NDSU | COLLEGE OF ENGINEERING

COLLEGE HAPPENINGS

June 8, 2021

FROM THE DEAN

Metaphorical Masks

Just this week NDSU changed to a mask-optional policy on campus. After 15 months, we no longer are required to wear a mask while around others on campus. Early on in the pandemic, it was hard to find masks. My daughter, who had recently acquired her drivers permit, collected many miles of driving experience across Fargo-Moorhead as we delivered bison-themed cloth masks that my wife had sewn for friends and colleagues. In anticipation of students returning to campus for the Fall semester, we purchased hundreds of NDSU Engineering branded masks that were given out to the college community. Later, as supply chains caught up to the demand, disposable masks became widely available, which I preferred for convenience.

While the masks helped prevent the spread of COVID-19, they also made it harder to connect and easier to disengage with people. In a recent graduation speech at Boston College, David Brooks explained:

> "Two people wearing masks find it easier to walk by each other on the street without recognizing the presence of another human being. But of course, we don't only wear physical masks, but also psychological ones. Productivity is a mask. I'm too busy to stop and see you. The meritocracy is a mask. I judge you by what school you went to and what job you got. Essentialism is a mask. I can make all sorts of assumptions about you based on what racial or ethnic group you are in. Fear is a mask. I don't show you myself because I'm afraid you won't like me. Emotional avoidance is a mask. I hide parts of myself because I'm afraid to confront my own feelings. Worst and most serious of all, distrust is a mask. I wall myself in because I'm suspicious you will hurt me… But distrust breeds distrust. When somebody is distrusting of me, I am distrusting toward them and we spiral into a distrust doom loop."

The pandemic and masks made relationships harder. But now, just as we are able to physically unmask, let's remove the metaphorical masks that make it harder to create the kind of community in the college and in our personal lives that cultivates a culture of collaboration and trust. As Brooks suggests, let's replace social distance with social closeness and social courage.

IN THE NEWS

NDSU receives NIH funding for new transmission electron microscope

CONGRATULATIONS

Ben Deetz, Business Development Coordinator in the **Department of Industrial and Manufacturing Engineering**, and **Milka Singha**, Academic Student Services Coordinator in the **Department of Civil and Environmental Engineering**, won Staff Recognition Awards from the NDSU Staff Senate.

Beena Ajmera, assistant professor in the **Department of Civil and Environmental Engineering**, was honored with the Inspiring Colleague Award by the NDSU Office of Teaching and Learning.

Ravi Kiran Yellavajjala, assistant professor in the **Department of Civil and Environmental Engineering**, received the American Association of State Highway and Transportation Officials (AASHTO) High-Value Research award for his group's recently concluded project on corn-based deicers.

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, August 17, **New Faculty Orientation**. The event runs from 8:30 a.m. to 4:00 p.m. Register here.

Wednesday, August 18, **Annual Faculty and Academic Staff Conference**. Presentations will include demonstrating best practices for research, instruction, advising, assessment, campus climate, inclusion, mentoring, leadership, and classroom technologies. Register here.

INTERIM CHAIR OF CCEE

Applications and nominations are being accepted for Interim Chair of the Department of Civil, Construction and Environmental Engineering. The position will begin on July 1, 2021. The end date will be dependent on the timing of a successful search for a permanent Chair. This is an internal search for tenured faculty members in the College of Engineering. Please send nominations and applications to Michael.R.Kessler@ndsu.edu.

Screening will begin June 14, 2020, and remain open until a suitable applicant is chosen.

Applications should include:

- a detailed CV and
- a letter of interest that addresses the required and preferred qualifications, explains the candidate's interest in the position, and describes their goals for the department.

The search committee members are Michael Kessler (search committee chair), Ben Braaten, Mijia Yang, and Jerry Gao.

VIRTUAL DEPSCOR DAY

The Defense Established Program to Stimulate Competitive Research (DEPSCoR) is holding a virtual DEPSCoR Day on Wednesday, June 23 from 9 a.m. to 4 p.m. The event will include overviews of currently open funding opportunities, various panel sessions, and breakout sessions with Program Officers representing the topics in the Research Collaboration funding opportunity announcement.

To participate in the Virtual DEPSCoR Day, you must register in advance no later than June 16, 2021. You are encouraged to register early as space is limited.

FUNDING OPPORTUNITIES

NSF: Computational and Data-Enabled Science and Engineering (CDS&E)

Large-scale simulations and the ability to accumulate massive amounts of data have revolutionized science and engineering. The goal of the CDS&E meta-program [PD 21-8084] is to identify and capitalize on opportunities for major scientific and engineering breakthroughs through new computational and data-analysis approaches and best practices. The CDS&E meta-program supports projects that harness computation and data to advance knowledge and accelerate discovery above and beyond the goals of the participating individual programs. The intellectual drivers may be in an individual discipline, or they may cut across more than one discipline in various Divisions and Directorates. A CDS&E proposal should enable and / or utilize development and adaptation of advances in research and infrastructure in computational and data science.

NSF: Computer and Information Science and Engineering Research Initiation Initiative

The National Science Foundation (NSF) Directorate for Computer and Information Science and Engineering (CISE) seeks to award grants intended to support research independence among early-career academicians who specifically lack access to adequate organizational or other resources. It is expected that funds obtained through this program [NSF 21-591] will be used to support untenured faculty or research scientists (or equivalent) in their first three years in a primary academic position after the PhD, but not more than six years after completion of their PhD for proposals submitted in 2021, and not more than five years after completion of their PhD for proposals submitted after 2021.

Applicants for this program may not yet have received any other grants or contracts in the PI role from any department, agency, or institution of the federal government, including from the CAREER program or any other program, post-PhD, regardless of the size of the grant or contract, with certain exceptions as noted below. Serving as co-PI, Senior Personnel, Postdoctoral Fellow, or other Fellow does not count against this eligibility rule. *Deadline: September 20, 2021*

DOE: Solicitation for the Office of Science

Through this solicitation [DE-FOA-0002414], the Office of Science (SC) of the Department of Energy (DOE) continues its interest in receiving grant applications for support of work in the following program areas:

- Advanced Scientific Computing Research,
- Basic Energy Sciences,
- Biological and Environmental Research,
- Fusion Energy Sciences,
- High Energy Physics,
- Nuclear Physics,
- Isotope R&D and Production, and
- Accelerator R&D and Production.

This solicitation is open through September 30, 2021.

RECENTLY FUNDED GRANTS

- Danling Wang (PI), Qifeng Zhang (CPI). “Smell” a virus: a fast, risk-free, novel sensing system for transmission disease control and prevention. $5,000 from the NDSU Foundation & Alumni Association. 06/01/2021 - 12/31/2022.

RECENTLY SUBMITTED PROPOSALS

- Xin Sun (CPI). Advanced UAS/UAV Application and Data Management Systems and Bioinformatics Tools Integrate GxExM Data for Precision Agricultural Management. $863,092 from the Agricultural Research Service. 08/01/2018 - 07/31/2023.
- Mijia Yang (PI), Eric Asa (CPI). Developing a self-heating biochar concrete utilizing soybean wastes and soy wax. $47,820 from the ND Soybean Council. 07/01/2021 - 06/30/2022.
- Mijia Yang (PI), Zhili Gao (CPI). A new soybean modified multifunctional asphalt. $47,820 from the ND Soybean Council. 07/01/2021 - 06/30/2022.
- Dali Sun (PI). A Novel Treatment for Pancreatic Cancer Driven by Exosomal Contents. $398,749 from the National Institutes of Health. 01/01/2022 - 12/31/2023.
- 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.
- Chad A Ulven (CPI). Hemp Fiber Standards. $250,000 from the Agricultural Marketing Service. 09/30/2021 - 09/29/2024.
- Changhui Yan (PI). Creating Weed-Tolerant Corn. $55,000 from the Agricultural Research Service. 07/01/2021 - 06/30/2023.
- Achintya Bezbaruah (PI), Tonoy Kumar Das (CPI). Synthesis of Green Metal Complexes using Soybean Polyphenols for Environmental Remediation and Agricultural Applications. $41,280 from the ND Soybean Council. 07/01/2021 - 06/30/2022.
- Achintya Bezbaruah (PI), Tonoy Kumar Das (CPI). Biochar Production from Soybean Biomass. $41,616 from the ND Soybean Council. 07/01/2021 - 06/30/2022.
- Trung Bao Le (PI). ERI: Turbulent flows under ice coverage in alluvial channels. $198,968 from the National Science Foundation. 01/01/2022 - 12/30/2023.
- Long Jiang (PI). Soy Protein-based Soft Gels for Sensors and Soft Robotics. $37,336 from the ND Soybean Council. 07/01/2021 - 06/30/2022.
- Long Jiang (CPI). Nanotechnology-enabled Management of Black Leaf Streak (BLS) Disease of Wheat and Barley. $478,869 from the National Institute of Food & Agriculture. 06/01/2022 - 05/31/2025.
- Xinhua Jia (CPI). Advances in Impacts Recovery from Electrokinetic Soil Remediation. $137,982 from the ND Industrial Commission. 07/01/2021 - 06/30/2023.
- Ali Amiri (CPI). Evaluation of heart rate dynamics and complexity in a swine-based model of objective and perceived social isolation. $507,500 from the National Institutes of Health. 11/01/2021 - 07/01/2025.
- Nurun Nahar (PI), Ademola Ayodeji Ajayi-Banji (CPI). Enhancing Green Energy with Nanoparticles in Solid-State Anaerobic Co-digestion of Livestock Manure and Agricultural Wastes. $299,539 from the National Institute of Food & Agriculture.12/01/2021 - 11/30/2023.
- Xiangfa Wu (PI). Biodegradable, high-strength, tough, green nanocomposites based on self-crosslinked soy flours. $75,773 from the ND Soybean Council. 07/01/2021 - 06/30/2022.

RECENT PUBLICATIONS

For 2021, 108 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:

- Davila-Frias, Alex, Shah Limon, Val Marinov, and Om Prakash Yadav. 2021. “Reliability Evaluation of Flexible Hybrid Electronics Systems Considering Degradation Behavior Under Multistress Operating Conditions.” *Journal of Electronic Packaging* 143 (2): 021003. https://doi.org/10.1115/1.4048035.
- Delavarpour, Nadia, Cengiz Koparan, John Nowatzki, Sreekala Bajwa, and Xin Sun. 2021. “A Technical Study on UAV Characteristics for Precision Agriculture Applications and Associated Practical Challenges.” *Remote Sensing* 13 (6): 1204. https://doi.org/10.3390/rs13061204.

- Ludwig, Simone A. 2021. “Investigation of Orientation Estimation of Multiple IMUs.” *Unmanned Systems* 9 (4): 283–91. https://doi.org/10.1142/S2301385021500114.
- Naghdi, Saeid, Omid Bozorg-Haddad, Mostafa Khorsandi, and Xuefeng Chu. 2021. “Multi-Objective Optimization for Allocation of Surface Water and Groundwater Resources.” *Science of the Total Environment* 776 (July): 146026. https://doi.org/10.1016/j.scitotenv.2021.146026.
- Zholobko, Oksana, Ademola Hammed, Andrey Zakharchenko, Nikolay Borodinov, Igor Luzinov, Breeanna Urbanowicz, Taras Patsahan, et al. 2021. “Biomimetic Cellulosomes Assembled on Molecular Brush Scaffolds: Random Complexes vs Enzyme Mixtures.” *ACS Applied Polymer Materials* 3 (4): 1840–53. https://doi.org/10.1021/acsapm.0c01407.

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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