

COLLEGE HAPPENINGS

May 16, 2023

FROM THE INTERIM DEAN

Building our future

With the recent announcement that a new engineering and computational sciences building has been approved by the state, we are now focusing our attention on the planning, programming, and fundraising aspects of the building. The college leadership team has already been working closely with Mike Ellingson, Director of Facilities Management at NDSU, to identify priority needs in terms of research and teaching labs, student support spaces, office spaces, etc. It is clear that we already have many ideas about what should go into this new facility, so it will be critical that we look for common objectives and opportunities to utilize spaces in a collaborative manner. Please continue to communicate your ideas to your department chair so that we can be sure to capture the full scope of needs for this facility.

While it is still early in the process, the initial construction plans have the new building located where the current Engineering Administration building (aka the round building) sits. It would be a multi-story building that connects to each of the existing buildings in the complex, resulting in better space utilization and improved accessibility across the college. There will also likely be one or two additions to other buildings in the complex, depending on the final costs of construction. Some funds will also go to renovations of existing buildings.

Due to the nature of the legislation and private fundraising requirement, we are on a tight timeline to develop plans and raise the funds for the building. An RFP for architectural services has already closed, and four firms were interviewed last week. We anticipate an announcement later this week or early next week regarding the hiring of the architectural firm for the project. In early June, we expect that firm will be on campus to tour our existing facilities and visit with our leadership team and other faculty and staff about space needs. We hope to have basic renderings a few weeks after that to use for fundraising purposes, and more detailed space plans by the end of the summer. Along the way, there will be opportunities for review and feedback, so be sure to stay tuned and stay engaged!

This new building is a once-in-a-lifetime opportunity for those of us in the College of Engineering. The NDSU Foundation has placed the highest priority on fundraising for the facility, and I am working closely with our Development Directors and other Foundation staff to develop the proper messaging and identify key donors who will help us achieve our fundraising goals. With visionary ideas and strategic planning, I am confident that we will create a facility that represents the level of excellence we are striving for in our educational and research programs.

Alan R. Kallmeyer, Ph.D.

Interim Dean | College of Engineering

IN THE NEWS

['I feel so proud to be a Bison'](#)

[Quarter Century Club members recognized](#)

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

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)

Thursday, May 25 **North Dakota Economic Diversification Research Fund**. You are invited to join NDSU VPR Colleen Fitzgerald in a learning session/open forum about the new state funded research dollars at 10:00 a.m. [Zoom link](#)

Wednesday, August 9, **Academic Leaders Orientation and Retreat** for Department Chairs/Heads and Deans.

Tuesday, August 15, **New Faculty Orientation**. This event is intended for faculty that have started at NDSU since August 16, 2022. [Register Here](#)

Wednesday, August 16, **Annual Faculty/Academic Staff Conference**. Presentations by NDSU faculty and staff demonstrating best practices for research, instruction, advising, assessment, campus climate, inclusion, mentoring, leadership, and classroom technologies. [Register Here](#)

NORTH DAKOTA ECONOMIC DIVERSIFICATION RESEARCH FUND

The higher education funding bill passed by the ND legislature and signed by Governor Burgum includes a new Economic Diversification Research Fund that provides \$5 million in total to NDSU (\$2.5 million each year of the biennium) for research grants.

The fund is aimed to provide grants that meet these criteria:

- Stimulate economic activity across the state through innovation of new technology, concepts, and products
- Promote job creation and career and wage growth
- Enhance health care outcomes
- Address loss of revenue and jobs in communities with economies that depend primarily on the fossil fuel industry
- Provide experiential learning opportunities for students

While the appropriated funds could be available to NDSU as early as July 1, 2023, the State Board of Higher Education (SBHE) must first approve guidelines for the program prior to any funds being disbursed for research.

You are invited to join NDSU VPR Colleen Fitzgerald in a learning session/open forum about the Economic Diversification Research Fund on Thursday, May 25 at 10:00 a.m. [Zoom link](#)

FUNDING OPPORTUNITIES

NSF Releases Multiple Opportunities in Support of AI Research, Education, and Workforce Development

The National Science Foundation (NSF) recently released three funding and engagement opportunities in support of artificial intelligence (AI) research, education, and workforce development. This uptick in agency efforts to support AI is in line with the Biden Administration's [growing interest](#) in the field of AI and its implications for society. Opportunities announced by NSF include a Dear Colleague Letter (DCL) inviting proposals to the Rapid Response Research (RAPID)

program focused on research on the use and teaching of AI in K-12 education, a Request for Information (RFI) on the capacity of institutes of higher education to produce graduates with expertise in AI, and an RFI focused on the opportunities and challenges of creating science, technology, engineering and math (STEM) pathways in emerging technology areas.

RAPID proposals must include data-driven research methods. NSF is encouraging proposals that advance diversity, equity, and inclusion in STEM education research and will have an impact on underserved schools. Applicants are required to submit a one-page concept outline detailing their proposed research by email to RAPID-DRL-AI@nsf.gov. NSF program managers will respond to submitted concept outlines and advise on whether a full RAPID proposal should be submitted. Proposals will be reviewed on a rolling basis and there is no deadline to submit. Applicants may request up to \$200,000 for a one-year project period.

The deadline for responding to each of the RFIs is **June 21, 2023**. RFIs do not have any potential funding attached to them and instead serve as a mechanism to inform NSF activities and potential investments related to AI.

RECENTLY AWARDED GRANTS

- Ying Huang (PI), Fardad Azarmi (CPI). Intelligent Thermal Spraying Metallized Polymeric Coating System for Applications in Harsh Environments. \$300,000 from the U.S. Army. 4/18/2023 – 4/18/2025.
- Omid Beik (PI). Motor Design and Sensorless Control: A Partnership with CorVent. \$309,604 from Corvent Medical, Inc. 5/1/2023 – 4/30/2028.
- Yao Yu (PI), Zhili Gao (CPI). Needs Assessment Study of Low-Income North Dakota Individuals and Families. \$9,942 from the Community Action Partnership of ND. 3/20/2023 - 7/28/2023.
- Umamaheswara Rao Tida (PI). "Subaward to NDSU: PFI-TT: Point-of-care sensor based on electric fields and machine learning for detection of circulating microRNA to identify early pancreatic cancer". \$59,522 from the National Science Foundation. 10/1/2022 – 5/31/2024.
- Changhui Yan (CPI). Increasing the Efficiency of Selecting High-Quality Soybeans for Tofu Processors and Breeders with Machine Learning. \$55,000 from the MN Soybean Research & Promotion Council. 9/1/2022 - 8/31/2023.

RECENTLY SUBMITTED PROPOSALS

- Xinhua Jia (PI). Smart Water Management Practices for Vegetable Productions in Cold Regions. \$344,121 from the Natural Resources Conservation Service. 9/29/2023 - 9/28/2026.
- Ewumbua Monono (PI). Acquisition of an Armfield FT66-D to Complete a refinery for Crude Vegetable Oils/Novel Specialty Oil Varieties. \$204,275 from the National Institute of Food & Agriculture. 10/1/2023 - 9/30/2027.
- Xinhua Jia (PI). Fundamental Studies in Data Collection and Different PFAS Pathways for Absorption and Release in Environment. \$278,990 from the U.S. Geological Survey. 1/1/2024 - 12/31/2026.
- Long Jiang (PI). Transition to Renewable and Circular Materials for Wind Turbine Blades. \$250,761 from the Department of Energy. 10/1/2023 - 9/30/2026.
- Lu Liu (PI). Exploring Eating Disorders on Reddit through the Lens of COVID-19. \$75,000 from the National Institutes of Health. 6/15/2023 - 6/14/2024.
- Xin Sun (CPI). Development of Curricular Materials on the Economics of Precision Agriculture. \$150,000 from the National Institute of Food & Agriculture. 10/1/2023 - 9/30/2026.

RECENT PUBLICATIONS

For 2023, 73 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:

- Arumugam, Dharanidharan, and Ravi Kiran. 2022. “Compact Representation and Identification of Important Regions of Metal Microstructures Using Complex-Step Convolutional Autoencoders.” *Materials & Design* 223 (November): 111236. <https://doi.org/10.1016/j.matdes.2022.111236>.
- Awuku, Bright, Ying Huang, and Nita Yodo. 2023. “Predicting Natural Gas Pipeline Failures Caused by Natural Forces: An Artificial Intelligence Classification Approach.” *Applied Sciences-Basel* 13 (7): 4322. <https://doi.org/10.3390/app13074322>.
- Bauer, Aaron, Santhalingam Elamurugan, Sara A. Tolba, Ejjigu Fatima, Ejjigu Nega, Ivan T. Lima Jr, Wenjie Xia, and Dali Sun. 2023. “A Portable Elliptical Dichroism Spectrometer Targeting Secondary Structural Features of Tumorous Protein for Pancreatic Cancer Detection.” *Biosensors & Bioelectronics* 222 (February): 114934. <https://doi.org/10.1016/j.bios.2022.114934>.
- Pordesimo, L. O., C. Igathinathane, and G. A. Holt. 2023. “Hammer Milling Switchgrass from Weathered Bales.” *Industrial Crops and Products* 197 (July): 116647. <https://doi.org/10.1016/j.indcrop.2023.116647>.
- Saraswat, Anuj, Shri Ram, Mohamed A. E. AbdelRahman, Md Basit Raza, Debasis Golui, Hombegowda Hc, Pramod Lawate, et al. 2023. “Combining Fuzzy, Multicriteria and Mapping Techniques to Assess Soil Fertility for Agricultural Development: A Case Study of Firozabad District, Uttar Pradesh, India.” *Land* 12 (4): 860. <https://doi.org/10.3390/land12040860>.
- 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>.

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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