

COLLEGE HAPPENINGS

October 15, 2019

FROM THE DEAN

Opportunity

I really enjoyed the whirlwind of homecoming activities last week. One highlight was the public launch of the *In Our Hands* fundraising campaign on Thursday afternoon, where the largest donation in university history – a \$75M gift from Robert and Sheila Challey – was announced, along with a campaign goal to raise a total of \$400M for scholarships, faculty, facilities, and programs. Another highlight was the 3rd annual Engineering Homecoming Showcase luncheon on Friday, where we got a chance to welcome back many of our alumni with a program that included a state of the college update, an alumni panel discussion about philanthropy, and student and faculty presentations highlighting some of the activities in our college.

One of the most important roles I see for the leadership team in the College of Engineering is finding, providing, and developing new opportunities for the college (our students, faculty, and staff). Sometimes, those opportunities come about because of careful planning and strategy. Other times, opportunities arise that we may not have anticipated, but that are beneficial if we are agile enough and willing to pursue them. One such opportunity, funded through philanthropy, is the new tenure-track line that was recently awarded to the Department of Computer Science in the area of Cybersecurity Innovation and Policy from the new Challey Institute's Faculty Scholars program.

Opportunities also arise for faculty when they choose to pursue research funding by writing competitive grant proposals. Having competitive grant proposals requires preparing early and seeking as much feedback as possible. Last year, the College of Engineering began working with Dr. Christine Strohm as a grant consultant to provide grant writing support to our faculty. I hope you will take advantage of this opportunity to improve the competitiveness of your proposals. As a reminder, if you would like to work with Christine, I encourage you to **reach out to her early in the proposal planning**. The process is relatively simple. The first step is to contact Christine. Her email address is christine.strohm@ndsu.edu to describe the proposal and funding opportunity, and ask her for a quote. She also has a campus office in Engineering Administration room 103. That quote will then be sent to the department chair of the PI and then the Dean's office for approval and prioritization. Priority will be given to larger multi-investigator proposals and proposals for young investigators, but all proposals will be considered for support as time and resources allow. If the proposal is supported by the college, and the grant is ultimately funded, then the college will hold back half of the indirect cost return that is typically returned to the departments in order to sustain and grow the college's grant writing support into the future. I hope you'll take advantage of this opportunity.



IN THE NEWS

[National Security Agency researcher visits NDSU](#)

[NDSU alumnus invited to speak for Distinguished Lecture Series](#)

[Center for Bioplastics and Biocomposites on AgweekTV](#)

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, October 16, **CoE Faculty Council Meeting**. 3:00 – 4:00 p.m. QBB 104. [Agenda, minutes and proposed CoE Bylaw changes](#).

Thursday and Friday, October 17 and 18, **Discover NDSU**. The largest event of the year for high school juniors and seniors.

Thursday, October 17, **Tools and Weapons: The Promise and Peril of the Digital Age presented by Microsoft President Brad Smith**. 3:00 – 4:00 p.m. at the McGovern Alumni Center. [Click this link to register](#) *Space is limited.*

Friday, October 18, **Using Graph Theory to Improve Epitope Modeling of Antibody:antigen Binding**. This Department of Industrial and Manufacturing Engineering seminar is presented by Benjamin Brooks. 2:00 – 3:00 p.m. in CIE 207.

Thursday, October 24, **Red River Valley ASABE Sectional meeting**. The registration deadline is 11:59 p.m. on Tuesday, October 22, 2019. [Register Here](#).

Friday, October 25, **Development of Novel Shear Thickening Fluid Impregnated Biocomposite Body Armor**. This Mechanical Engineering Seminar is presented by M.S. candidate Joseph Fehenbach. 12:00 – 12:50 p.m. in Dolve 118.

Tuesday, October 29, **College of Engineering Distinguished Lecture Series**. Paul Dlugosch, BS '89, electrical engineering, and president and CEO of Natural Intelligence Semiconductor, will present "Neuromorphic Computing: How AI is driving a revolution in processing architectures." 3:30 p.m. in Family Life Center, room 124.

SHOWCASE OF STUDENT WRITING

If you assign writing in your undergraduate courses, now is the time to sign up your students for participation in the **Fifth Annual Showcase of Student Writing**, scheduled for Monday, December 9th.

If you are interested in having your students participate, please [fill in your information on this Google form](#). You will need to provide the class, # of students/groups, project name and 100-word description, and information about equipment you will need—tables, display walls, power strips, etc.

If you aren't sure how your course might fit into the Showcase, please contact [Lisa Arnold](#) or [Bruce Maylath](#) for more information.

FUNDING OPPORTUNITIES

NSF Emerging Frontiers in Research and Innovation (EFRI): Distributed Chemical Manufacturing and Engineering the Elimination of End-of-Life Plastics

The Emerging Frontiers in Research and Innovation ([EFRI](#)) program of the National Science Foundation (NSF) Directorate for Engineering (ENG) serves a critical role in helping ENG focus on important emerging areas in a timely manner. This solicitation is a funding opportunity for interdisciplinary teams of researchers to embark on rapidly advancing frontiers of fundamental engineering research. For this solicitation, we will consider proposals that aim to investigate emerging frontiers in one of the following two research areas:

- **Distributed Chemical Manufacturing (DCheM)** - Research Thrusts: Fundamental Chemical and Physical Transformations of Matter; Process Integration and Advanced Manufacturing; and Process Modeling, Optimization and Control.
- **Engineering the Elimination of End-of-Life Plastics (E3P)** – Research Thrusts: Depolymerization of plastic materials, Valorization of Plastic Materials and Plastic-derived Molecules; and Enabling Processes that Eliminate Plastic Waste.

Letter of Intent Deadline: November 4, 2019

Preliminary Proposals Deadline: December 2, 2019

[Track this opportunity in Pivot >>](#)

NSF: National Artificial Intelligence (AI) Research Institutes

The 2019 update to the [National Artificial Intelligence Research and Development Strategic Plan](#), informed by visioning activities in the scientific community as well as interaction with the public, identifies as its first strategic objective the need to make long-term investments in AI research in areas with the potential for long-term payoffs in AI.

This program ([NSF 20-503](#)), a joint effort of the National Science Foundation (NSF), U.S. Department of Agriculture (USDA) National Institute of Food and Agriculture (NIFA), U.S. Department of Homeland Security (DHS) Science & Technology Directorate (S&T), U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA), and U.S. Department of Veterans Affairs (VA), seeks to enable such research through AI Research Institutes.

This program solicitation describes two tracks: Planning and Institute. Submissions to the **Planning** track are encouraged in any areas of foundational and use-inspired research appropriate to NSF and its partner organizations. Proposals for the **Institute** track must have a principal focus in one or more of the following themes, detailed in the Program Description under "Institute Track":

- Trustworthy AI;
- Foundations of Machine Learning;
- AI-Driven Innovation in Agriculture and the Food System;
- AI-Augmented Learning;
- AI for Accelerating Molecular Synthesis and Manufacturing; and
- AI for Discovery in Physics.

Deadline: January 28, 2020 for Institute proposals in one of the six specified themes; January 30, 2020 for Planning proposals

RECENTLY SUBMITTED PROPOSALS

- Beena D Ajmera (PI). Solving Geotechnical Issues Arising from Strength Reductions during Climate Change Induced Permafrost Thawing. \$150,000 from Johnson and Johnson. 07/01/2020 – 06/30/2023.
- Zhulu Lin (PI), Xuefeng Chu (CPI), Juan Li (CPI), John F Nowatzki (CPI), Xin Sun (CPI), Xinhua Jia (CPI). Transforming the US Cooperative Extension Service to Empower Rural Sustainable Agriculture in the Digital Age. \$9,959,776 from the National Institute of Food and Agriculture. 05/01/2020 – 04/30/2025.
- Danling Wang (PI). A Novel Breath Sensor for Diabetics as a Smart Weight Scale and Non-invasive Glucose Meter. \$150,000 from Johnson and Johnson. 06/01/2020 – 05/31/2023.
- Jeremy A Straub (PI). Support for Adventium Labs USAF SBIR Proposal. \$105,067 from the U.S. Air Force. 12/15/2019 – 12/15/2020.
- Robert Allan Sailer (PI). Design and prototyping of cooling devices using CO₂ as a refrigerant for transition to production. \$300,000 from the ND Department of Commerce. 11/01/2019 – 06/30/2021.

RECENT PUBLICATIONS

For 2019, 111 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:

- Azarmi, F., and I. Sevostianov. 2019. "Evolution of Thermo-Mechanical Properties in the Process of Alumina Manufacturing Using Laser Stereolithography Technique." *International Journal of Engineering Science* 144 (November): UNSP 103125. <https://doi.org/10.1016/j.ijengsci.2019.103125>.
- Borah, Deva K., G. Padmanabhan, and Saurav Kumar. 2019. "Total Maximum Daily Load Analysis and Modeling: Assessment and Advancement." *Journal of Hydrologic Engineering* 24 (11): 02019001. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001853](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001853).
- Hosseini-Farid, Mohammad, Mohammadreza Ramzanpour, Jayse McLean, Mariusz Ziejewski, and Ghodrati Karami. 2019. "Rate-Dependent Constitutive Modeling of Brain Tissue." *Biomechanics and Modeling in Mechanobiology*, October. <https://doi.org/10.1007/s10237-019-01236-z>.
- Huang, Zheng, and Jun Kong. n.d. "A Toolkit for Prototyping Tabletop-Centric Cross-Device Interaction." *International Journal of Human-Computer Interaction*. <https://doi.org/10.1080/10447318.2019.1662667>.
- Naik, Dayakar L., and Ravi Khan. 2019. "Identification and Characterization of Fracture in Metals Using Machine Learning Based Texture Recognition Algorithms." *Engineering Fracture Mechanics* 219 (October): UNSP 106618. <https://doi.org/10.1016/j.engfracmech.2019.106618>.
- Shewalkar, Apeksha, Deepika Nyavanandi, and Simone A. Ludwig. 2019. "Performance Evaluation of Deep Neural Networks Applied to Speech Recognition: Rnn, Lstm and Gru." *Journal of Artificial Intelligence and Soft Computing Research* 9 (4): 235–45. <https://doi.org/10.2478/jaiscr-2019-0006>.
- Stolt, Adam J., Al Habib Ullah, and Jordi Estevadeordal. 2019. "Study of Leading-Edge Dimple Effects on Airfoil Flow Using Tomographic PIV and Temperature Sensitive Paint." *Fluids* 4 (4): 184. <https://doi.org/10.3390/fluids4040184>.
- Straub, Jeremy, Michael Swartwout, Miguel Nunes, and Vaios Lappas. 2019. "CubeSats and Small Satellites." *International Journal of Aerospace Engineering* 2019 (September): 9451673. <https://doi.org/10.1155/2019/9451673>.
- Subhashree, Srinivasagan N., and C. Igathinathane. 2019. "Tracks Impacted Field Area Simulation Using Kinematics and Geometry for Different Equipment and Operation Scenarios." *Biosystems Engineering* 187 (November): 185–200. <https://doi.org/10.1016/j.biosystemseng.2019.08.018>.
- Xia, Wenjie, and Tian Lan. 2019. "Interfacial Dynamics Governs the Mechanical Properties of Glassy Polymer Thin Films." *Macromolecules* 52 (17): 6547–54. <https://doi.org/10.1021/acs.macromol.9b01235>.

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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