

COLLEGE HAPPENINGS

November 14, 2023

FROM THE INTERIM DEAN

NDSU Giving Day

Tuesday, November 28th is NDSU Giving Day. This annual event is a one-day, online fundraising opportunity where we encourage the entire NDSU community, including alumni, friends, faculty and staff, to come together and support the University and enhance the student experience. In the College of Engineering, we will be highlighting several areas for specific support, including student scholarships, departmental funds, and the new Center for Engineering and Computational Sciences. Donors can choose to support one of these highlighted funds, or give to any other area of campus that they are most passionate about. We will also have several active matches and challenges to encourage participation.

Philanthropic support is critical in helping us meet the various needs across the college, such as providing scholarships for students in need, purchasing laboratory equipment, offsetting travel costs for our student groups, or raising matching funds for our new facility. Giving Day is an opportunity for all donors, large and small, to make an impact at NDSU. Every dollar makes a difference!

I hope you will consider joining me in making a gift to the College of Engineering on Giving Day, and promote this event through social media or other networks. Having a high level of participation among our faculty and staff sends a great message to our friends and alumni as we ask them to support our programs. This year, we have set a goal of 50% participation among our faculty and staff across the college. As added incentive, everyone who donates will be entered into a drawing for one of three \$100 gift cards to the NDSU Meat Lab...just in time for the holidays! I look forward to a fun and successful Giving Day on Nov. 28th, and I greatly appreciate your support of our students and our programs.

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

IN THE NEWS

[Fundraising underway for transformative engineering center](#)

[NDSU's engineering epicenter: Doosan Bobcat and Mortenson announce lead gifts to new complex](#)

[Two companies pledge combined \\$10 million toward new engineering center at NDSU](#)

[Doosan Bobcat and Mortenson Pledge \\$5 Million Each for New NDSU Engineering Center](#)

CONGRATULATIONS

Long Jiang, professor in the **Department of Mechanical Engineering**, has been appointed the **Biomedical Engineering Program Coordinator**. In this role, he will be responsible for providing leadership and administrative support for the interdisciplinary Biomedical Engineering program, which includes an undergraduate minor and graduate MS and PhD programs jointly offered with UND.

Chau Le, assistant professor in the **Department of Civil, Construction and Environmental Engineering**, has been named the **Transportation Research Board Committee Research Coordinator for the Standing Committee on Contract Law**. As part of the National Academies of Sciences, Engineering, and Medicine, the Transportation Research Board (TRB) mobilizes expertise, experience, and knowledge to anticipate and solve complex transportation-related challenges.

Kalpana Katti, University Distinguished professor in the **Department of Civil, Construction and Environmental Engineering**, presented the Keynote Plenary lecture, “Mechanics: A new tool for Cancer Biology”, at the **X International Conference on Computational Bioengineering** in Vienna, Austria. The ICCB brings together expert clinicians and mechanicians to address important problems in medicine.

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

Tuesday, November 28, **NDSU Giving Day 2023**. NDSU Giving Day is a chance to give back to the areas of the college and campus you are most passionate about. Watch for more information about the College of Engineering’s exciting plans for NDSU Giving Day 2023.

Wednesday, December 6, **Winter Senior Design Expo**. 11:00 a.m. – 2:00 p.m. in the Memorial Union Oćetĭ Šakōwiŋ Ballroom.

Thursday, December 14, **Ring and Pin Ceremony**. The biannual Ring and Pin 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 5:30 PM in the Memorial Union – Anishinaabe Theater.

Friday, December 15, **2023 Winter Commencement**. You are encouraged to participate in the 2023 Winter Commencement ceremonies which will be held on Friday, December 15th in the SHAC at 5:00 p.m. [Register Here](#).

FIRST ROBOTICS COMPETITION VOLUNTEERS

Robotics competition season is fast approaching and NDSU College of Engineering hosts 2 FIRST Regional Qualifiers.

- FIRST Tech Challenge (FTC) competition for students in grades 7-12 is Saturday, January 20 from 8:00AM – 5:00PM
- FIRST LEGO League (FLL) tournament for students in grades 4-8 is Saturday, January 27 from 8:00AM – 5:00PM

In order to make these tournaments a rewarding experience for the students, we need 20-30 volunteers at each event. Volunteers can participate at many different levels from being a Judge of team presentations to Refereeing robotic matches to Hospitality such as Team Check-in or Field Reset. The depth of your involvement is up to you.

Please use this Google form [2024 NDSU FIRST Robotics Volunteer Form \(google.com\)](#) to indicate which competition and position you are interested in. From your response, I will send out more detailed information about your position and the events.

If you have any questions about these FIRST events, feel free to contact College of Engineering Outreach Coordinator [Angela Gross](#). Thank you for your willingness to inspire young people to be STEM leaders and innovators!

NORTH DAKOTA WATER RESOURCE RESEARCH INSTITUTE FACULTY FELLOWS

The Office of Research and Creative Activity (RCA) is currently accepting applications for two Faculty Fellows to work within the North Dakota Water Resource Research Institute (NDWRRI). The program seeks to appoint one or two Faculty Fellows for a term of up to two years. These Faculty Fellows will be expected to dedicate approximately four hours per week to crafting and executing a plan aimed at achieving specific outcomes.

While applicants from any discipline at NDSU are welcome, a demonstrated interest in some aspect of water research, such as science, technology, applications, water quality, modeling, policy, or related areas, is essential. While prior direct experience is not mandatory, candidates with limited background in this field should elucidate in their cover letters how they plan to rapidly acquire the necessary knowledge. Candidates of any rank level (assistant/associate/full professor) are encouraged to apply. RCA will provide a \$10,000 supplement over a one-year term.

The application deadline is November 8, 2023 by 5:00 pm. Selections will be finalized by December 1, 2023, with the Faculty Fellow assuming duties on January 1, 2024. Learn more and apply on the [NDWRRI Faculty Fellows page >>](#)

FUNDING OPPORTUNITIES

DARPA: Young Faculty Award

The Defense Advanced Research Projects Agency (DARPA) [Young Faculty Award](#) (YFA) program aims to identify and engage rising stars in junior research positions in academia and equivalent positions at non-profit research institutions, particularly those without prior DARPA funding, to expose them to Department of Defense (DoD) needs and DARPA's mission to create and prevent technological surprise. The YFA program will provide high-impact funding to elite researchers early in their careers to develop innovative new research that enables transformative DoD capabilities. Ultimately, the YFA program is developing the next generations of researchers focused on national security issues.

Executive Summary Deadline: December 13, 2023; 3pm

DoD: Defense University Research Instrumentation Program

The Department of Defense (DoD) announces the Fiscal Year 2025 Defense University Research Instrumentation Program ([DURIP](#)). DURIP is designed to improve the capabilities of accredited United States (U.S.) institutions of higher education to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment or instrumentation.

Deadline: February 16, 2024

NSF: Cybersecurity Innovation for Cyberinfrastructure (CICI)

The objective of the Cybersecurity Innovation for Cyberinfrastructure (CICI) program [[NSF 23-517](#)] is to advance scientific discovery and innovation by enhancing the security and privacy of cyberinfrastructure. CICI supports efforts to develop, deploy and integrate cybersecurity that will benefit the broader scientific community by securing science data, computation, collaborations workflows, and infrastructure. CICI recognizes the unique nature of modern, complex, data-driven, distributed, rapid, and collaborative science and the breadth of infrastructure and requirements across scientific disciplines, practitioners, researchers, and projects. CICI seeks proposals in three program areas:

- Usable and Collaborative Security for Science
- Reference Scientific Security Datasets

- Transition to Cyberinfrastructure Resilience

Deadline: February 1, 2024

RECENTLY AWARDED GRANTS

- Changhui Yan (Principal Investigator). Understanding Postharvest Physiology of Potato by Genomics, Phenomics, Bioinformatics. \$42,024 from the Agricultural Research Service. 9/1/2023 - 8/31/2025.
- Clairmont Clementson (Principal Investigator). Expanding students' understanding of how to measure moisture content using official air oven method and determining test weights. \$1,131.87 from the ND Grain Dealers Educational Foundation. 10/1/2023 - 9/30/2024.

RECENTLY SUBMITTED PROPOSALS

- Xin Sun (Principal Investigator), Sulaymon Eshkabilov (Co-PI). Soil Health Assessment with Autonomous Unmanned Ground Vehicle System Based on Sensor and Edge-AI Technologies. \$650,000 from the National Institute of Food & Agriculture. 7/1/2024 - 6/30/2027.
- Di Wu (Principal Investigator). Design remote microgrids with enhanced resilience: analysis, prototyping, and modularization. \$299,990 from the Department of Energy. 6/1/2024 - 5/31/2026.
- Xinhua Jia (Principal Investigator), Harlene Hatterman-Valenti (Co-PI). PARTNERSHIP: Precision irrigation for protected environment specialty crops in the Upper Midwest. \$800,000 from the National Institute of Food & Agriculture. 10/1/2024 - 12/31/2027.
- Febina Merlin Mathew (Principal Investigator), Nitha Rafi (Co-PI), Francisco Bittara Molina (Co-PI), Joao Paulo Cassol Flores (Co-PI). Biology and Managing Seedling Pathogens in North Dakota. \$43,358 from the ND Soybean Council. 7/1/2024 - 6/30/2025.
- Pinjing Zhao (Principal Investigator), Changhui Yan (Co-PI). Rational Design of Nickel Catalysts for Directing Group-Assisted Alkyne Hydrofunctionalization. \$431,400 from the National Institutes of Health. 8/1/2024 - 7/31/2027.
- Jiale Xu (2470). Soil amendment to overcome acidification using produced water from the oil and gas industry. \$42,720 from the ND Soybean Council. 7/1/2024 - 6/30/2025.
- Xinhua Jia (Principal Investigator), Harlene Hatterman-Valenti (Co-PI). Enhancing sustainable vegetable production in high tunnels using smart irrigation and mitigating soil salinity through mulching and composting. \$1,627,350 from the Natural Resources Conservation Service. 6/1/2024 - 5/31/2029.
- Lindsay Malone (Principal Investigator), Joao Paulo Cassol Flores (Co-PI). Quantifying in-field variability to support sustainable soybean production. \$15,709 from the ND Soybean Council. 7/1/2024 - 6/30/2025.
- Lindsay Malone (Principal Investigator), Joao Paulo Cassol Flores (Co-PI). Quantifying in-field variability to support sustainable corn production. \$15,709 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2025.
- Ewumbua Monono (Principal Investigator), Mijia Yang (Co-PI), Niloy Chandra Sarker (Co-PI). Improve the Physical Properties of CoRncrete and its Application as a Preform. \$18,950 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2026.
- Jordi Estevadeordal (Principal Investigator), Yildirim Bora Suzen (Co-PI). Low-Cost Ludwig Tube Platforms for High Enthalpy Hypersonic testing. \$1,499,998 from the Texas A&M Research Foundation. 5/1/2024 - 4/30/2027.
- Jordi Estevadeordal (Principal Investigator), Yildirim Bora Suzen (Co-PI). Low-Cost Hypersonic Flight Test Approach Leveraging High Altitude Balloon Platform. \$1,500,000 from the Texas A&M Research Foundation. 5/1/2024 - 4/30/2027.
- Clairmont Clementson (Principal Investigator), Kenneth Hellevang (Co-PI), Ewumbua Monono (Co-PI). Optimal drying temperature for drying soybeans. \$23,975 from the ND Soybean Council. 7/1/2024 - 6/30/2025

- Sulaymon Eshkabilov (Principal Investigator), Christopher Michael Whitsel (Co-PI), Brooke Louise Thiel (Co-PI), Rob Proulx (Co-PI), Ewumbua Monono (Co-PI), Erik Drevlow Hanson (Co-PI). Societal Implications of Clean Energy Tractors for Farming. \$650,000 from the National Institute of Food & Agriculture. 6/1/2024 - 5/31/2028.
- Ademola Monsur Hammed (Principal Investigator), Ewumbua Monono (Co-PI), Niloy Chandra Sarker (Co-PI). Development of bioprotected corn-based edible bale net wrap. \$42,748 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2026.
- Ademola Monsur Hammed (Principal Investigator), Ewumbua Monono (Co-PI), Niloy Chandra Sarker (Co-PI). Fungiculture driven preservation of corn stover silage. \$41,748 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2026.
- Ademola Monsur Hammed (Principal Investigator), Ewumbua Monono (Co-PI), Niloy Chandra Sarker (Co-PI). Valorization of corn dried distiller grain (DDGS) to biochemicals. \$39,748 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2026.
- Igathinathane Cannayen (Principal Investigator). Circular Bioeconomy for Corn. \$53,514 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2026.
- Igathinathane Cannayen (Principal Investigator). Real-time UAV image stitching using Raspberry Pi for corn production and health monitoring. \$53,614 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2026.
- Igathinathane Cannayen (Principal Investigator). A Deep Convolutional Neural Network-based Detection System Using Neural Compute Stick for Real-time Corn Disease Recognition. \$53,814 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2026.
- Youjin Jang (Principal Investigator). Smart IoT dashcam-based remote road furniture monitoring platform. \$15,000 from the National Science Foundation. 1/1/2024 - 12/31/2024.
- Yao Yu (Principal Investigator). Multi-source/Thermal-storage Heat-pump Design and Universal Controller - EnergyPlus Model Development. \$9,995 from the Academics For The Future of Science. 1/1/2024 - 5/31/2024.
- Inbae Jeong (Principal Investigator). Development of Multi-UAV System for Context-Awareness and Seamless Operation. \$15,000 from the National Science Foundation. 1/1/2024 - 12/31/2024.
- Mijia Yang (Principal Investigator). A corn-waste-based biochar concrete. \$39,930 from the ND Corn Utilization Council. 6/1/2024 - 5/31/2025.
- Jiale Xu (Principal Investigator). Enhanced removal of herbicide carryover at dry conditions by photodegradation using nitrate and safeners. \$35,720 from the ND Soybean Council. 7/1/2024 - 6/30/2025.

RECENT PUBLICATIONS

For 2023, 212 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:

- Afgan, Sher, Ravi Kiran, Xiaoning Qi, and Dilpreet S. Bajwa. 2023. "Enhancement of Corrosion Resistance and Bond Strength in Rebars Employing Abrasives-Infused Soy-Protein Isolate Coatings." *CONSTRUCTION AND BUILDING MATERIALS* 407 (December): 133455. <https://doi.org/10.1016/j.conbuildmat.2023.133455>.
- Akram, Sohail, Syed Husain Imran Jaffery, Zahid Anwar, Mushtaq Khan, and Muhammad Ali Khan. 2023. "Toward Clean Manufacturing: An Analysis and Validation of a Modified Johnson-Cook Material Model for Low and High-Speed Orthogonal Machining of Low-Carbon Aluminum Alloy (Al 6061-T6)." *INTERNATIONAL JOURNAL OF ADVANCED MANUFACTURING TECHNOLOGY*, October. <https://doi.org/10.1007/s00170-023-12367-0>.
- Azizi, Afshin, Zhao Zhang, Zhaoyu Rui, Yunxi Li, C. Igathinathane, Paulo Flores, Jithin Mathew, Alireza Pourreza, Xiongze Han, and Man Zhang. 2024. "Comprehensive Wheat Lodging Detection after Initial Lodging Using UAV RGB Images." *EXPERT SYSTEMS WITH APPLICATIONS* 238 (March): 121788. <https://doi.org/10.1016/j.eswa.2023.121788>.

- Costa, Bianca F., Ali Zarei-Baygi, Syeed Md Iskander, and Adam L. Smith. 2023. “Antibiotic Resistance Genes Fate during Food Waste Management - Comparison between Thermal Treatment, Hyperthermophilic Composting, and Anaerobic Membrane Bioreactor.” *BIORESOURCE TECHNOLOGY* 388 (November): 129771. <https://doi.org/10.1016/j.biortech.2023.129771>.
- Gerner, Daniel, Fardad Azarmi, Martin Mcdonnell, and Uchechi Okeke. 2023. “Application of Machine Learning for Optimization of HVOF Process Parameters.” *JOURNAL OF THERMAL SPRAY TECHNOLOGY*, October. <https://doi.org/10.1007/s11666-023-01682-3>.
- Hazra, Raj Shankar, Narendra Kale, Camden Boyle, Kayla B. Molina, Alain D’Souza, Gourishankar Aland, Long Jiang, et al. 2024. “Magnetically-Activated, Nanostructured Cellulose for Efficient Capture of Circulating Tumor Cells from the Blood Sample of Head and Neck Cancer Patients.” *CARBOHYDRATE POLYMERS* 323 (January): 121418. <https://doi.org/10.1016/j.carbpol.2023.121418>.
- Hussain, Adnan, Sareer Ul Amin, Hunjoo Lee, Asma Khan, Noreen Fayyaz Khan, and Sanghyun Seo. 2023. “An Automated Chest X-Ray Image Analysis for Covid-19 and Pneumonia Diagnosis Using Deep Ensemble Strategy.” *IEEE ACCESS* 11: 97207–20. <https://doi.org/10.1109/ACCESS.2023.3312533>.
- Qin, Zheng, Xinying Li, Lei Yan, Pengle Cheng, and Ying Huang. 2023. “Real-Time Detection of *Angelica Dahurica* Tablet Using YOLOX_am.” *JOURNAL OF FOOD PROCESS ENGINEERING*, October. <https://doi.org/10.1111/jfpe.14480>.
- Raza, Muhammad, Muhammad Ahsan, Wadi B. Alonazi, Syed Aftab Naqvi, and Benjamin Braaten. 2023. “Design and Analysis of Arbitrary Shaped Bifunctional Cloaks for Multifunctional Material Composites.” *PHYSICA SCRIPTA* 98 (11): 115020. <https://doi.org/10.1088/1402-4896/acfc6e>.
- Shafi, Uferah, Rafia Mumtaz, Zahid Anwar, Muhammad Muzyyab Ajmal, Muhammad Ajmal Khan, Zahid Mahmood, Maqsood Qamar, and Hafiz Muhammad Jhanzab. 2023. “Tackling Food Insecurity Using Remote Sensing and Machine Learning-Based Crop Yield Prediction.” *IEEE ACCESS* 11: 108640–57. <https://doi.org/10.1109/ACCESS.2023.3321020>.

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.

