NDSU | COLLEGE OF ENGINEERING

COLLEGE HAPPENINGS

May 2, 2023

FROM THE INTERIM DEAN

The Power of Showing Up

The end of a semester is one of the busiest, and most stressful, times of year on a college campus. It's also one of the most exciting. For hundreds of students in the College of Engineering their journey at NDSU is coming to an end, years of hard work culminating with a walk across a stage they'll remember for the rest of their lives.

The College is hosting several events to celebrate and honor our seniors over the next two weeks. Our Spring Senior Design Expo is being held Thursday, May 4 from Noon – 3 p.m. in the NDSU Oceti Sakowin Ballroom. This event will showcase more than 75 capstone projects from every department in the College.

The biannual Ring and Pin Ceremony, a blending of two significant and celebratory events, the Order of the Engineer and the Pledge of the Computing Professional, will be held Friday, May 12 at 3:00 p.m. in AG Hill Room 122.

And our Engineering Graduation Reception for Spring 2023 graduates and their guests will be held in rooms 201-203 at the Fargodome immediately following the 10:00 a.m. Commencement ceremony on May 13.

Some of you may have heard President Cook speak about the power of showing up, an idea that sometimes the best way to make a positive impact is with your presence. Yes, there is a lot on our plate right now, but let's not let busy schedules and looming deadlines get in the way of showing our graduating students we value their accomplishments.

I would like to challenge everyone in the College to show up to at least one of these senior focused events over the next two weeks and offer congratulations to a student you've had a connection with over their time at NDSU. Sometimes it only takes your presence to create a powerful connection that lasts a lifetime.

Alan R. Kallmeyer, Ph.D.
Interim Dean | College of Engineering

IN THE NEWS

Parker Sebens gets NDSU-engineered kayak for summer

NDSU researcher earns NSF grant to study computer system efficiency

NDSU assistant professor named Duin Endowed Fellow

STEM Camp registration open

Excellence in Instruction Award recipients announced

CONGRATULATIONS

Several College of Engineering faculty members will be honored at the 2023 NDSU Celebration of Excellence.

Faculty Award Recipients:

- **Ali Amiri,** Mechanical Engineering, **Peltier Award for Teaching Innovation**

Faculty Promotions:

Promoted to Full Professor

- **Ying Huang,** Civil, Construction and Environmental Engineering

Promoted to Associate Professor

- **Ali Amiri**, Mechanical Engineering
- **Adam Gladen**, Mechanical Engineering
- **Jeremy Straub**, Computer Science
- **Xin Sun**, Agricultural and Biosystems Engineering
- **Danling Wang**, Electrical and Computer Engineering
- **Di Wu**, Electrical and Computer Engineering
- **Yao Yu**, Civil, Construction and Environmental Engineering

Emeritus Appointments

- **Robert Pieri**, Mechanical Engineering

2022-2023 NDSU Foundation Impact Fund Grants

- **Omid Beik,** Electrical and Computer Engineering

Please let *College Happenings* know about honors, awards, new grants and other announcements so we can share them with other faculty and staff.

UPCOMING EVENTS

Wednesday, May 3, **Gunkelman Award Recognition Ceremony**. The reception honors the 2022-2023 nominees and the recipient of the 34th annual Mary McCannel Gunkelman Award. 3:00 p.m. at the Harry D. McGovern Alumni Center.

Thursday, May 4, **College of Engineering Senior Design Expo**. The Spring Senior Design Expo will showcase capstone projects from all departments in the College of Engineering and give you the chance to interact with our amazing students and learn more about their work. 12:00 – 3:00 p.m. in the Oceti Sakowin Ballroom.

Thursday, May 11, **NDSU Celebration of Excellence**. This annual event celebrates the excellence and contributions of our faculty and staff. 3 - 4:30 p.m. in the Memorial Union Ballroom B. REGISTER HERE by May 8 if you plan to attend.

Friday, May 12, **Spring Ring and Pin Ceremony**. This ceremony is a blending of two significant and celebratory events, the Order of the Engineer and the Pledge of the Computing Professional. The ceremony begins at 3:00 p.m. in AG Hill Room 122.

Saturday, May 13 **NDSU Spring Commencement**. You are encouraged to participate in the 2023 Spring Commencement ceremonies. Graduates of the College of Engineering will be honored in the Fargodome at 10:00 a.m.

Saturday, May 13, **Engineering Graduation Reception**. A college reception will be held in the Fargodome, Rooms 201-203, immediately following Commencement. Complimentary light refreshments will be served, and a photo backdrop will be set up for pictures. No RSVP is necessary.

Thursday, May 18, **Annual Staff Senate Picnic**. Bring a coworker or your whole office for some time outside, tasty treats, and friendly competition. 2:00 – 4:00 p.m. Churchill Field (Rain location: Oceti Sakowin Ballroom)

SPRING 2023 COMMENCEMENT STAFF VOLUNTEER SIGN-UP

Spring Commencement is quickly approaching, and the Office of Registration and Records is still looking for staff volunteers to assist students and their families as they celebrate this accomplishment. There will be two ceremonies on Saturday, May 13th at the Fargodome: 10:00 a.m. and 2:00 p.m.

Guest assistants/greeters, photo stop assistants, student line-up assistants, and reader card table assistants are needed for both ceremonies. Volunteers are asked to be at the Fargodome at **8:15 or 9:30 a.m.** for the 10:00 a.m. ceremony and **12:15 or 1:30 pm** for the 2:00 p.m. ceremony depending on the role. Volunteers, with the exception of photo stop assistants, should plan to stay for about the first 15-30 minutes of the ceremony.

Sign up can be done through this link: Spring Commencement Staff Volunteer Sign-up

RESEARCH EXPERIENCES FOR UNDERGRADUATES

The National Science Foundation (NSF) supports intensive research by undergraduate students in any NSF-funded area of research through REU sites or supplements. The REU Sites engage a cohort of students in research projects related to a theme and REU Supplements engage students in research related to a new or ongoing NSF research award. Students are granted stipends and assistance with housing and travel.

The NDSU Office of Research and Creative Activity is hosting a workshop led by the faculty PIs of two successful NSF REU sites on the NDSU campus. They will share their experiences and provide information and resources for where to start if you are interested in hosting or being a faculty mentor for an REU site or supplement.

Tuesday, May 16, 2023 / 1-2:30pm / Memorial Union Hidatsa Room *Register to attend >>*

FUNDING OPPORTUNITIES

Seed Research Proposals on Artificial Intelligence in Energy and Related Infrastructure

The Artificial Intelligence on Sustainable Energy Infrastructure Network (AI SUSTEIN) project, funded through the National Science Foundation Track-2 Focused EPSCoR Collaborations Program, calls for seed research funding proposals. AI SUSTEIN is a collaborative project among four U.S. institutions: North Dakota State University (lead institution), University of Arkansas, University of Nevada, Las Vegas, and Nueta Hidatsa Sahnish College. For more information on AI SUSTEIN, please see the link below for the project summary:

NSF Award Search: Award # 2119691 - RII Track-2 FEC: Artificial Intelligence on Sustainable Energy Infrastructure Network (AI SUSTEIN) and Beyond towards Industries of the Future.

Eligibility

1. Tenure-track assistant professor at NDSU in STEM areas. Women and members of other underrepresented populations are highly encouraged to apply.
2. U.S. citizenship and permanent residency are not required.
3. Research experience in energy related infrastructure and/or artificial intelligence.
4. Not received an AI SUSTEIN seed grant or start-up grant previously or being a current AISUSTEIN senior personnel.

Funding Information

1. $15,000 (net/not subjected to F&A) for one year.
2. Number of awards: at least 1.
3. Award period: August 14, 2023 to August 16, 2023.
4. No-cost extension is not allowed.

Application Submission

Please e-mail a single pdf copy of the application package to Kirstin Saulsbury at kirstin.saulsbury@ndsu.edu by 5:00 PM on June 16, 2023 (Email Subject: 2023 AI SUSTEIN seed grant application). Incomplete or late applications will be returned without review.

Contact

Please direct any questions and inquiries regarding this call for proposals to Dr. Ying Huang at ying.huang@ndsu.edu.

NIST: Measurement Science and Engineering (MSE) Research Grant Programs

The National Institute of Standards and Technology's (NIST) mission is to drive innovation and industrial competitiveness through measurement science and standards by cultivating a culture of belonging that integrates diversity, equity, inclusion, and accessibility in all ways of working. One component of this mission is NIST's ongoing effort to develop a diverse, world-class pool of scientists and engineers to engage in NIST's measurement science and standards research, and to support the development of a general population that understands and appreciates measurement science and standards.

NIST is soliciting applications for the following NIST grant programs:

1. the Associate Director for Innovation and Industry Services (ADIIS)
2. the Associate Director for Laboratory Programs (ADLP)
3. the Communications Technology Laboratory (CTL)
4. the Engineering Laboratory (EL)
5. Fire Research (FR)
6. the Information Technology Laboratory (ITL)
7. the International and Academic Affairs Office (IAAO)
8. the Material Measurement Laboratory (MML)
9. the NIST Center for Neutron Research (NCNR)
10. the Physical Measurement Laboratory (PML)
11. the Special Programs Office (SPO)
12. the Standards Coordination Office (SCO)

Deadline: April 14, 2025 Rolling Deadline

NASA: University Leadership Initiative (ULI)

The NASA University Leadership Initiative provides the opportunity for university teams to exercise technical and organizational leadership in proposing unique technical challenges, defining interdisciplinary solutions, establishing peer review mechanisms, and applying innovative
teaming strategies to strengthen the research impact. By addressing the most complex challenges associated with Aeronautics Research Mission Directorate's (ARMD) strategic thrusts, universities will accelerate progress toward achievement of high impact outcomes while leveraging their capability to bring together the best and brightest minds across many disciplines.

In this solicitation, NASA's University Innovation (UI) Project is seeking proposals for work in the following six topic areas:
Topic 1: Safe, Efficient Growth in Global Operations (Strategic Thrust 1)
Topic 2: Innovation in Commercial Supersonic Aircraft (Strategic Thrust 2)
Topic 3: Ultra-Efficient Subsonic Transports (Strategic Thrust 3)
Topic 4: Safe, Quiet, and Affordable Vertical Lift Air Vehicles (Strategic Thrust 4)
Topic 5: In-Time System-Wide Safety Assurance (Strategic Thrust 5)
Topic 6: Assured Autonomy for Aviation Transformation (Strategic Thrust 6)

Deadline: Notice of Intent July 6, 2023

RECENTLY SUBMITTED PROPOSALS

- Harun Pirim (PI). RII Track-4: NSF: An Integrated Framework for Clustering Signed Networks: Mixed Integer Programming with Descriptive Network Analysis. $264,645 from the National Science Foundation. 2/1/2024 - 1/31/2025.
- Jeremy A Straub (PI). NSA VI: Development of Artificial Intelligence for Cybersecurity System Assurance. $249,850 from the National Security Agency. 1/1/2024 - 12/31/2025.
- Jeremy A Straub (PI). NSA VI: Assurance of an XAI Technology. $249,850 from the National Security Agency. 1/1/2024 - 12/31/2025.
- Mijia Yang (PI), Yao Yu (CPI), Qifeng Zhang (CPI). Develop a mini modular solar-powered traffic and transportation center for low-income communities with underdeveloped infrastructures. $100,000 from the National Academies. 10/1/2023 – 2/28/2025.
- Kalpana Katti (PI), Dinesh R Katti (CPI). Tuning Silicates to Enable Osteogenic Development for Bone Regeneration. $457,806 from the National Science Foundation. 7/1/2023 - 6/30/2026.
- Mijia Yang (PI). Impact Simulation to Support the Development of an Artificial Bird Material for Aircraft Certification. $45,000 from the National Aeronautics and Space Administration. 5/16/2023 - 5/15/2024.
- Trung Bao Le (PI). RII TRACK-4: AN EXASCALE COMPUTATIONAL FRAMEWORK FOR HIGH-FIDELITY SIMULATIONS OF RIVER HYDRODYNAMICS. $199,439 from the National Science Foundation. 1/15/2024 - 1/15/2026.
- Xin Sun (PI). Quantifying freezing damage in Brassica oilseed crops. $20,860 from the Agricultural Research Service. 5/15/2023 - 5/14/2024.
- Jordi Estevadeordal (PI), Yildirim Bora Suzen (CPI), Ali Amiri (CPI). High-Speed and High-Temperature Diagnostics for Hypersonic NASA Research. $45,000 from the National Aeronautics and Space Administration. 5/15/2023 - 5/14/2024
- Mijia Yang (CPI). Novel Bio-Based and Green Inhibitors for the Mitigation of Internal Corrosion in Pipelines. $269,998 from Pipeline and Hazardous Materials Safety. 10/1/2023 - 9/30/2026.

RECENT PUBLICATIONS

For 2023, 67 publications by authors with the College of Engineering affiliation have appeared in various journals, according to the ISI Web of Science and submissions from faculty. Here are some of the most recent publications:

- Gulfam-E-Jannat, Syeda, Debasis Golui, Shafkat Islam, Biraj Saha, Sheikh Mokhlesur Rahman, Achintya N. Bezbaruah, and Syeed Md. Iskander. 2023. "Industrial Water Demand and Wastewater Generation: Challenges for Bangladesh's Water Industry." *ACS ES&T Water*, February, acsestwater.3c00023. https://doi.org/10.1021/acsestwater.3c00023.
- Peng, Hanjun, Xingwei Feng, Ying Yang, Jiale Xu, Ruzhen Xie, Lihui Yang, Caiming Tang, and Hui Lin. n.d. "Flow-Through Electrochemical Activation of Persulfate for Efficient Wastewater Treatment Using Ti4O7 Reactive Electrochemical Membranes." *ACS ES&T Water*. Accessed May 1, 2023. https://doi.org/10.1021/acsestwater.2c00616.
- Rahman, Md Mahbubar, Arup Dey, Nita Yodo, Chiwon W. Lee, and David Grewell. 2023. "Soybean By-Products Bioplastic (Polylactic Acid)-Based Plant Containers: Sustainable Development and Performance Study." *Sustainability* 15 (6): 5373. https://doi.org/10.3390/su15065373.
- Saude, Bjorn, Nathan LaSart, James Blair, and Omid Beik. 2023. "Microgrid-Based Wind and Solar Power Generation on Moon and Mars." *IEEE Transactions on Smart Grid* 14 (2): 1329–32. https://doi.org/10.1109/TSG.2022.3210774.
- Subhashree, Srinivasagan N., C. Igathinathane, J. Hendrickson, D. Archer, M. Liebig, J. Halvorson, S. Kronberg, D. Toledo, K. Sedivec, and D. Peck. 2023. "Forage Economics Calculator Web Tool: A Decision Support System for Forage Management." *Computers and Electronics in Agriculture* 208 (May): 107775. https://doi.org/10.1016/j.compag.2023.107775.
- Tolba, Sara A., and Wenjie Xia. n.d. "Molecular Insights into the Hydration of Zwitterionic Polymers." *Molecular Systems Design & Engineering*. Accessed May 1, 2023. https://doi.org/10.1039/d3me00020f.
- Xu, Luyang, Shuomang Shi, Fei Yan, Ying Huang, and Yi Bao. 2023. "Experimental Study on Combined Effect of Mechanical Loads and Corrosion Using Tube-Packaged Long-Gauge Fiber Bragg Grating Sensors." *Structural Health Monitoring*, April, 147592172311649. https://doi.org/10.1177/14759217231164961.
- Yang, Zhen-yue, Wen-jian Nie, Lun-yang Liu, Xiao-lei Xu, Wen-jie Xia, and Wen-sheng Xu. 2023. "Applications of Machine Learning Methods in the Studies of Polymer Glass Formation." *ACTA Polymerica Sinica* 54 (4): 432–50. https://doi.org/10.11777/j.issn1000-3304.2022.22367.

See your name on this list? Help us get the word out about your amazing work by submitting it as a **Breakthrough Alert**. **This online form** is an easy, step-by-step guide for summarizing published research for the general public.

College Happenings is distributed to the NDSU College of Engineering staff and faculty every other Tuesday.

Read past issues of *College Happenings* here.

Deadline for submissions to *College Happenings* is 12:00 p.m. Fridays.

Contact kyle.bosch@ndsu.edu to submit items for *College Happenings*.

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