

COLLEGE HAPPENINGS

April 5, 2022

FROM THE DEAN

North Dakota Needs the NDSU College of Engineering

We recently completed an analysis using Burning Glass Technologies, a tool that uses artificial intelligence to analyze job postings to deliver job market analytics and labor market data. The analysis found that there were 8,400 job openings statewide in 2021 requiring degrees offered by the College of Engineering, with openings projected to grow 7% over the next 10 years.

The analysis also found that graduates from programs in the College of Engineering make up 70% of all such degrees conferred in the state. As the largest college at NDSU and the largest engineering college in the region, we are the school of choice for North Dakota students studying engineering, construction, and computer science. And, we attract hundreds of new out-of-state students annually, many of whom stay to live and work in North Dakota after graduation. In short, we are the state's flagship engineering school, and the major supplier of engineers, computer scientists, and construction professionals in North Dakota.

In addition, as our research portfolio grows, NDSU's College of Engineering becomes an even greater economic engine for the state through research and development that addresses the challenges North Dakota communities and industries are facing. The increasing demand for engineering talent, coupled with our economic impact, leads to the conclusion that there is a pressing need for more engineers and technology development to fuel North Dakota's growing economy. And, we must be the leader in meeting that need.

As a college, we are well poised to rise to that challenge, but we will require additional resources, especially in facilities. In an increasingly competitive recruiting landscape, state-of-the-art facilities are critical to attracting and retaining students and faculty. In addition, thanks to investments and faculty innovation in growing areas like biobased materials, sustainable energy, artificial intelligence, cybersecurity, precision agriculture, and autonomous systems, we have the potential to grow Ph.D. enrollment and research funding if space and facilities limitations can be addressed.

Today, I'm in Boston attending the "University Facilities for the Sciences and Advanced Technologies 2022" conference, where I'm learning about what other universities have done in engineering facilities planning, and how they've built the case at their institutions for investments in new facilities with key constituents. Advocating for facilities must be one of our top priorities moving forward so that we can meet the need for more engineers and technology development for North Dakota.



IN THE NEWS

[Engineering faculty member granted patent](#)

[NDSU team takes first place in autonomous snowplow competition](#)

[Engineering students earn national recognition](#)

[Computer science faculty member featured in Infosecurity Magazine online summit](#)

[NDSU listed among Cyber Skyline Cyber power rankings](#)

[NDSU wins awards at Clean Snowmobile Challenge](#)

[NDSU engineering students win awards for "clean snowmobile"](#) (Prairie Public)

[NDSU engineering students win awards at Clean Snowmobile Challenge](#) (Devils Lake Journal)

[NDSU engineering students earn national recognition](#) (Grand Forks Herald)

CONGRATULATIONS

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, April 6, **Strategies of Antiracist Action in STEM Labs.** This virtual session is presented by Dr. Bala Chaudhary from Dartmouth College. 11:00 a.m. – 12:00 p.m. [Register here](#).

Thursday, April 7, **North Dakota Essential Understandings Lunch Training.** This lunch and learn will focus on learning how to build better relationships with Native American students, 11:30 a.m. – 1:00 p.m. in the Memorial Union Hidatsa Room or on Zoom. [Register Here](#).

Tuesday, April 19, **61st NDSU Faculty Lectureship.** Dr. Paul Carson will present “Two Years on a Pandemic Frontline: Lessons Learned and Reflections for the Academy.” 3:00 p.m. in the Memorial Union Anishinaabe Theater.

Thursday, May 5, **Senior Design Expo.** The Spring Senior Design Expo will showcase capstone projects from all departments in the College of Engineering. Noon – 4:00 p.m. in the NDSU Oceti Sakowin Ballroom.

Friday, May 13, **College of Engineering 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. 3:00 p.m. in AG Hill 112.

Saturday, May 14, **NDSU 2022 Spring Commencement.** 10:00 a.m. in the Fargodome. Faculty and staff who wish to participate in the academic processional along with our graduation class will wear caps and gowns. [Register here](#).

COLLEGE AWARD NOMINATIONS

Each year the College of Engineering is proud to recognize the outstanding accomplishments of our faculty, staff and graduate students in the areas of teaching, research and service.

Nominations for our annual teaching and research awards are open through April 15. Nominations for our annual staff awards are open through July 15.

For more information on how to nominate a colleague and for a look at past winners head to our [College Awards website](#).

FOREIGN INFLUENCE AND FEDERAL GRANTS

Over the last several years, there has been increasing concern at the federal level regarding the potential for foreign influence in scientific research. Federal funding agencies are pushing for **commitment transparency** – transparency and reporting of all research activities, domestic and foreign in the review of funding applications.

Researchers seeking federal funds are being asked to:

- **Disclose to Sponsors** – Ensure Biosketches, Current and Pending support, and Collaborators and Other Affiliations information is updated to reflect the requirements of the funding agency prior to submission grant applications.
 - **More information** about the requirements for the National Institutes of Health, National Science Foundation, Department of Defense, and the Department of Energy are available on the Research and Creative Activity website.
- **Disclose to the University:**
 - Disclose financial and in-kind interests as needed (Initial and annual disclosure of Significant Financial Interest).
 - Discuss any invitations to join Foreign Talent Programs with your department chair/head, dean, or VP.
 - Disclose any affiliations with foreign entities to NDSU.COIC@ndsu.edu.
 - Ensure requirements of any affiliations do not violate NDSU policies (more information can be found at https://www.ndsu.edu/research/for_researchers/foreigninfluence/)

For questions about how these evolving requirements impact your upcoming proposals, please visit the [Foreign Influence and Federal Grants](#) website or contact one of the individuals below:

- Grant Proposals – [Val Kettner](#)
- Conflict of Interest – [Amanda Wilkinson](#) or [Kristy Shirley](#)
- International Travel, Collaborations or Export control – [Sharon May](#)

FUNDING OPPORTUNITIES

NSF: Research Experiences for Undergraduates

The Research Experiences for Undergraduates (REU) program [[NSF 19-582](#)] supports active research participation by undergraduate students in any of the areas of research funded by the National Science Foundation. REU projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU program. This solicitation features two mechanisms for support of student research: (1) *REU Sites* are based on independent proposals to initiate and conduct projects that engage a number of students in research. REU Sites may be based in a single discipline or academic department or may offer interdisciplinary or multi-department research opportunities with a coherent intellectual theme. Proposals with an international dimension are welcome. (2) *REU Supplements* may be included as a component of proposals for new or renewal NSF grants or cooperative agreements or may be requested for ongoing NSF-funded research projects.

Deadline: August 24, 2022

NSF: Cybersecurity Innovation for Cyberinfrastructure

The purpose of this [Dear Colleague Letter](#) (DCL) is to encourage the submission of novel and high impact proposals that advance sustainability in all aspects of computing to the [CISE Core programs](#) (NSF 21-616).

This DCL invites transformative, cross-disciplinary and potentially clean slate approaches to enable sustainability across all levels of the entire computing stack from hardware to networking to software applications. Proposals are encouraged to

consider diverse notions of sustainability and propose suitable metrics for quantifying impact. Traditional energy efficiency and power savings methods alone are not in scope for this DCL. Computing techniques for sustainability in other fields are not in scope for this DCL. This DCL seeks ambitious and forward-thinking proposals on Design for Sustainability in Computing along multiple dimensions that go beyond energy efficiency.

See [full letter](#) for more information.

RECENTLY FUNDED GRANTS

- Yildirim Bora Suzen (PI), Yan Zhang (CPI). 2022 AIAA Design/Build/Fly Competition. \$5,000 from the University of North Dakota. 12/3/2021 - 4/1/2022.
- Ewumbua Monono (PI). Optimizing the Drying and Storage Conditions of Cannabidiol Hemp Grown in ND. \$35,462 from the ND Department of Agriculture. 2/16/2022 - 2/28/2023.
- Joao Paulo Cassol Flores (CPI). SOYGEN 3: Increasing Soybean Genetic Gain for Yield and Seed Composition by Developing Tools, Know-How and Community Among Public Breeders in the NC US. \$49,996 from Ohio State University. 10/1/2021 - 9/30/2022.

RECENTLY SUBMITTED PROPOSALS

- Syeed Md Iskander (PI). Engineering landfill daily covers with agricultural waste-derived biochar for controlling the movement of Per and Polyfluoroalkyl Substances in leachate. \$12,000 from the NDSU Foundation and Alumni Association. 6/1/2022 - 12/31/2022.
- Youjin Jang (PI). Effect of Indoor Environmental Quality of University Classrooms on Physiological/Psychophysical Responses and Learning Performance of Students. \$5,000 from the NDSU Foundation and Alumni Association. 5/23/2022 - 1/31/2023.

RECENT PUBLICATIONS

For 2022, 35 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:

- Bulathsinghalage, Chanaka, and Lu Liu. 2021. “A Heuristic Strategy for Multi-Mapping Reads to Enhance Hi-C Data.” In *2021 IEEE 21st International Conference on Bioinformatics and Bioengineering (IEEE BIBE 2021)*. New York: IEEE. <https://doi.org/10.1109/BIBE52308.2021.9635215>.
- Ge, Ruisi, Ryan Striker, and Benjamin Braaten. 2022. “A Study on Conformal Metasurface Influences on Passive Beam Steering.” *Electronics* 11 (5): 674. <https://doi.org/10.3390/electronics11050674>.
- Haidous, Ali, William Oswald, Hritom Das, and Na Gong. 2022. “Content-Adaptable ROI-Aware Video Storage for Power-Quality Scalable Mobile Streaming.” *IEEE Access* 10: 26830–48. <https://doi.org/10.1109/ACCESS.2022.3156274>.
- Khalili, Abbas, Farhad Shirani, Elza Erkip, and Yonina C. Eldar. 2022. “MIMO Networks With One-Bit ADCs: Receiver Design and Communication Strategies.” *IEEE Transactions on Communications* 70 (3): 1580–94. <https://doi.org/10.1109/TCOMM.2021.3133430>.
- Pandey, Manish, Mehdi Jamei, Iman Ahmadianfar, Masoud Karbasi, A. S. Lodhi, and Xuefeng Chu. 2022. “Assessment of Scouring around Spur Dike in Cohesive Sediment Mixtures: A Comparative Study on Three Rigorous Machine Learning Models.” *Journal of Hydrology* 606 (March): 127330. <https://doi.org/10.1016/j.jhydrol.2021.127330>.

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*.

Follow the College of Engineering on social media.

