

# COLLEGE HAPPENINGS

August 31, 2021

## FROM THE DEAN

### Tracking Our Progress in Cultivating a Culture of Collaborative Excellence

A study from the Institute for Corporate Productivity found that companies that promote collaborative working were five times as likely to be high-performing. <sup>1</sup>The same is true in academia. This is why the most challenging and vital of our college's [four strategic initiatives](#) is cultivating a culture of collaborative excellence. We want to have an organizational culture within the College of Engineering, and its departments, which promotes and rewards collaboration. A critical part of that culture is the organizational climate, the way people experience the work environment and its impact on their own well-being. Focusing on nurturing a robust culture of cooperation, giving our departmental and college climate the attention it deserves, will allow our organizational culture to become a significant competitive advantage.

As our leadership team works on making culture a priority, we also want to measure our progress. Some of these metrics for our initiative to cultivate a culture of collaborative excellence include

- increased number of collaborative proposals with multiple PI's,
- increased recognition of staff and faculty (including external national awards),
- enhanced transparency and communication in the college through newsletters, social media, and open forums,
- improved perceptions of how well the departments/units actively support diverse faculty and staff
- improved perceptions of how faculty and staff rate the overall climate in their departments/units.

In 2017 we obtained limited data for the latter two perceptions (from faculty but not staff) from a campus climate survey. At that time, 58.3% of faculty agreed or strongly agreed that "My department/unit actively supports diverse faculty and staff." Likewise, 44% of CoE faculty rated the overall climate as extremely good or good (from a 6-point Likert scale with 1=Extremely Bad...6=Extremely Good).

Organizational cultures are fluid; they need to be grown and nurtured like any relationship. With time, effort, and appropriate changes and incentives, these metrics can improve as we succeed in cultivating our culture of collaborative excellence. Shortly, I'll be sending out a brief survey to our faculty and staff asking you to rate the overall climate in your department/unit and in the College of Engineering. We'll also use the survey to gain feedback on how we are doing at sharing information and supporting diverse faculty and staff. We will continue to track this data every year or two as we track our progress in this most important strategic initiative.



## IN THE NEWS

[ND EPSCoR executive director selected for 'Visioning the Future of EPSCoR' committee](#)

[Doctoral student receives prestigious fellowship](#)

[Student resources: Residence Life](#)

[Challey Institute names faculty fellows](#)

[Students talk about why they chose NDSU](#)

## CONGRATULATIONS

**Ibukunoluwa Ajayi-Banji**, a doctoral student in the **Department of Agricultural and Biosystems Engineering**, has been selected to receive an American Association of University Women International Fellowship for the 2021-22 award year.

**Eric Asa**, associate professor in the **Department of Civil, Construction and Environmental Engineering**, and **Jeremy Straub**, assistant professor in the **Department of Computer Science**, have been named Challey Institute Faculty Fellows for 2021-22.

Please let [College Happenings](#) know about honors, awards, new grants and other announcements so we can share them with other faculty and staff.

## NEW HIRES

**Brittany (Britt) Ingersoll** has joined the NDSU Foundation as a **Director of Development in the College of Engineering**. Britt recently worked at the Dakota Medical Foundation as Director of Engagement and, before that, served as the Executive Director of the Arthritis Foundation, both in Fargo. She is a Concordia graduate, and her husband is a civil engineering graduate from NDSU.

## UPCOMING EVENTS

Friday, September 10, **College of Engineering Scholarship and Awards Reception**. Join us as we celebrate our scholarship recipients and donors and to recognize the accomplishments of outstanding faculty, staff and students 3:00 – 4:30 p.m. in the Oćefi Őakowiŋ Ballroom. [Register here](#).

Tuesday, September 14, **Faculty Council meeting**. 12:30 – 1:30 p.m. FLC 122 or Zoom.

Saturday, September 25, 4<sup>th</sup> **Annual North Dakota Biomedical Engineering Symposium**. 8:30 a.m. to 5:00 p.m. at the UND Center for Innovation. Registration is free and can be [completed here](#).

Friday, October 8, **College of Engineering Homecoming Showcase**. 12:00 – 1:30 p.m. in the Oćefi Őakowiŋ Ballroom.

Wednesday, October 13, **Faculty Council meeting**. 12:00 – 1:00 p.m. CME Auditorium or Zoom.

## PROMOTION, TENURE AND EVALUATION

The 2021-22 PTE Materials are now available to download from the [Promotion and Tenure website](#).

This website contains the NDSU PTE Timeline, Guidelines for Promotion and Tenure Portfolio Preparation, Probationary Period Extension Form (per NDSU Policy 352, 3.6), Policy and Procedure Checklist, the Portfolio Cover Sheet, and Information on University-Wide PTE Advisory Committee.

Portfolios are due to the Office of the Provost/Faculty Affairs no later than December 30, 2021. If you have any questions regarding PTE, please contact Canan Bilen-Green ([canan.bilen.green@ndsu.edu](mailto:canan.bilen.green@ndsu.edu), 1-7040).

### **PTE Sessions for Fall 2021 Reviewers**

Thursday September 9, 10:00am-12:00pm, MU Mandan Room, [Register here](#).

Friday September 10, 2:00-4:00 pm, MU Mandan Room, [Register here](#).

Wednesday September 22, 2:00-4:00 pm, MU Mandan Room, [Register here](#).

Thursday September 30, 2:00-4:00 pm, MU Mandan Room, [Register here](#).

Thursday October 7, 2:00-4:00 pm, MU Mandan Room, [Register here](#).

Tuesday October 12, 1:00-3:00 pm, MU Mandan Room, [Register here](#).

Per NDSU Policy 352 “Prior to commencement of deliberations, the chair of any PTE committee must have received PTE committee training within the last three years.”

## **DIVERSITY AND SAFE ZONE TRAINING**

### **Cultural Diversity, Microaggressions and Confronting Bias**

The Office of the Vice Provost for Faculty and Equity will be offering a series of the Cultural and Cultural Diversity Trainings as part of the Community of Respect series. The objective of the Community of Respect seminars are to teach individual participants about cultural differences and to encourage them to think critically about the impact of their cultural values in their relationships with others.

Dates offered will be:

- **Module 1:** Cultural and Cultural Diversity, September 22 from 10 a.m. – noon in the Sahnish room in the Memorial Union (formally the Arikara room)
- **Module 2:** Redefining Diversity, September 29 from 10 a.m. - noon in the Sahnish room in the Memorial Union.
- **Module 3:** Microaggressions, October 6 from 10 a.m. - noon in the Sahnish room in the Memorial Union.
- **Module 4:** Confronting Bias, October 13 from 10 a.m. - noon in the Sahnish room in the Memorial Union.

Register here: [https://www.ndsu.edu/equity/prevention\\_education/](https://www.ndsu.edu/equity/prevention_education/)

### **Safe Zone Series**

The Office of the Vice Provost for Faculty and Equity will be offering the Safe Zone Training series. Safe Zone is a program designed to educate people about sexual orientation and gender identity/expression issues, create a visible network of Allies to provide support to the NDSU lesbian, gay, bisexual, transgender, queer, and questioning (LGBTQ+) community and provide accurate information about sexual orientation and gender identity/expression diversity, issues, and resources within the community.

Dates offered:

- **Level 1:** “Becoming an Ally”, October 25, 2021 from 1-3 pm in the Meadow Lark room
- **Level 2:** “Gender Identity and Expression”, November 1, 2021 from 1-3 pm in the Meadow Lark room
- **Level 3:** “Upstander”, November 8, 2021 from 1-3 pm in the Meadow Lark room

Register here: [https://www.ndsu.edu/equity/prevention\\_education/](https://www.ndsu.edu/equity/prevention_education/)

## NSF VIRTUAL GRANTS CONFERENCE

The National Science Foundation (NSF) Fall 2021 NSF Virtual Grants Conference will be held during the week of October 4-8, 2021.

Registration will be free of charge and opens on Wednesday, September 8 at 12 p.m. EST. NSF anticipates that the sessions will reach capacity very quickly, so you are encouraged to register as soon as possible. NSF will send a *Registration is Open* email, which will provide the registration links and details for this event.

In the meantime, please feel free to check [nsfpolicyoutreach.com](https://www.nsf.gov/policy/outreach) for the most up-to-date information and view [recordings](#) of sessions from previous conferences. You may also view the Spring 2021 Virtual Grants Conference recordings on the NSF [YouTube](#) page. For those who cannot attend the live conference, all recorded conference sessions will be available on-demand shortly after the event and posted on the NSF [website](#) and [YouTube](#) page.

If you have any logistical questions about this virtual conference, please contact: [grants\\_conference@nsf.gov](mailto:grants_conference@nsf.gov).

## CREATING CONNECTIONS VIRTUAL WORKSHOP

The [ND EPSCoR State Office](#) is sponsoring a "Creating Connections" workshop by the Alan Alda Center for Communicating Science on September 28 at 2:00 p.m. "Creating Connections" is a two-hour live, online workshop. The Alda Method is a unique approach to science communication training that combines improvisational theatre-based techniques with message design strategies, including analogies and narrative.

This immersive method emphasizes two-way communication to build trust and invite others to share in the wonder and joy of science. The process incorporates research and best practices from science communication, journalism, ethics, and other relevant fields. [Contact Shireen Alemadi](#) with questions about this workshop. [Register to attend >>](#)

## DEPSCOR REGIONAL DOD DAY

The University of South Dakota is hosting a Department of Defense (DoD) Regional DEPSCoR Day on October 20, where DoD program managers will provide information about the Defense Established Program to Stimulate Competitive Research (DEPSCoR) program and general information about working with the DoD. For more information, please see: [DEPSCoR Regional DoD Day](#).

## FUNDING OPPORTUNITIES

### DARPA: Learning Introspective Control

The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative proposals [[HR001121Soo36](#)] in the following areas of interest:

- adaptive control,
- generative adversarial networks,
- self-repairing systems,
- autonomous control,
- dynamic control, and
- operator cueing

*Abstract deadline: September 13, 2021*

### DARPA: Young Faculty Award

The objective of the Defense Advanced Research Projects Agency (DARPA) Young Faculty Award ([YFA](#)) program is to identify and engage rising stars in junior research positions, emphasizing those without prior DARPA funding, and expose them to DoD needs and DARPA's program development process.

The YFA program provides funding, mentoring and industry and DoD contacts to awardees early in their careers so they may develop their research ideas in the context of national security needs. The long-term goal of the YFA program is to develop the next generation of academic scientists, engineers, and mathematicians who will focus a significant portion of their career on DoD and National Security issues.

### **ND EPSCoR: STEM Research, Education, and Outreach - NDSU-specific solicitation**

The ND EPSCoR State Office has released a Request for Proposals that is only open to faculty at the NDSU campus. Proposals are accepted in the following categories:

- educational / instructional equipment;
- equipment repair;
- undergraduate research;
- seed awards for faculty to collect preliminary data for the preparation of federal STEM proposals;
- external proposal review for large, collaborative and interdisciplinary STEM efforts;
- seed awards for faculty and students to engage K-12 in STEM outreach activities;
- development of online / virtual modules for STEM courses;
- seed awards for community-based STEM outreach; and
- electronic STEM data sets.

Please see the [Request for Proposals](#) for details.

*Deadline: September 30, 2021, noon*

### **RECENTLY FUNDED GRANTS**

- Adam Curtis Gladen (PI). Using Solar-powered Cooling to Increase Trout Habitat and Refugia in Response to Warming Water Temperatures. \$40,460 from the U.S. Fish and Wildlife Service. 07/01/2021 – 06/30/2022.
- Adam Curtis Gladen (PI). Developing a novel, molten salt torrefaction process to enable solar- or waste-heat driven torrefaction. \$69,696 from the National Institute of Food & Agriculture. 08/01/2021 - 07/31/2022.
- Jessica Lynne Lattimer Vold (PI), Ali Amiri (CPI), Yildirim B Suzen (CPI). M2M X-Hab 2022 Academic Innovation Challenge Power Rover Project. \$26,000 from the National Aeronautics and Space Administration. 08/01/2021 - 05/31/2022.
- Jessica Lynne Lattimer Vold (PI). Engineering Unleashed Fellowship. \$10,000 from the Kern Family Foundation. 10/01/2021 - 08/31/2022.
- Ademola Monsur Hammed (PI), Nurun Nahar (CPI). Development of Soy-formulate for organic ammonia production via hyper-ammonia-bacteria fermentation in a one-pot system. \$58,196 from the ND Soybean Council. 07/01/2021 - 06/30/2022.

### **RECENTLY SUBMITTED PROPOSALS**

- Huojun Yang (PI). Mobile home-based labs to enhance undergraduate education in building energy systems. \$300,000 from the National Science Foundation. 12/01/2021 - 11/30/2024.
- Xin Sun (PI), Yu Zhang (CPI), Mohammed Raju Ahmed (CPI), Cengiz Koparan (CPI). Intelligence on farm real-time weed control solution based on Edge-AI, UAV and UGV systems. \$649,468 from the National Institute of Food & Agriculture. 01/01/2022 - 12/31/2025.

- Xin Sun (PI). CAREER: The Weedbot: A Research and Educational Robotic Platform in Precision Agriculture based on Edge AI and Smart Spraying Technologies. \$628,690 from the National Science Foundation. 05/01/2022 - 04/30/2027.
- Xin Sun (PI), Cengiz Koparan (CPI). Senior Design Project: UAV Design and Prototyping for Precision Agriculture. \$29,280 from the NDSU Foundation & Alumni Association. 12/01/2021 - 08/31/2022.
- Chad A Ulven (PI). AM Thermoset Composite Process. \$750,000 from the National Center for Manufacturing Science. 08/01/2021 - 01/31/2023.
- Dali Sun (PI). Elliptical Dichroism Microscopy for Cellular Stereochemistry Analysis. \$504,757 from the National Science Foundation. 01/01/2022 - 12/31/2026.
- Farhad Shirani Chaharsooghi (PI), Umamaheswara Rao Tida (CPI). Secure, Private, Resilient and Intelligent Networked Information Systems: Foundations, Algorithms, and Hardware Design. \$996,323 from the National Science Foundation. 02/01/2022 - 01/31/2025.
- Adam Curtis Gladen (PI). CAREER: Storing Solar Energy through the Catalytic Torrefaction of Biomass in Molten Salts. \$519,417 from the National Science Foundation. 01/01/2022 - 12/31/2027.
- Danling Wang (PI). CAREER: Novel Nano-enabled Sensing System for Noninvasive Early Disease Detection and Intelligent Health Management. \$495,291 from the National Science Foundation. 05/01/2022 - 04/30/2027.
- Wenjie Xia (PI). An Integrated Investigation towards Deciphering the Structure-Property Relationships of Architected Polymers. \$523,809 from the National Science Foundation. 07/01/2022 - 06/30/2027.
- Di Wu (PI). Career: Analysis and Control of Sub-synchronous Oscillation in Power Systems with High Penetration of Renewable Resources. \$500,000 from the National Science Foundation. 05/02/2022 - 04/30/2027.
- Di Wu (PI). Integrated Real-time Satellite Renewable Generation Forecast and Power Grid Surveillance System. \$75,000 from the NDSU Foundation & Alumni Association. 10/29/2021 - 10/31/2022.
- Md Mukhlesur Rahman (PI), Joao Paulo Cassol Flores (CPI). Harnessing Data for Accurate Yield and Oil Content Prediction. \$228,621 from the National Institute of Food & Agriculture. 01/01/2022 - 12/31/2024.
- Fardad Azarmi (PI). DEVELOPMENT OF SUSTAINABLE ENGINEERING LABORATORY AT NDSU. \$49,566 from the NDSU Foundation & Alumni Association. 10/15/2021 - 10/14/2024.
- Yan Zhang (PI). CAREER: Physiological Helical Flow: Origin, Transition, and Helicity Induction. \$509,213 from the National Science Foundation. 08/01/2022 - 07/31/2027.
- Long Jiang (PI). Next Generation Bio-Based Synthetic Leather Using Cotton Plant-Derived Products. \$300,000 from the National Institute of Food & Agriculture. 01/01/2022 - 12/31/2023.
- Jeremy A Straub (PI), Simone Ludwig (CPI), Zahid Anwar (CPI). Student Support in the Cybersecurity Area of National Need. \$2,870,604 from the National Science Foundation. 07/01/2022 - 06/30/2027.
- Jeremy A Straub (PI). AIM-AHEAD Coordinating Center. \$998,131 from the National Institutes of Health. 09/08/2021 - 09/07/2023.
- Jeremy A Straub (PI), Ravi Kiran Yellavajjala (CPI), Majura Fortunatus Selekwu (CPI), Zahid Anwar (CPI). REU Site RENEWAL: Cybersecurity and Explainable/Defensible Artificial Intelligence for Aerospace Cyber-Physical Systems. \$449,609 from the National Science Foundation. 03/01/2021 - 02/28/2024.
- Syeed Md Iskander (PI). Purchasing of an Ion Chromatography system for the newly established Environmental Engineering program at North Dakota State University. \$74,680 from the NDSU Foundation & Alumni Association. 11/01/2021 - 12/31/2021.
- Benjamin Davis Braaten (PI). Analytical Model Development on Propagation in Biological Tissue, Phase 2. \$119,999 from the U.S. Air Force. 12/01/2021 - 11/30/2022.
- Umamaheswara Rao Tida (PI), Sudarshan Kumar Srinivasan (CPI), Dharmakeerthi Nawarathna (CPI), Sumitha George (CPI), Farhad Shirani Chaharsooghi (CPI). Edge device Artificial intelligence development resources for teaching, learning and research at North Dakota State University. \$75,000 from the NDSU Foundation & Alumni Association. 01/01/2022 - 12/31/2023.
- Yao Yu (PI), Abdulaziz Ali H Banawi (CPI). E2NDSU: An Energy-Efficiency Campus. \$35,200 from the NDSU Foundation & Alumni Association. 11/01/2021 - 10/31/2023.

- Ali Amiri (PI), Alan R Kallmeyer (CPI). Development of Engineering Mechanics I (ME221) Lab/Demo Module. \$57,875 from the NDSU Foundation & Alumni Association. 09/10/2021 - 12/31/2022.
- Mijia Yang (PI), Zhili Gao (CPI). REU Site: Research Experiences for Undergraduate Students on Biological Concrete Materials. \$387,294 from the National Science Foundation. 09/01/2022 - 08/31/2025.
- Zhibin Lin (PI), Danling Wang (CPI), Qifeng Zhang (CPI). Introducing Smart Nanostructured Materials to Native American Students for Monitoring the Health Quality and Energy Efficiency of Enclosed Living Spaces. \$385,806 from the National Science Foundation. 05/01/2022 - 04/30/2025.
- David Grewell (PI). Collaborative Research: CB2 Bioplastics and Biocomposites Research Experience for Undergraduates. \$242,997 from the National Science Foundation. 02/01/2022 - 01/31/2026.
- Ravi Kiran Yellavajjala (PI), Simone Ludwig (CPI). An AI Rosetta Stone for cell migration. \$190,893 from the National Institutes of Health. 06/01/2022 - 05/31/2027.

## RECENT PUBLICATIONS

For 2021, 154 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:

- Ara, Ismat, X. W. Tangpong, and Fardad Azarmi. 2020. "Microstructural Characteristics of Stainless Steel 316L Processed by Selective Laser Melting Technology." In *TMS 2020 149th Annual Meeting & Exhibition Supplemental Proceedings*, 405–12. Cham: Springer International Publishing Ag. [https://doi.org/10.1007/978-3-030-36296-6\\_38](https://doi.org/10.1007/978-3-030-36296-6_38).
- Chen, Lili, Almir Ekic, and Di Wu. 2020. "Multi-Objective Grid Planning for Renewable Energy Integration." In *2020 IEEE Power & Energy Society General Meeting (PESGM)*. New York: IEEE. <https://www.webofscience.com/wos/woscc/full-record/WOS:000679246602210?AlertId=6be422b2-ea2e-40c5-8e21-3756db20c6af&SID=6EgccAwWxRxLGBxNSFN>.
- Chen, Xiaoming, William Ogdahl, Lauren L. Hulsman Hanna, Carl R. Dahlen, David G. Riley, Sarah A. Wagner, Eric P. Berg, and Xin Sun. 2021. "Evaluation of Beef Cattle Temperament by Eye Temperature Using Infrared Thermography Technology." *Computers and Electronics in Agriculture* 188 (September): 106321. <https://doi.org/10.1016/j.compag.2021.106321>.
- Eide, Austin, Yu Zhang, Cengiz Koparan, John Stenger, Michael Ostlie, Kirk Howatt, Sreekala Bajwa, and Xin Sun. 2021. "Image Based Thermal Sensing for Glyphosate Resistant Weed Identification in Greenhouse Conditions." *Computers and Electronics in Agriculture* 188 (September): 106348. <https://doi.org/10.1016/j.compag.2021.106348>.
- Jayasooriya, Vidura, Beth Ringwelski, Glenn Dorsam, and Dharmakeerthi Nawarathna. n.d. "mRNA-Based CAR T-Cells Manufactured by Miniaturized Two-Step Electroporation Produce Selective Cytotoxicity toward Target Cancer Cells." *Lab on a Chip*. Accessed August 24, 2021. <https://doi.org/10.1039/d1lc00219h>.
- Ma, Qian, Ke Wang, Damian Mohawk, Yanlin Chen, Raj Hazra, and Long Jiang. 2021. "Strong, Ductile, Transparent, Water-Resistant Cellulose Nanofibril Composite Films via UV-Induced Inter-Cross-Linked Networks." *ACS Sustainable Chemistry & Engineering* 9 (32): 10749–60. <https://doi.org/10.1021/acssuschemeng.1c01222>.
- Rahman, Md Atikur, Md Zahirul Islam, Luke Gibbon, Chad A. Ulven, and John J. La Scala. n.d. "3D Printing of Continuous Carbon Fiber Reinforced Thermoset Composites Using UV Curable Resin." *Polymer Composites*. Accessed August 27, 2021. <https://doi.org/10.1002/pc.26266>.
- Sharma, Achintyamugdha, Todd Sirotiak, Matthew L. Stone, Xuhao Wang, and Peter Taylor. 2021. "Effects of Cement Changes and Aggregate System on Mechanical Properties of Concrete." *Journal of Infrastructure Systems* 27 (3): 04021012. [https://doi.org/10.1061/\(ASCE\)IS.1943-555X.0000612](https://doi.org/10.1061/(ASCE)IS.1943-555X.0000612).
- Straub, Jeremy. 2021. "Expert System Gradient Descent Style Training: Development of a Defensible Artificial Intelligence Technique." *Knowledge-Based Systems* 228 (September): 107275. <https://doi.org/10.1016/j.knosys.2021.107275>.

- Wang, Xingyu, and Zhibin Lin. 2021. “Robust, Hydrophobic Anti-Corrosion Coating Prepared by PDMS Modified Epoxy Composite with Graphite Nanoplatelets/Nano-Silica Hybrid Nanofillers.” *Surface & Coatings Technology* 421 (September): 127440. <https://doi.org/10.1016/j.surfcoat.2021.127440>.

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](mailto:kyle.bosch@ndsu.edu) to submit items for *College Happenings*.

Follow the College of Engineering on social media.

