shared Apartment</td>
<td>$11,005</td>
<td>$868</td>
<td>$11,873</td>
<td>7.89%</td>
</tr>
<tr>
<td>Single Bedroom Apartment</td>
<td>$12,028</td>
<td>$837</td>
<td>$12,865</td>
<td>6.96%</td>
</tr>
<tr>
<td>Summer Term Residence Hall Rates - Weekly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer Weekly Single Occupancy, Shared Bath</td>
<td>$180</td>
<td>$10</td>
<td>$190</td>
<td>5.56%</td>
</tr>
<tr>
<td>Summer Weekly Single Occupancy, Private Bath</td>
<td>$207</td>
<td>$10</td>
<td>$217</td>
<td>4.83%</td>
</tr>
<tr>
<td>Summer Double Weekly Occupancy, Shared Bath</td>
<td>$135</td>
<td>$5</td>
<td>$140</td>
<td>3.70%</td>
</tr>
<tr>
<td>Summer Double Weekly Occupancy, Private Bath</td>
<td>$162</td>
<td>$8</td>
<td>$170</td>
<td>4.94%</td>
</tr>
</tbody>
</table>

## Academic Year Meal Plans

Occupancy Dates: August 16, 2024 - December 14, 2024 (16 weeks) and January 5, 2025 - April 26, 2025 (15 weeks)

<table>
<thead>
<tr>
<th>Dining Plans</th>
<th>2023-2024</th>
<th>Proposed Increase</th>
<th>2024-2025</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium Gold Unlimited</td>
<td>$5,549</td>
<td>$217</td>
<td>$5,766</td>
<td>3.91%</td>
</tr>
<tr>
<td>19 Meal Plan-NEW</td>
<td>-</td>
<td>-</td>
<td>$5,549</td>
<td>-%</td>
</tr>
<tr>
<td>14 Meal Plan-NEW (second year+live on students only)</td>
<td>-</td>
<td>-</td>
<td>$5,208</td>
<td>-%</td>
</tr>
<tr>
<td>Summer - Dining Plan Rate (weekly rate disclosed)</td>
<td>150</td>
<td>$7</td>
<td>157</td>
<td>4.67%</td>
</tr>
</tbody>
</table>

## Hillside Block Plans

<table>
<thead>
<tr>
<th>Block Plans</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>150 Block Plan with $150 Dining Dollars (per semester)-NEW</td>
<td>-</td>
<td>-</td>
<td>$3,044</td>
<td>-%</td>
</tr>
<tr>
<td>150 Block Plan</td>
<td>$2,640</td>
<td>$104</td>
<td>$2,744</td>
<td>3.94%</td>
</tr>
<tr>
<td>100 Block Plan with $100 Dining Dollars (per semester)-NEW</td>
<td>-</td>
<td>-</td>
<td>$2,164</td>
<td>-%</td>
</tr>
<tr>
<td>100 Block Plan</td>
<td>$1,890</td>
<td>$74</td>
<td>$1,964</td>
<td>3.92%</td>
</tr>
<tr>
<td>75 Block Plan with $75 Dining Dollars (per semester)-NEW</td>
<td>-</td>
<td>-</td>
<td>$1,666</td>
<td>-%</td>
</tr>
<tr>
<td>75 Block Plan</td>
<td>$1,460</td>
<td>$56</td>
<td>$1,516</td>
<td>3.84%</td>
</tr>
</tbody>
</table>

## IPEDS Standard Housing/Dining Combined Rate

*Rate reported to US Department of Education Integrated Postsecondary Education Data System based on their requirement to report the typical room charge for the full academic year for a full-time student sharing a room with one other student and to report the board charge based on the maximum meal plan available for the full academic year to a full-time student. Combines standard double with gold meal plan.*

**IPEDS Standard Housing/Dining Combined Rate**

<table>
<thead>
<tr>
<th>Proposed Increase</th>
<th>2024-2025</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>$12,524</td>
<td>$13,020</td>
<td>3.96%</td>
</tr>
</tbody>
</table>
# Independent Living-Apartment and House Rates 2024-2025

## Daniell Heights Apartments & University Houses

Lease Agreement Dates: July 1, 2024 to June 30, 2025 or August 15, 2024 to June 30, 2025

<table>
<thead>
<tr>
<th>Monthly Rental Rate</th>
<th>2023-2024</th>
<th>Proposed Increase</th>
<th>2024-2025</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daniell Heights Student Rates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Bedroom</td>
<td>$825</td>
<td>$75</td>
<td>$900</td>
<td>9.09%</td>
</tr>
<tr>
<td>Two Bedroom</td>
<td>$1,150</td>
<td>$50</td>
<td>$1,200</td>
<td>4.35%</td>
</tr>
<tr>
<td>Three Bedroom</td>
<td>$1,460</td>
<td>$50</td>
<td>$1,510</td>
<td>3.42%</td>
</tr>
<tr>
<td><strong>Daniell Heights University Employee Rates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Bedroom</td>
<td>$1,040</td>
<td>$60</td>
<td>$1,100</td>
<td>5.77%</td>
</tr>
<tr>
<td>Two Bedroom</td>
<td>$1,300</td>
<td>$60</td>
<td>$1,360</td>
<td>4.62%</td>
</tr>
<tr>
<td>Three Bedroom</td>
<td>$1,610</td>
<td>$60</td>
<td>$1,670</td>
<td>3.73%</td>
</tr>
<tr>
<td><strong>University Houses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency (small) Single</td>
<td>$420</td>
<td>$50</td>
<td>$470</td>
<td>11.90%</td>
</tr>
<tr>
<td>Standard Single</td>
<td>$550</td>
<td>$50</td>
<td>$600</td>
<td>9.09%</td>
</tr>
<tr>
<td>Deluxe (large) Single</td>
<td>$600</td>
<td>$60</td>
<td>$660</td>
<td>10.00%</td>
</tr>
</tbody>
</table>

## Daniell Heights Flex Housing

Lease Agreement Dates: August 15, 2024 to June 30, 2025 with flexible release policy (month-to-month)

<table>
<thead>
<tr>
<th>Monthly Rental Rate</th>
<th>2023-2024</th>
<th>Proposed Increase</th>
<th>2024-2025</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Daniell Heights Student Rates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Bedroom Apartment-Per Bed Rate (2 Occupancy)</td>
<td>$454</td>
<td>$41</td>
<td>$495</td>
<td>9.03%</td>
</tr>
<tr>
<td>Two Bedroom Apartment-Per Bed Rate (4 Occupancy)</td>
<td>$316</td>
<td>$14</td>
<td>$330</td>
<td>4.43%</td>
</tr>
</tbody>
</table>

Flex housing was first piloted in the 2022-2023 academic year as a tactic to increase on-campus housing capacity in response to demand. Flex housing divides rent equally and applies a premium for the month-to-month flexibility, increased furniture, and wear and tear on the facilities.
IX. Reports

A. Faculty Presentation: NASA
Paul van Susante, Assistant Professor, MEEM
Students, Parker Bradshaw, Robin Austerberry, and Austen Goddu
Planetary Surface Technology Development Lab
Competition Status

Paul van Susante, Ph.D.
Assistant Professor Mechanical Engineering – Engineering Mechanics
Holder of the Lou & Herbert Wacker Professorship in Mechanical Engineering
Affiliate Assistant Professor of Civil Environmental and Geospatial Engineering
Founder/Director/PI of the Planetary Surface Technology Development Lab
(PSTDL or Huskyworks – www.huskyworks.space)
Faculty Advisor of the Multiplanetary INnovation Enterprise

Michigan Technological University
Houghton, MI, USA
pjvansus@mtu.edu

2/16/2024, 9:00 – 11:00 AM, Houghton, MI
Board of Trustees Meeting
From Apollo to Artemis – background info

Apollo Missions (1960s-1970s)
- “Flags and Footprints” focus.
- Initial data collection.
- Short duration missions (3 days).
- Only focused on the Moon.

Artemis Missions (2022s-onwards)
- Science and Exploration focus.
- Developing sustainable lunar economy.
- Moon base(s) with permanent human presence.
- Space station orbiting the Moon (Gateway).
- Preparing to do all the above on Mars.
Goal: Sustainable Space Exploration

Need a lot of Mass to do things at scale – Use local material instead of bringing all from Earth \(\rightarrow\) ISRU
Space Exploration Growth – To the Moon

- NASA – ARTEMIS Program
  - ESA
  - Luxembourg
  - Australia
  - Japan
  - India

- China – astronauts on Moon by 2030

- Launch vehicles - Transportation
  - SpaceX
  - NASA
  - ULA
  - Blue Origin
  - Small launchers

- Commercial Space Stations

- ARTEMIS Accords
  - 35 countries

- Sustainable Space Exploration

- CIS-Lunar Economic Sphere

- On to Mars & Asteroids
Why ISRU – what is value?

In-Situ Resource Utilization

- Information
- Materials
  - Use In-Situ (processed or un-processed)
  - Export to Space
  - Export to Earth
- Energy
- New business models & opportunities

- Sustainability (independence)
- Risk Reduction
- Improve life on Earth

Mars ISRU for Production of Mission Critical Consumables - Options, Recent Studies, and Current State of the Art

- August 2015
- DOI: 10.2514/6.2015-4458
- Conference: AIAA SPACE 2015 Conference and Exposition
Lunar Permanently Shaded Regions (PSR)

Where is the water?

Sun never shines in PSR - Ice Presence detected
Value of propellant – water (H₂ and O₂)
The MTU Planetary Surface Technology Development Laboratory (PSTDL) is a new (since 2019) research facility designed and led by Dr. van Susante at Michigan Technological University (MTU) and consists of several spaces with various equipment and supporting labs.

The goal of the PSTDL is:

to research, prototype, build, test and quickly increase the TRL of technology being developed for lunar and mars missions, partner with government and industry to be part of those payloads and missions to other planetary surfaces.

*Launch an MTU payload to the lunar surface and operate it.*

www.huskyworks.space
PSTDL Research and Technology Development Focus

- Lunar PSR Volatile Detection and quantification and Mapping
- Lunar Ice mining and water extraction
- Lunar Tethered Power delivery using superconducting tether
- Lunar ISRU & Construction
  - Landingpads
  - Trenching
  - Simple unpressurized structures for thermal, blast, radiation and micrometeoroid impact protection
  - Construction site work
- Regolith handling and transport
- Mars water extraction from hydrated mineral rock
- Mars water extraction from buried glaciers
- TRL-6 testing in lunar environmental conditions

- Find Water Ice
- Provide Power & Comms
- Extract and Process Ice
- ISRU & Construction
- Testing

- Mobility
- Field Testing / Proving ground testing
- Lab Testing
- Relevant Environment Testing
- Lunar Simulant Preparation
NASA Funding Sources - $5M in 4.5 years to PSTDL

Lunar Surface Innovation Initiative (LSII) Collaboration Highlights

MTU PSTDL funding achieved – tech development and risk reduction

Commercial Lunar Payload Services (CLPS) Technology Demonstrations (i.e. PRIME-1 mass spectrometer and drill, Nokia 4G Wireless and Intuitive Machines Deployable Hopper)

$127M – Tipping Points & Collaborative Opportunities (10 TPs & 5 ACOs selected in 2020)

$36M – SBIRs (Ph. I, II, III, CCRPP, Lunar Sequentialss)

$14M – Space Technology Research Grants (6 LuSTR Opportunity, ECF, ESI)

$9.9M – NextSTEP BAA (9 ISRU awardees with multiple ground demos)

$3.5M – Vertical Solar Array Technology (VSAT) Solicitation (5 Phase 1 Awards)

$3M – NIACs (including first Phase 3 award for Exploration of Lunar Pits)

$2M – Breakthrough Innovative Game-changing (BIG) Challenge 2020 Permanently Shadowed Region – 8 teams; 2021 Dust – 7 teams

$1.4M – NASA Tournament Labs (GrabCAD, Yet2, HeroX) Open-source Challenges

$1M – Centennial Challenges (‘Watts on the Moon’ & ‘Break the Ice’ Challenges)

APL LSII Integration and Lunar Surface Innovation Consortium

Note: FY20-21 Awards

Future Goal
2 sub test
3 sub test
2 STTR
1 ESI, 1 LuSTR
1 LuSTR sub
completed
completed
Won in 2021
Watts 2021 & 2022
Runner up BTIC
Phase 2-3 in prep
Watts & BTIC 2-3
Recent Accomplishments

- Won “Artemis Award” in NASA BIG Idea Challenge - for Tethered – permanently shaded REgion eXplorer (T-REX) - $163k grant

- Won “Grand Prize” in phase I of NASA Watts on the Moon Challenge for scenario 2 - $100k prize for Wired Watts Whenever Whenever you Want (W^S)

- Won $200k award for Phase 2, level 1 of NASA Watts on the Moon Challenge and moved on to Phase 2, level 2 with TEMPEST (1 of 7 teams)

- Won $400k award for Phase 2, level 2 of NASA Watts on the Moon Challenge and moved on to final of Phase 2, level 3 with TEMPEST (1 of 4 teams)

- Won “Runner up” prize - $25k in NASA’s Break the Ice Challenge as part of Team LIQUID

- MTU-PSTDL team selected and awarded $38.5k for Phase 2, level 1 in NASA’s Break the Ice Challenge (1 of 13)

- MTU-PSTDL team selected and awarded $75k for Phase 2, level 2 in NASA’s Break the Ice Challenge (1 of 6)

Total $1M+
Personnel and Facilities

PSTDL – 2024
Paul van Susante
Research

Test
Contracts

Thermal emissivity testing
Mechanism dust testing
Material wear testing
Cube Rover Testing
3D printing in DTVAC

IRAD
Pier Stocchi
Ben Wiegand
Anna Gulani

Power Testing in Lunar environment

MINE
82 students

BO
Project

Break the Ice
Challenge 2-3
Icy Regolith Excavation
15+ students

Watts on the Moon
Challenge 2-3
Power Conversion, Transfer,
Storage, Delivery and Deployment
10+ students

Safety & Operations
Proposal Writing

35 Undergraduate, Graduate (hourly & FT)
Special topics / MINE course credit
2 Research Engineer (1 temp)
6+ majors (ME, EE, CS, CPE, GMES, CEGE, etc)
Lunar Test Facilities at MTU

- Dusty TVAC
  - 2x1.5x1.5 m
  - 3250 gal LN$_2$
  - Freezer container
  - Heating Container

- Lunar test bed
  - Lunar simulant
  - Slopes
  - Obstacles
  - Gravity offloading

- KRC
  - 900 acres proving ground – all terrain / all year
  - 25 metric ton of lunar simulant

- Stamp Sands
  - 1400+ acres
  - Crushed basalt
  - Summer and winter testing
MTU PSTDL ISRU research

- **Extract Water from Mars Gypsum**
- **Deploy Cable down 45 deg Slope**
- **1m deep Cone Penetrometer**
- **GPR & field rover testing**
- **Traction / Excavation / Wear**
- **Long Distance Driving**

**Find Water Ice / Volatiles**

**Excavate and Extract Ice**

**Vacuum Rated Trencher**

**Deploy Power Provide Power Transfer / Storage**

**Regolith transfer/storage**

**Vacuum Rated Trencher**

**“Infinite Regolith Transfer”**

**Excavate Cemented Material**
Test operation in lunar Dusty TVAC

- Vacuum Regolith Conveyance
- Vacuum Regolith flow in Hoppers
- ASTM G65 Wear Testing
- Vacuum Rated Direct Shear Test
- Vacuum Rated Trencher
- Thermal Testing
- Super- Conducting Power Transfer Test
- Battery Vacuum Qualification Test
- Super-Conducting Power Transfer Test
What does Growth Need?

- **Supply Chain Challenges**
  - Need for larger space rated dust tolerant actuators (electric)
  - Need for larger space rated motors
  - Space Electronics and boards
  - Larger space power storage
  - High Voltage DC Power conversion
  - MI suppliers in growing market?
  - US made
  - Expand Space Exploration in MI

- **Larger Scale Testing in relevant environment**
  - 100s-1000s of km/year driving
  - 1000s metric tons/year excavation
  - MTBF: 10 lunar days (300 Earth days) <2 hr to repair
  - Weather independent

<table>
<thead>
<tr>
<th>Capability or KPP</th>
<th>SoA</th>
<th>Threshold</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavation</td>
<td>Surveyor Scoop: &lt; 10kg</td>
<td>100s t/year</td>
<td>1000s t/year</td>
</tr>
<tr>
<td>Dist. Traveled</td>
<td>Opportunity Rover: 46 km</td>
<td>100s km/year</td>
<td>1000s km/year</td>
</tr>
<tr>
<td>Repeated Trafficking</td>
<td>Apollo rover: 5X</td>
<td>100s X</td>
<td>1000s X</td>
</tr>
<tr>
<td>Operational Range between resource &amp; delivery site</td>
<td>None</td>
<td>500 m</td>
<td>&gt; 1 km</td>
</tr>
<tr>
<td>Recharge Cycles (assuming no on-board PV charging)</td>
<td>None</td>
<td>10s X</td>
<td>100s X</td>
</tr>
<tr>
<td>Operational Lifetime</td>
<td>Chinese Yutu Rover</td>
<td>1 year</td>
<td>5 years</td>
</tr>
<tr>
<td>Reliability &amp; Repair</td>
<td>Many lunar day/night cycles</td>
<td>None</td>
<td>MTBF: 1 lunar day MTTR: &lt;24 hrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MTBF: 10 lunar days MTTR: &lt;2 hrs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 measurement per 100 m²</td>
<td>10 autonomous measurements per 100 m²</td>
</tr>
<tr>
<td>10mm resolution</td>
<td>5mm resolution</td>
</tr>
<tr>
<td>4 m tall</td>
<td>7 m tall</td>
</tr>
<tr>
<td>25 m radius</td>
<td>50 m radius</td>
</tr>
<tr>
<td>&lt;10 cm</td>
<td>&lt;50 cm</td>
</tr>
<tr>
<td>1.0 m deep</td>
<td>3.0 m deep</td>
</tr>
</tbody>
</table>
# Travel Perspective

<table>
<thead>
<tr>
<th>Case</th>
<th># RASSOR-class loads (@80 kg/load)</th>
<th>Distance from Ore to Plant, typical</th>
<th># RASSOR – class Excavators used (@ 60% On-Duty)</th>
<th>Travel Distance (km in 480 sols)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 – Regolith @425K</td>
<td>&gt;25,000</td>
<td>~100 m</td>
<td>3 excavators</td>
<td>5,000 (3) [1,667 (1)]</td>
</tr>
<tr>
<td>D2 – Regolith @575K</td>
<td>&gt;15,800</td>
<td>~100 m</td>
<td>2 excavators</td>
<td>3,160 (2) [1,580 (1)]</td>
</tr>
<tr>
<td>C – Smectite (proximaty)</td>
<td>&gt;7,000</td>
<td>~100 m</td>
<td>1 excavator</td>
<td>1,400</td>
</tr>
<tr>
<td>B - Gypsum</td>
<td>&gt;2,000</td>
<td>~100 m</td>
<td>1 excavator</td>
<td>400</td>
</tr>
<tr>
<td>B - Gypsum (same)</td>
<td>~1,200 m</td>
<td></td>
<td>1 excavator</td>
<td>4,800</td>
</tr>
<tr>
<td>B - Gypsum (same)</td>
<td>~3,000 m</td>
<td></td>
<td>2 excavators [12,000 (2)] [6,000 (1)]</td>
<td></td>
</tr>
</tbody>
</table>
Break The Ice Lunar Challenge

Presented by: Parker Bradshaw, Robin Austerberry, Austen Goddu
**Challenge Timeline**

**Phase 1**
System level design for collaborative lunar excavation rovers

PSTDL 1 of 10 runner ups as part of Team LIQUID
Won $25k Prize

Aug 2021

**Phase 2 Level 2**
Prototype vehicle tested in PSTDL built facilities at KRC

PSTDL 1 of 6 to advance
Won $75k Prize

Oct 2023

**Phase 2 Level 1**
Detailed proposal to build and test prototype system

PSTDL 1 of 15 to advance
Won $38k Prize

Nov 2022

**Phase 2 Level 3**
Head to head competition at NASA facility against other teams

PSTDL participating in May
$1.5M prize pool

May 2024
BTIL Project Overview

Excavation Prototype Rover

PRIMROSE

- **Persistent Regolith In-situ Mining Rover with Onboard Surface Excavator.**
- Single rover solution that excavates, hauls, and delivers material
- Per wheel steering and suspension
- Uses conventional chain trencher

Inspiration

PSTDL team at the end of the level 2 demonstration
Level 2 Experience

Level 2 Testing Arena

Lunar Proving Ground

- Temporary facility built for BTIL at KRC
- Has transportation area to simulate driving on the moon
  - 16,000 kg of lunar regolith simulant
- Excavation area has cemented material to simulate permafrost
- Staffed 24/7 for 15 days by students
Break the Ice Lunar Challenge - Phase 2 - 2

Target: 12,000 kg (800 kg/day) Excavated, drive 500m each way, 3 trips/day, 45km
15 day BTIL Durability Demonstration Test

Regolith Mixing
Drive zone prep
Excavation zone prep
15 days 24/7

3,000 kg Excavated
30 km driven on regolith
Level 2 Experience

Performance Summary

Real World Performance
- Total rover mass: **332 kg**
- Total collected permafrost: **2990 kg**
- Traversed: **30 km**

Performance Bottlenecks
- Mobility issues in regolith simulant track
- Moisture content of terrestrial test facilities
- Excavated CLSM transfer efficiency
- Lack of advanced controls automation
- Communication Loss of Signal
BTIL Finals Competition Detail

Level 3 Competition Detail

BTIL Finals Venue

- PSTDL team will travel to Alabama A&M to compete
- Competition takes place in June 2024

Competition Overview

- Compete head to head with other BTIL teams
- Excavation event and transportation event
- Time trial style where each team gets 60 minutes to complete tasks
- Excavation & Traversing
- High scoring robots must be energy efficient and low mass
BTIL Transportation Event

Transportation Event:

- Complex terrain including boulders, rocks, and craters
- BTIL Teams will compete one after another
- Scored on energy use and mass of rovers

Shortcuts

- Three shortcuts are available:
  - 30 degree upward slope
  - 10 degree sideways slope
  - Boulder field
- Fully loaded one way, empty return
Excavation Event:

- Excavate target amount of permafrost simulant in one hour
- Gravity offloading to simulate lunar gravity

Additional Science

- Planned journal paper about excavation performance
- Energy efficiency and performance ability
- Inform future ISRU mission planners
Next Steps

Planned Mobility Upgrades

- Larger wheels, modified steering angles
- New excavator conveyor belt design
- More sensors, more automation
Next Steps

Planned Excavation Upgrades

- New excavator conveyor belt design
- More robust control
- Additional force & power data collection
Future Ambitions

Lunar Technology

- NASA has ISRU missions being planned now
- BTIL experience is related to mission objectives
- Students with space hardware experience
- Future MTU hardware on Lunar Surface?
The Future Needs Michigan Tech!
To the Moon and Beyond!
Any Questions?

- Website: [www.huskyworks.space](http://www.huskyworks.space)
- Contact: [pjvansus@mtu.edu](mailto:pjvansus@mtu.edu)

Lunar Proving Grounds @ MTU:
[BACKUP] Performance Graphs

- **Repair Events (#) vs. Cycle Number (#)**
  - Repair Events (#)
  - Moving Avg for Repair Events (#)

- **Per Cycle Energy Eff. (kg/kWh) vs. Cycle Number (#)**
  - Per Cycle Energy Eff. (kg/kWh)
  - Trendline for Per Cycle Energy Eff. (kg/kWh)

- **Cycle Duration vs. Cycle Number**
  - Cycle Duration (hr:min)
  - Moving Avg for Cycle Duration (hrs)
Conference papers already presented

- AIAA ASCEND: Long Duration Testing of a Rover-Mounted Chain Trencher Excavator in Simulated Lunar Surface Conditions
- LSIC Fall Meeting: Watts on the Moon and Break the Ice Lunar Challenge Experiences

Planned Journal Papers

- Mobility Performance of an Articulated Suspension Rover on Complex Terrain
- Icy Regolith Excavation Performance of a Chain Trencher for Moon and Mars
- System architecture paper
B. Undergraduate Student Government
Mason Krause, President
USG Board of Trustees Presentation
Mason Krause, USG President
2-23-2023
USG Break Bus Update

Wisconsin/Chicago Bus

- Significant interest for future busses
- 25 of 55 Tickets Sold as of 2/5/24
- Most passengers still departing at Chicago
- Rhinelander and Madison stops removed to reduce cost
- New MTU ticketing software further reduced cost from $149.29 to $138.75
USG Committee Updates

Student Affairs - Connor Zavislak
- Looking into the feasibility of a campus lounge for commuter students
- Taking a proactive approach to reaching out to different organizations on campus and asking them how they would like to be supported
- Negotiating with and alongside University Administration on a possible contract with CollegePads

Events - Cole Pierucki
- Continuing development and enhancement of the USG Break Bus
- Increased outreach events
- Revamped body-barn inventory and contract system
USG Committee Updates

Political Affairs - Brendan Leddy
- Preparing for the upcoming primary elections and presidential elections.
  - Aiming to increase student voter registration and voting participation
- Preparing for upcoming USG elections
- Living room conversations returning!

Public Relations - Madison Mattila
- More frequent and in-depth social media posts with “USG Weekly Updates”
- More cohesive and consistent branding across social media, posters, fliers, and table tents
- Updated USG website including new headshots of all members
USG Committee Updates

Ways and Means - Emily Ruf
- Budget hearings fast approaching
- Continuing to meet with RSO’s to go over revision requests, opportunity fund requests, reserve fund requests, and checking and approving purchase request tickets.

Ad Hoc Special Budgetary Group Review Committee - Isobel Bowker
- Successfully sent requests for materials (inventories, event history, attendance information, etc.), met with officers of all SBGs, delivered recommendations to the USG body for approval, and voted to renew SBG status for all 6 groups.
- The committee successfully fulfilled its task with no significant delays!
Finish the following statement: Prior to this survey I feel the Student Activity fee has had a _______ impact on my experience at MTU.

80.9% View the SAF as having a positive impact on campus
SAF Review Ad-Hoc Committee

Student Body Survey - Demographic Information

Are you a member of an RSO?

- Yes: 28.2%
- No: 71.8%

Do you hold a leadership position in an RSO?

- Yes: 69.2%
- No: 30.8%
Finish the following statement: I feel the RSO's I participate in receive:

587 responses

- 62.4% too little funding.
- 37% enough funding.
- 0% too much funding.
Respond to the following statement: If it meant a change in my RSO's budget I would support:

- a decrease in the Student Activity Fee (less money for my RSO's)
- no change in the Student Activity Fee (similar amount of money for my RSO's)
- an increase in the Student Activity Fee (more money for my RSO's)

593 responses

- 60.7%
- 33.1%
Would you support the student activity fee staying the same for current students but increasing for newly enrolled students?

696 responses

- Yes: 59.3%
- Neutral: 17.4%
- No: 23.3%
# SAF Review Ad-Hoc Committee

## Next Steps

<table>
<thead>
<tr>
<th>November 2023</th>
<th>January / February</th>
<th>March</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan Making  RSO Officer Survey  SAF Advertising  Student Body Survey</td>
<td>Survey Data Analysis  Focus Groups  Budget Hearings</td>
<td>Begin Preparing for Recommendation  Continued Focus Groups</td>
<td>Deliver findings and recommendation to the Board of Trustees (April 26th, 2024)</td>
</tr>
</tbody>
</table>
In your opinion, is after Week 7 too early, late, or perfect for Spring Break? (the last week of February)

1,152 responses

- Too Early: 91.8%
- Too Late: 7.5%
- Perfect: 0.7%
AFTER which week would you prefer to see Spring Break begin?

1,152 responses

- 37.3% preferred Week 6
- 51.5% preferred Week 8 (Spring 2023 and earlier)
- Other weeks (Weeks 7, 9, 10, 11, 12) had much lower percentages.
Thank you! Questions or Comments?

Mason Krause
mrkrause@mtu.edu
usg-president@mtu.edu
C. Graduate Student Government
   Karlee Westrem, President
GSG Graduate Research Colloquium

March 26th
Oral Presentations 9-3pm in Alumni Lounge
Poster Presentation 5-8pm in Rozsa Lobby

March 27th
Annual Banquet 5pm to celebrate research progress, merit awards, graduate school & department awards along with a keynote speaker.

We are looking for faculty judges for both sessions.
Upcoming Events

Career Planning Part 2  Dr. Melissa Baird
Leadership Workshop  Dr. Pushpalatha Murthy
H1B workshop  Global Detroit

Winter Carnival Chillout  Grad Commons
Cultural Night  Collaboration with Cultural Organizations
Tea & Pottery Night  Magic Kiln
Laser Tag  Respawn Laser Tag
Grad Commons
May 1, 2022 - January 31, 2024

2,664 swipes*
434 unique students
~33% of graduate students

Weekly Events:
Board game nights
Coffee chats

TRAVEL AND CAREER ENRICHMENT GRANTS

121 Travel Grants
9 Career Enrichment

February 23, 2024
THANK YOU!
D. University Senate
Robert Hutchinson, President
University Senate Update

Robert Hutchinson, Senate President

February 23, 2024
Spring 2024

- 5-24: Proposal to Extend Employee Benefits Posthumously to Surviving Beneficiaries

- Referendum approved 41-22: Amendments to the University Senate Constitution

- Approved 2 other curricular proposals and have 10+ more being prepared by the Senate Curricular Policy Committee

February 23, 2024
Upcoming Agenda Items

• 6-24: Proposal to Modify Sections 2.1 and Appendix L of the Faculty Handbook to Update Instructional Track Faculty Reappointment and Promotion Review

• Continue Working on Search Procedures for and Evaluation Procedures of Department Chairs and School Deans

• University President Review

• Continue working to increase staff participation on the Senate

• Preparing to transition to daytime meetings for the 24-25 academic year
X. Informational Items
   A. Analysis of Investments
MICHIGAN TECH UNIVERSITY
INVESTMENT PORTFOLIO
JUNE 30, 2023 THROUGH DECEMBER 31, 2023

<table>
<thead>
<tr>
<th></th>
<th>Market Value 6/30/2023</th>
<th>Market Value 12/31/2023</th>
<th>Fiscal-Year Return</th>
<th>Benchmark Return</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money Market Fund</td>
<td>$ 1,706,318</td>
<td>$ 1,797,105</td>
<td>1.71%</td>
<td>1.83%</td>
<td>3-Month T-Bill</td>
</tr>
<tr>
<td>Equity Funds:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Equity Fund</td>
<td>7,818,944</td>
<td>5,689,032</td>
<td>8.31%</td>
<td>8.04%</td>
<td>S&amp;P 500</td>
</tr>
<tr>
<td>Commonfund Strategic</td>
<td>5,485,594</td>
<td>3,735,127</td>
<td>6.41%</td>
<td>8.04%</td>
<td>S&amp;P 500</td>
</tr>
<tr>
<td>Solutions Equity Fund</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Equity Funds</td>
<td>13,304,538</td>
<td>9,424,159</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Income Funds:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate Term Fund</td>
<td>7,252,185</td>
<td>6,217,629</td>
<td>3.43%</td>
<td>3.25%</td>
<td>ICE BofA Merrill Lynch 1-3 Yr Treasury</td>
</tr>
<tr>
<td>Commonfund Contingent</td>
<td>9,594,832</td>
<td>9,798,799</td>
<td>2.98%</td>
<td>3.25%</td>
<td>ICE BofA Merrill Lynch 1-3 Yr Treasury</td>
</tr>
<tr>
<td>Asset Portfolio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Quality Bond Fund</td>
<td>5,230,205</td>
<td>4,366,933</td>
<td>3.30%</td>
<td>3.37%</td>
<td>Bloomberg Barclays US Aggregate Bond Index</td>
</tr>
<tr>
<td>Multi-Strategy Bond Fund</td>
<td>5,899,333</td>
<td>5,097,560</td>
<td>3.16%</td>
<td>3.37%</td>
<td>Bloomberg Barclays US Aggregate Bond Index</td>
</tr>
<tr>
<td>Total Fixed Income Funds</td>
<td>27,976,555</td>
<td>25,480,921</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$ 42,987,411</td>
<td>$ 36,702,185</td>
<td>4.59%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Current Asset Allocation
- Cash Equivalents, 5%
- Fixed Income - Short Duration, 43%
- Equities, 26%
- Fixed Income - Long Duration, 26%

Target Asset Allocation
- Cash Equivalents, 5%
- Fixed Income - Short Duration, 35%
- Equities, 35%
- Fixed Income - Long Duration, 26%
C. Research & Sponsored Programs

Sponsored Activities Summary
Fiscal Year 2024, Quarter Ended 12/31/2023

- Total awards are up 26.6% for FY24 compared to FY23.
- Gifts are down 1.0% for FY24 compared to FY23.
- Federal agency awards are up 28.5% for FY24 compared to FY23.
- Overall Industry activity decreased by 37.7% over the last fiscal year. However, it should be noted that a singular $3 million industry related award was received in Q1 of FY23 which was not the case in FY24.
- Research expenditures are up 3.8% over FY23. External expenditures increased by 1.9% compared to FY23. Internal expenditures are up 6.3% over last fiscal year.
**Sponsored Awards**  
**Fiscal Year 2024**  
**2nd Quarter**  
**Ended Dec 31, 2023**  
**TOTAL:** $53,127,739

---

**Pre-Proposals Submitted**  
(excluded from Proposals Submitted figures below)

FYTD 2023: 33  
FYTD 2024: 10

---

### Proposals Submitted

<table>
<thead>
<tr>
<th>Sponsor</th>
<th>FY '24 as of 12/31</th>
<th>FY '23 as of 12/31</th>
<th>FY '24 as of 12/31</th>
<th>FY '23 as of 12/31</th>
<th>FY '24 as of 12/31</th>
<th>FY '23 as of 12/31</th>
<th>Variance</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASA</td>
<td>43</td>
<td>45</td>
<td>12</td>
<td>18</td>
<td>1,690,210</td>
<td>2,739,877</td>
<td>-1,049,667</td>
<td>-38.3%</td>
</tr>
<tr>
<td>National Science Foundation</td>
<td>91</td>
<td>77</td>
<td>21</td>
<td>30</td>
<td>10,665,088</td>
<td>8,775,173</td>
<td>1,889,915</td>
<td>21.5%</td>
</tr>
<tr>
<td>US Department of Agriculture</td>
<td>34</td>
<td>37</td>
<td>17</td>
<td>26</td>
<td>1,224,216</td>
<td>1,968,883</td>
<td>-744,667</td>
<td>-37.8%</td>
</tr>
<tr>
<td>US Department of Defense</td>
<td>48</td>
<td>44</td>
<td>32</td>
<td>46</td>
<td>7,139,392</td>
<td>10,877,441</td>
<td>-3,738,049</td>
<td>-34.4%</td>
</tr>
<tr>
<td>US Department of Education</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1,111,583</td>
<td>281,024</td>
<td>830,559</td>
<td>295.5%</td>
</tr>
<tr>
<td>US Department of Energy</td>
<td>24</td>
<td>26</td>
<td>19</td>
<td>17</td>
<td>6,519,612</td>
<td>1,209,067</td>
<td>5,310,545</td>
<td>439.2%</td>
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<tr>
<td>US Department of HHS</td>
<td>27</td>
<td>26</td>
<td>18</td>
<td>17</td>
<td>5,300,998</td>
<td>1,489,737</td>
<td>3,811,261</td>
<td>255.8%</td>
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<tr>
<td>US Department of Transportation</td>
<td>9</td>
<td>19</td>
<td>14</td>
<td>11</td>
<td>4,684,564</td>
<td>3,040,688</td>
<td>1,643,876</td>
<td>54.1%</td>
</tr>
<tr>
<td>Other Federal Agencies*</td>
<td>31</td>
<td>23</td>
<td>26</td>
<td>15</td>
<td>3,558,219</td>
<td>2,219,707</td>
<td>1,338,512</td>
<td>60.3%</td>
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<tr>
<td><strong>Federal Agency Total</strong></td>
<td>309</td>
<td>299</td>
<td>162</td>
<td>171</td>
<td>41,893,882</td>
<td>32,601,597</td>
<td>9,292,285</td>
<td>28.5%</td>
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<tr>
<td>State of Michigan</td>
<td>26</td>
<td>24</td>
<td>17</td>
<td>15</td>
<td>4,424,074</td>
<td>1,605,089</td>
<td>2,818,985</td>
<td>175.6%</td>
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<tr>
<td>Industrial</td>
<td>96</td>
<td>75</td>
<td>74</td>
<td>70</td>
<td>3,913,919</td>
<td>4,106,786</td>
<td>-192,867</td>
<td>-4.7%</td>
</tr>
<tr>
<td>Foreign</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>83,060</td>
<td>331,218</td>
<td>-248,158</td>
<td>-74.9%</td>
</tr>
<tr>
<td>All Other Sponsors</td>
<td>43</td>
<td>34</td>
<td>13</td>
<td>16</td>
<td>1,029,387</td>
<td>1,534,053</td>
<td>-504,666</td>
<td>-32.9%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>477</td>
<td>435</td>
<td>453</td>
<td>402</td>
<td>53,127,739</td>
<td>41,980,914</td>
<td>$11,146,825</td>
<td>26.6%</td>
</tr>
<tr>
<td>Gifts**</td>
<td>N/A</td>
<td>N/A</td>
<td>182</td>
<td>121</td>
<td>1,782,029</td>
<td>1,800,890</td>
<td>-18,861</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Crowdfunding</td>
<td>N/A</td>
<td>N/A</td>
<td>2</td>
<td>4</td>
<td>1,388</td>
<td>1,281</td>
<td>107</td>
<td>8.4%</td>
</tr>
</tbody>
</table>

**Grand Total**  
477          435          453          402          53,127,739          41,980,914          $11,146,825          26.6%

---


**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.
### Fiscal Year 2024
2nd Quarter
Ended Dec 31, 2023

**TOTAL:** $53,127,739

#### Percentages of Tenured & Tenure Track Faculty (as either PI or Co-PI)
- Submitting Proposals since 07/01/2023: 55.4%
- On Active Projects as of 12/31/2023: 59.7%

#### SPO & OIC Metrics

<table>
<thead>
<tr>
<th>Division</th>
<th>Administration</th>
<th>College of Business</th>
<th>College of Computing</th>
<th>College of Engineering</th>
<th>College of Sciences &amp; Arts</th>
<th>College of Forest Resources &amp; Env Science</th>
<th>College of Great Lakes Research Center</th>
<th>Michigan Tech Research Institute</th>
<th>Totals</th>
<th>Fiscal Comparison</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposals Submitted</td>
<td>14</td>
<td>3</td>
<td>1</td>
<td>27</td>
<td>221</td>
<td>60</td>
<td>51</td>
<td>18</td>
<td>36</td>
<td>46</td>
<td>477</td>
</tr>
<tr>
<td>Awards Received</td>
<td>122</td>
<td>3</td>
<td>4</td>
<td>15</td>
<td>169</td>
<td>29</td>
<td>29</td>
<td>15</td>
<td>37</td>
<td>29</td>
<td>402</td>
</tr>
<tr>
<td>Federal</td>
<td>1,511,583</td>
<td>49,980</td>
<td>-</td>
<td>4,644,790</td>
<td>11,850,951</td>
<td>1,149,792</td>
<td>7,045,827</td>
<td>489,525</td>
<td>3,869,210</td>
<td>2,519,555</td>
<td>33,131,213</td>
</tr>
<tr>
<td>Federal Pass-Through</td>
<td>430,607</td>
<td>-</td>
<td>-</td>
<td>126,500</td>
<td>6,051,125</td>
<td>61,995</td>
<td>279,944</td>
<td>269,080</td>
<td>3,625</td>
<td>1,539,793</td>
<td>8,762,669</td>
</tr>
<tr>
<td>Foreign</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>73,000</td>
<td>10,060</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>83,060</td>
<td>-</td>
</tr>
<tr>
<td>Gifts</td>
<td>1,221,317</td>
<td>-</td>
<td>9,000</td>
<td>69,847</td>
<td>312,931</td>
<td>27,000</td>
<td>123,434</td>
<td>-</td>
<td>18,500</td>
<td>-</td>
<td>1,782,029</td>
</tr>
<tr>
<td>Crowdfunding</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,388</td>
<td>-</td>
</tr>
<tr>
<td>Industry</td>
<td>25,914</td>
<td>41,505</td>
<td>-</td>
<td>936,463</td>
<td>115,725</td>
<td>-</td>
<td>28,558</td>
<td>2,765,754</td>
<td>-</td>
<td>3,913,919</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>84,218</td>
<td>-</td>
<td>766,931</td>
<td>31,246</td>
<td>76,996</td>
<td>-</td>
<td>-</td>
<td>69,996</td>
<td>1,029,387</td>
<td>-</td>
</tr>
<tr>
<td>State of MI</td>
<td>433,500</td>
<td>-</td>
<td>-</td>
<td>445,000</td>
<td>3,527,030</td>
<td>-</td>
<td>-</td>
<td>18,544</td>
<td>-</td>
<td>4,424,074</td>
<td>-</td>
</tr>
<tr>
<td>Total $ by Division</td>
<td>3,622,921</td>
<td>91,485</td>
<td>93,218</td>
<td>5,286,137</td>
<td>23,518,431</td>
<td>1,395,818</td>
<td>7,526,664</td>
<td>806,632</td>
<td>4,129,344</td>
<td>53,127,739</td>
<td>-</td>
</tr>
<tr>
<td>Fiscal Comparison</td>
<td>1,903,905</td>
<td>753,805</td>
<td>78,500</td>
<td>3,907,705</td>
<td>15,382,648</td>
<td>2,891,371</td>
<td>2,589,830</td>
<td>263,247</td>
<td>4,680,315</td>
<td>7,529,588</td>
<td>41,980,914</td>
</tr>
<tr>
<td>Percent Change</td>
<td>90.3%</td>
<td>-67.9%</td>
<td>18.7%</td>
<td>35.3%</td>
<td>52.9%</td>
<td>-51.7%</td>
<td>64.0%</td>
<td>206.4%</td>
<td>42.2%</td>
<td>-45.2%</td>
<td>26.6%</td>
</tr>
<tr>
<td>Disclosures Received</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>40.00%</td>
<td>-</td>
<td>40.00%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nondisclosure Agreements</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>16</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>8</td>
<td>43</td>
</tr>
<tr>
<td>Patents Filed or Issued</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>100.00%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>License Agreements</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gross Royalties</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>75.00%</td>
<td>-</td>
<td>25.00%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>47,953</td>
<td>29,940</td>
</tr>
</tbody>
</table>

1 Combined Metrics from both the Sponsored Programs Office (SPO) and Office of Innovation & Commercialization (OIC)
2 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 2024**

**2nd Quarter**

**Ended Dec 31, 2023**

**TOTAL: $7,307,328**

### Industry Segment

<table>
<thead>
<tr>
<th>Industry Segment</th>
<th>FY '24 Proposals Submitted</th>
<th>FY '23 Proposals Submitted</th>
<th>FY '24 Awards Received ($K)</th>
<th>FY '23 Awards Received ($K)</th>
<th>Variance ($K)</th>
<th>Variance %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>29</td>
<td>28</td>
<td>2,692,725</td>
<td>2,884,535</td>
<td>-191,810</td>
<td>-6.6%</td>
</tr>
<tr>
<td>Business &amp; Economics</td>
<td>1</td>
<td>3</td>
<td>248,916</td>
<td>356,243</td>
<td>-107,327</td>
<td>-30.1%</td>
</tr>
<tr>
<td>Chemical</td>
<td>2</td>
<td>6</td>
<td>99,099</td>
<td>34,539</td>
<td>64,560</td>
<td>186.9%</td>
</tr>
<tr>
<td>Civil</td>
<td>11</td>
<td>3</td>
<td>106,400</td>
<td>273,038</td>
<td>-166,638</td>
<td>-61.0%</td>
</tr>
<tr>
<td>Consumer Products</td>
<td>15</td>
<td>15</td>
<td>332,757</td>
<td>781,681</td>
<td>-448,924</td>
<td>-57.4%</td>
</tr>
<tr>
<td>Defense &amp; Space</td>
<td>16</td>
<td>16</td>
<td>996,149</td>
<td>5,538,039</td>
<td>-4,542,890</td>
<td>-82.0%</td>
</tr>
<tr>
<td>Energy</td>
<td>6</td>
<td>1</td>
<td>178,453</td>
<td>86,200</td>
<td>92,253</td>
<td>110.0%</td>
</tr>
<tr>
<td>Environmental</td>
<td>-</td>
<td>2</td>
<td>40,144</td>
<td>59,395</td>
<td>-19,251</td>
<td>-32.4%</td>
</tr>
<tr>
<td>Health</td>
<td>9</td>
<td>4</td>
<td>158,295</td>
<td>367,847</td>
<td>-209,552</td>
<td>-57.0%</td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td>9</td>
<td>5</td>
<td>136,317</td>
<td>53,000</td>
<td>83,317</td>
<td>157.2%</td>
</tr>
<tr>
<td>IT Services</td>
<td>6</td>
<td>3</td>
<td>30,850</td>
<td>72,451</td>
<td>-41,601</td>
<td>-57.4%</td>
</tr>
<tr>
<td>Mining &amp; Metals</td>
<td>8</td>
<td>9</td>
<td>257,465</td>
<td>216,100</td>
<td>41,365</td>
<td>19.1%</td>
</tr>
<tr>
<td>Other</td>
<td>15</td>
<td>9</td>
<td>1,661,879</td>
<td>243,563</td>
<td>1,418,316</td>
<td>582.3%</td>
</tr>
<tr>
<td>Technology</td>
<td>8</td>
<td>7</td>
<td>365,879</td>
<td>777,413</td>
<td>-411,534</td>
<td>-52.9%</td>
</tr>
</tbody>
</table>

**Total** 135 105 253 200 7,307,328 11,723,970 -4,416,642 -37.7%
Michigan Technological University
Total Research Expenditures by College/School/Division
Fiscal Year 2024 & 2023
As of December 31, 2023 and December 31, 2022

<table>
<thead>
<tr>
<th>College/School/Division</th>
<th>FY2024</th>
<th>FY2023</th>
<th>Variance</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration*</td>
<td>3,254,165</td>
<td>2,921,092</td>
<td>333,073</td>
<td>11.4%</td>
</tr>
<tr>
<td>Advanced Power Systems Research Center (APSRC)</td>
<td>853,954</td>
<td>706,289</td>
<td>147,665</td>
<td>20.9%</td>
</tr>
<tr>
<td>College of Business</td>
<td>905,089</td>
<td>992,880</td>
<td>(87,791)</td>
<td>-8.8%</td>
</tr>
<tr>
<td>College of Computing</td>
<td>2,832,843</td>
<td>2,388,571</td>
<td>444,272</td>
<td>18.6%</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>18,212,462</td>
<td>17,264,410</td>
<td>948,052</td>
<td>5.5%</td>
</tr>
<tr>
<td>College of Forest Resources &amp; Environmental Science</td>
<td>3,727,184</td>
<td>3,804,784</td>
<td>(77,600)</td>
<td>-2.0%</td>
</tr>
<tr>
<td>College of Science &amp; Arts</td>
<td>8,491,334</td>
<td>8,472,233</td>
<td>19,101</td>
<td>0.2%</td>
</tr>
<tr>
<td>Great Lakes Research Center (GLRC)**</td>
<td>1,158,701</td>
<td>816,064</td>
<td>342,637</td>
<td>42.0%</td>
</tr>
<tr>
<td>Keweenaw Research Center (KRC)</td>
<td>3,615,606</td>
<td>3,621,527</td>
<td>(5,921)</td>
<td>-0.2%</td>
</tr>
<tr>
<td>Michigan Tech Research Institute (MTRI)</td>
<td>6,226,929</td>
<td>6,479,184</td>
<td>(252,255)</td>
<td>-3.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>49,278,267</strong></td>
<td><strong>47,467,034</strong></td>
<td><strong>1,811,233</strong></td>
<td><strong>3.8%</strong></td>
</tr>
</tbody>
</table>

*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.
D. Advancement & Alumni Relations
2023-2024 Goals and Initiatives to be achieved in collaboration with administrative and academic leadership and the Michigan Tech Fund Board of Directors.

- Paramount focus on Donor Integrity
  - Invest in each segment of the donor journey and facilitate a strategic opportunity to match the donor’s passion
  - Utilize Flagship Campaign themes and material to jump-start new leadership gift donor relationships and facilitate acceleration of the ask in existing donor work
- Add new constituents and increase movement in the donor pipeline
- Launch and implement CRM
- Enhance donor impact and stewardship
- Get to 45% of the $350 million campaign goal

FY24 MTF Working Goals

- “The Year of Execution” on a Strong Foundation
  - Donor First: Culture supported by processes, practices and people
  - Campaign Execution: Provide oversight and resources for a successful campaign
  - Cash Flow Management: Execute and enhance cash flow
  - Endowment Growth: Higher emphasis on endowment gifts

Highlights

- Over $165.1 million in philanthropic contributions and currently 47% to the $350 million goal
- $49 million in outstanding asks
- New cash to the endowment since campaign inception: $19 million
- Planned gifts earmarked for the endowment $26.4 million
- 68 illustrations, proposals, and gift agreements were provided for donors
- Campaign:
  - Hosted Campaign Executive Committee meeting, January 22, 2024
  - Initiative working groups are meeting
    - Endowment Education and Growth Initiative
    - Principal Gifts ($1 million or more)
    - Cornerstone Gifts ($100,000 to $999,999)
    - Corporate and Foundation Acceleration
    - Volunteer Engagement
    - Pay Forward Culture
  - Hosted Planned Giving Session with college deans on February 19, 2024
- 58th GLI in Grand Rapids alumni event hosted on December 28, 2023
- Winter Carnival
  - Hosted the Alumni Board on campus for meetings and activities.
- Organizational
  - New hires: Director for Charitable Giving
  - Vacant positions:
    - Ongoing search for Director for Charitable Giving
    - Business Systems Analyst/Data Visualization Specialist
- Mark your calendars for Reunion Weekend 2024: August 1-3
Principal Giving

FY 24 Finalized Gifts - Verbal
- Finalized $12 million estate, outright and gift pledges for the College of Sciences and Arts, College of Engineering, scholarships and research.

FY24/FY25 Pending Gifts
- Working with an alumni and their spouses on over $5 million in gifts for the College of Business, an endowed faculty position and scholarship in Civil, Environmental, and Geospatial Engineering, Husky Childcare, Center for Convergence and Innovation Building, Athletics Department, and an endowed faculty position in the Electrical and Computer Engineering Department.

FY24 Upcoming Campaign Events
- Donor hosted dinners
  - Naples, FL - March 2024
  - Venice FL - March 2024
  - Armonk, NY - April 2024

FY 25 Upcoming Campaign Events
- Donor Hosted Dinners
  - Houghton/Dollar Bay, MI
  - Traverse City MI
  - Detroit MI
  - Houston TX
  - Northern Michigan

Advancement and Gift Planning Activity:
- Piloting collaborative fundraising strategy and travel planning with college, deans, and chairs.
- Advancement and Gift Planning frontline fundraisers have raised $13.15 million this fiscal year including 22 gifts of $25,000 or more in the month of December.
- Thirty one verbal commitments totalling $10.36 million have been received with an additional twenty-four gifts totaling $2.86 million expected to close by June 30, 2024.
- Frontline fundraiser travel is scheduled through March and planned through June 30.
- Enhancing customer service and organization of work with the launch of the adv-help@mtu.edu ticket queue.
- Implementing updated data governance and donor privacy plan in conjunction with the implementation of CRM Advance. The transition is in process with 1,500 records verified. Focus is shifting to automated receipting, fundraising reports, and dashboards. With support from EAS, working to ensure Finance Services and Operations and Student Financial Services receive the data they need from the system.
- Developed a comprehensive giving table and pyramid for athletics programs and priorities totalling $50 million.

FY 24/25 Pending Gifts
- 24 pending gifts at $2.86 million in pending proposals expected to close by Jun 30, 2024, with 31 verbal commitments totaling $10.36 million.
- Working on over $19 million in gifts designated to support:
  - Faculty professorships for aerospace engineering in ECE and MEEM
  - Applied physics
  - Endowed scholarship for Marquette County Students; nursing infrastructure
  - URIP and SURF
MSE professorships  
CDI/MUB building renovation  
SYP course endowment  
EERC renovation  
New residence hall

Alumni Engagement & Annual Giving
The AE team continues to execute its mission to cultivate significant, mutually beneficial, lifelong relationships with alumni through three key pillars: events, communications, and volunteerism. Updates below reflect work done under each pillar.

Communications
● From January - April, we have a full calendar of mass communications dropping to a variety of audiences, both solicitations and non-solicitations alike.
● We will again be hosting a 24-hour giving challenge: Save the Date - Give Back to the Pack: April 10-11, 2024
● Our social media and text message engagement continues to yield positive results - our vendor (that partners with our team on some of our annual giving campaigns) has noted that our text message campaigns - both solicitations and non-solicitations - perform better than most institutions they currently are working with. They note it is likely because of our well-rounded engagement efforts all year.

Volunteerism
● The Time & Talent initiative continues, after a very successful fall 2023 university-wide debut, with a second cohort of alumni planned for a week of guest lectures, meetings, and other volunteerism in early March 2024. Final cohort and dates to be announced soon.
● Alumni Board of Directors committees had a busy fall and look forward to a productive winter:
  ○ Recognition & Recruitment Committee: working on two large efforts that will be finalized during the full Alumni Board’s Winter Carnival meeting:
    ■ Identifying a new slate of Directors to serve on the Alumni Board. More than 20 alumni were nominated for seven open positions. This new slate of chosen Directors will begin their six-year term of service on July 1, 2024.
    ■ Naming the recipients of Alumni Awards to honor for 2024. Award winners will be notified first, their acceptance will be collected before publicly naming/promoting all winners later this spring. The Alumni Awards Ceremony will take place Friday, August 2, 2024 during Reunion Weekend.
  ○ The Alumni Resource Matchmaking (ARM) Committee: hosted a second limited-time “ARM crowdfunding campaign” that featured a select group of student organizations that the broader alumni could choose to support during the crowdfunding window. Six student organizations received crucial funds for special projects thanks to this initiative.
● PCA Service component
  ○ PCA is beginning on a modified track of the service element, which will provide more clarity for new PCA members, and allow a more tangible impact to an area of need on campus. This new tradition has already kicked off with our 2023 induction class and will carry forward for future induction classes.

Events
● The 2023 GLI pregame social, hosted by the AE Office before Thursday Dec 28’s hockey game, had a record 250+ registered in advance, and even more in actual attendance.
● The AE Office continues their tradition of hosting a variety of student-alumni programming and alumni events over Winter Carnival. In addition to hosting the Alumni Board for their regular meetings, the AE Office also:
○ Provides free chili to the community during the All-Nighter on Wednesday evening, in coordination with USG and GSG
○ Hosts Keweenaw area alumni in a skybox social that is also a scholarship fundraiser on Friday evening
○ Hosts an alumni-student broomball tournament on Saturday
○ Hosts an alumni social featuring a special Carnival archives display in the library, in partnership with the University Archives team, on Saturday morning

● Reunion 2024 planning is already underway, save the date for August 1-3, 2024. A full weekend of events, including beloved traditions (including the Pasty Dinner, Golden M Ceremony, and Alumni Awards) + new activities are in the works.
D. Media Coverage
Between Dec. 1, 2023 and Jan. 31, 2024, a total of 4,753 online articles mentioned Michigan Technological University:

02/23/24 Michigan Tech Board of Trustees Regular Meeting, Media Report - Articles
Those 4,753 articles were shared, commented on, or liked on social media roughly 137,000 times, for an average engagement of 28 shares, comments, or likes per article:

Journalists shared the articles 307 times, resulting in a reach of roughly 4.32 million people:

News Highlights:
Research News

Claudio Mazzoleni (Physics) was quoted by Phys.org in a story about a study, conducted by his team in collaboration with the Environmental Molecular Sciences Laboratory, that examined how solar radiation from the sun interacts with tar balls — individual light-absorbing brown particles that linger in the atmosphere after wildfires. The story was picked up from the EMSL.

MLive picked up updates on Michigan Tech’s 2023-24 study of wolves and moose on Isle Royale, the longest-running predator/prey study in the world. The story relayed comments and photos posted by the Michigan Tech research team from Jan. 21-19 on the Wolves and Moose of Isle Royale Facebook page. In a separate story, MLive covered a first for the study: the research team moving their survey plane off the Lake Superior ice due to warm temperatures.

Raymond Shaw (Physics) was quoted by Eos in a story about the “startlingly predictable” velocities of falling snow, as revealed by a recent study. The authors were able to measure snowflakes’ mass and density using an innovative device involving a frying pan and a camera.

Great Lakes Echo mentioned Michigan Tech in a story examining the use of smart buoys on Lake Erie to communicate data on water conditions, contaminants and nutrients to researchers and anglers. The buoy network was created by Freeboard Technology, a collaborator of Michigan Tech on other network-involved water studies. The story was picked up by Great Lakes Now.

Asian News International mentioned Michigan Tech in a story about three awards given by the United Arab Emirates Research Programme for Rain Enhancement Science (UAEREP). Researchers from MTU received one of the awards for their work on laboratory and modeling studies of cloud susceptibility to hygroscopic seeding. The story was picked up by 24 news outlets around the world.

Sarah Hoy (CFRES) was quoted by WLUC TV6 in a story about a MTU-led study linking periodontitis to severe forms of osteoarthritis and osteoporosis in moose. Michigan Tech’s Unscripted Research Blog published a post on the study earlier this month.

Emeritus Research Professor Charles Kerfoot (BioSci) was quoted by Great Lakes Now in a story about Buffalo Reef — a high-value fish spawning ground in Grand Traverse Bay threatened by 2.4 million tons of mine tailings, aka stamp sands. The story was first published by Undark.
Sangyoon Han (BioMed) was quoted by The Scientist in a story about a recent study reporting the promotion of cellular adhesion by the adaptor protein Cas.

Kristin Brzeski (CFRES) was quoted by Yahoo! News in a story about a town hall meeting Wednesday (Jan. 10) in Galveston, Texas, relating to Galveston Island’s unique population of ghost wolves — coyotes with a significant amount of DNA from the critically endangered red wolf. The story was picked up from FOX 26 Houston.

Zhanping You (CEGE) was pictured in the Iron Mountain Daily News alongside a story about the completion of road projects in 2023 in Dickinson County, with some roads resurfaced using a mix of recycled tire rubber and asphalt.

**General News**

Robert Nemiroff (Physics) was interviewed by ABC 10 in a TV segment about his recently published book, "Faster Than Light: How Your Shadow Can Do It But You Can’t," which uses humor to make physics approachable for general audiences. The Keweenaw Report also ran a story about Nemiroff’s book, which was mentioned in a Q&A published by Michigan Tech’s Stories from Husky Nation in January.

Alyssa Fredin (SFSC) was quoted by Bridge Michigan in a story exploring how delays in college financial aid will affect Michigan students.

Jay Meldrum (GTRC) was mentioned in a Crain’s Detroit Business story providing an update on fundraising progress for the Freshwater Research & Innovation Center, a facility planned for the Discovery Center & Pier property on West Grand Traverse Bay in Traverse City, Michigan. MTU is a partner on the project.

The Michigan Chronicle, Michigan Business Network, Crain’s Detroit Business, the Michigan Economic Development Corporation and the University of Michigan mentioned Michigan Tech in stories about the state’s new Michigan University Innovation Capital Fund and the Michigan University Innovation Capital Consortium. Driven by a partnership of six Michigan universities, including Michigan Tech, the initiatives were created with a goal of supporting pre-seed startups and early-stage companies across the state. They will be administered by U-M’s Innovation Partnerships, which recently received a $5 million award from the Michigan Innovate Capital Fund to support the program.

The Daily Mining Gazette mentioned Michigan Tech’s two University gardens in a story highlighting the agricultural and horticultural growth happening in the Western Upper Peninsula.

WLUC TV6 mentioned the Mushing Club at Michigan Tech in a story about Heikinpäivä midwinter festival events. Club members were in Calumet on Sunday (Jan. 28) offering free kids’ dog sled rides at Agassiz Park.
Green Car Congress and DBusiness mentioned Michigan Tech in coverage of the U.S. Army’s new five-year agreement with the University of Michigan’s Automotive Research Center. Worth up to $100 million, the agreement boosts work on autonomous vehicle technologies. MTU was listed among the center’s participating institutions.

MLive published a story previewing events for Michigan Tech’s 2024 Winter Carnival, which is coming up fast! The All-Nighter is next Wednesday (Feb. 7), and Carnival continues through Feb. 10.

MLive mentioned Michigan Tech in a story about the ever-so-slight increase in enrollment (less than 1%) seen by Michigan colleges and universities in fall 2023. MTU was highlighted as one of three universities in the state to see positive growth over the last decade.

WLUC TV6 mentioned Michigan Tech in a story covering the start of construction on the annual Our Lady of the Snows ice chapel built at St. Albert the Great University Parish. St. Al’s ice chapel and MTU were also mentioned by Hope College’s Anchor in a story about an ice altar built on their campus.

The Traverse City Record-Eagle mentioned Michigan Tech in a story about swim safety measures enacted by Frankfort, Michigan, a Benzie County town on the shore of Lake Michigan. Frankfort was the first town to install the SwimSmart safety warning system, co-developed by Jacob Soter ’19 ’20 (B.S. Electrical and Computer Engineering, MBA).

Len Switzer (ENT), Nate Yenor (OIC) and Brad King (ME-EM) were quoted by UPWord in a story previewing Innovation Week, hosted next week (Jan. 22-26) at Michigan Tech. Scheduled events include talks on innovation and entrepreneurship talks, discussion panels and business pitch competitions.

Crain’s Detroit Business mentioned Michigan Tech in a story covering the Michigan Economic Development Corporation’s announcement of a total $4.6 million in grants and matching funds awarded to eight institutes for higher education to support semiconductor education and training programs. MTU’s share is $838,000 according to a press release from Michigan Tech News in December.

UPWord picked up the announcement of a collaboration between Michigan Tech and Revex Technologies focused on MTU’s research into battery recycling and metal refining technology and Revex’s goals of processing recycled materials.

WLUC TV6 mentioned Michigan Tech in a segment about Jessica Elwell ’02 ’03 (B.S. M.S. Chemical Engineering) and MOXIE — a miniature solid oxide electrolyzer that can convert carbon dioxide into pure oxygen — named one of the best inventions of 2023 by Time Magazine. Elwell and MOXIE were featured by Michigan Tech’s Stories from Husky Nation in December.
E. Employee Safety Statistics
## Employee Safety Statistics 2023 Annual Report

**January 1 - Dec 31, 2022/2023**

### Category

<table>
<thead>
<tr>
<th>Number of Recordable Injuries</th>
<th>Years</th>
<th>Employee Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AFSCME</td>
</tr>
<tr>
<td>Injury Only w/ Medical - No Lost Time</td>
<td>2022</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>2</td>
</tr>
<tr>
<td>Lost Time Cases</td>
<td>2022</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>5</td>
</tr>
<tr>
<td>Restricted Work Cases</td>
<td>2022</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupational Safety and Health Administration (OSHA) Recordable Injuries (Total of above)</th>
<th>Years</th>
<th>Employee Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AFSCME</td>
</tr>
<tr>
<td></td>
<td>2022</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>8</td>
</tr>
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</table>

### Number of Days

<table>
<thead>
<tr>
<th>Number of Days</th>
<th>Years</th>
<th>Employee Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury Lost Time 3</td>
<td>2022</td>
<td>171</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>515</td>
</tr>
<tr>
<td>Restricted Work Days 3</td>
<td>2022</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>425</td>
</tr>
</tbody>
</table>

### Hours Worked

<table>
<thead>
<tr>
<th>Hours Worked</th>
<th>Years</th>
<th>Employee Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Work Hours</td>
<td>2022</td>
<td>246,720</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>256,035</td>
</tr>
<tr>
<td>Percentage of Work Hours</td>
<td>2022</td>
<td>9.9%</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>9.9%</td>
</tr>
</tbody>
</table>

### Rates

<table>
<thead>
<tr>
<th>Rates</th>
<th>Years</th>
<th>Employee Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost Time Case Rate 1</td>
<td>2022</td>
<td>4.1</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>3.9</td>
</tr>
<tr>
<td>Frequency Rate 2 (Recordable)</td>
<td>2022</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>2023</td>
<td>6.2</td>
</tr>
</tbody>
</table>

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.

1. 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.
2. The Frequency Rate is calculated by multiplying the number of recordable cases by 200,000 then dividing by the labor hours at the University.
3. The number of days are total days for the life of the cases first reported during this period.

The Bureau of Labor Statics 2022 Injury, Illness, and Fatalities, Table 1 reports for Colleges and Universities; the average LOST TIME CASE RATE of days away from work was 0.6 and the average FREQUENCY RATE was 1.4.
F. Disposal of Surplus Property
# Surplus Property Sales

**Michigan Technological University**  
**Surplus Property Sales**  
**November 1, 2023 - December 31, 2023**

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
</table>
| 11/13/23   | Miscellaneous scrap metal including:  
|            | - 2006 Yamaha VK Pro Snowmobile                                              | $697.22    |
|            | - 2012 Yamaha Grizzly 700                                                    |            |
|            | - 2016 Yamaha Grizzly 700                                                    |            |
| 12/14/23   | 5.76 Acres of Land, 21569 Coal Dock Road, Hancock, MI                        | 48,500.00  |
| 12/18/23   | Surplus Telecommunications Equipment                                         | 702.01     |
| **Total**  |                                                                              | **$49,899.23** |
XI. Other Business

XII. Date for Next Formal Meeting: April 26, 2024

XIII. Adjourn