NDSU | COLLEGE OF ENGINEERING

COLLEGE HAPPENINGS

April 13, 2021

FROM THE DEAN

Responsible Conduct of Research

Several years ago, I taught a research course where we covered the topic of responsible conduct of research. There are several excellent resources you or your graduate students might be interested in exploring on this topic:

- An outstanding "choose your own ending" video exercise titled "The Lab" can be found here: http://ori.hhs.gov/thelab . The students choose to play one of the characters, then make decisions and see the consequences. It's very well done.
- The book "Introduction to the Responsible Conduct of Research" by Nicholas H. Steneck (2007) (available in pdf format at http://ori.hhs.gov/sites/default/files/rcrintro.pdf), provides a comprehensive overview of basic rules of the road for responsible research, with a particular focus on the needs of beginning researchers in mind.
- In addition, there is an excellent online resource that addresses issues related to the decision surrounding responding to research misconduct titled "Responding to Research Wrongdoing: A User-Friendly Guide."

From my experience, one of the most common research misconduct issues involves authorship disputes. Often, such disagreements can be overcome if they are discussed early in any project to avoid misunderstandings and later disputes about authorship. In general, I believe that faculty should err on the side of generosity when it comes to determining authorship and author order for publications with graduate students because of the significant beneficial impact that published papers can have on the students' career. When disputes do arise in authorship, it is usually best to follow a chain of command, starting with the Department Chair. In other cases, such as allegations of fabrication and falsification of data, it may be more appropriate to report the offense directly to the university's Research Integrity Officer (RIO). NDSU's RIO is the Vice President for Research and Creative Activities, Jane Schuh.

At NDSU, resources for research integrity and compliance, including Institutional Review Board (IRB), Institutional Animal Care and Use (IACUC), and Institutional Biosafety Committee (IBC) operations are available at https://www.ndsu.edu/research/for_researchers/research_integrity_and_compliance/. We have an increasing number of our faculty working in biomedical engineering research, with projects involving animals or human research participants, so our faculty and students must be familiar with these resources and applicable NDSU policy (such as NDSU policy 345 concerning Research Involving Human Participants).

IN THE NEWS

Doctoral student receives fellowship

NDSU student to present at CUR Posters on the Hill

College of Engineering to honor distinguished alumnus

Inspiring Teacher: Ali Amiri, assistant professor of practice in the Department of Mechanical Engineering

NDSU engineering club: 'Hit the ground running'

NDSU has your path to fastest growing careers

CONGRATULATIONS

Ying Huang, associate professor in the **Department of Civil and Environmental Engineering**, has been selected as the recipient of the Walter F. and Verna Gehrts Endowed Presidential Professorship Award. Huang will be recognized at the annual NDSU Celebration of Excellence on May 13, 2021.

Ibukunoluwa Ajayi-Banji, a doctoral student in the **Department of Agricultural and Biosystems Engineering**, has received the American Society of Agricultural and Biological Engineers John C. Nye Graduate Fellowship. The fellowship is a competitive recognition designed to encourage underrepresented minority doctoral student participation in the organization and aid minorities pursuing doctorate degrees in agricultural and biological engineering. Ajayi-Banji was one of two selected in the nation to receive the fellowship.

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, April 13, **Menard Family Distinguished Speaker event** titled "COVID-19: Implications for the Future of Globalization and Integration" with the World Trade Organization's chief economist Robert Koopman. The 3:00 p.m. event is free to attend, though you must register on Zoom.

Wednesday, April 21, **Faculty Virtual Luncheon: Holistic Teaching Evaluation**. With recent modifications to NDSU policies 332 and 352, this event will provide suggestions and resources to support holistic teaching evaluation that includes input from students, peers, and the instructor themselves. 11:30 a.m. - 1:00 p.m. via Zoom.

Wednesday, April 21, **How to Speak with Humans: A Workshop for Academics**. The Office of Research and Creative Activity is hosting Paul Sutter, astrophysicist, author, and communications expert, for a fun and informative faculty workshop about science communications. 2:00 – 3:30 p.m. on Zoom. Register to attend.

Tuesday, April 27, **60th Faculty Lectureship** entitled "Challenges and Opportunities in Global Agricultural Trade and Competition" by William Wilson, University Distinguished Professor. 7:00 p.m. via Zoom.

Wednesday, April 28, **UIDP Webinar: Machine Learning: What It Is and What Its Applications Are**. This webinar featuring Yiwen Xu, assistant professor in the Department of Industrial and Manufacturing Engineering, will cover the basics of machine learning, its applications as well as where the future may lead this technology. The event is free. Register here.

COLLEGE OF ENGINEERING AWARD DEADLINE

Each year, the College of Engineering recognizes the outstanding teaching and research activities of faculty and graduate students, as well as the outstanding contributions by staff members through our Teacher, Researcher and Staff awards.

The nomination deadline for the Teacher of the Year and Researcher of the Year awards is Friday, April 16, 2021 at 5:00 p.m. The Outstanding Staff Award nomination deadline is Thursday, July 15, 2021.

Details about each award and nomination documents can be found at our College Awards website.

SPRING COMMENCEMENT 2021

You are encouraged to participate in the 2021 Spring Commencement ceremonies which will be held on Saturday, May 15 at 10:00 a.m. and 2:00 p.m. in the FargoDome.

Faculty and staff who wish to participate along with our graduation class will wear caps and gowns. While there will *not* be a faculty processional, there will be designated seating behind the graduates.

Please complete and submit the Faculty/Staff Commencement Participation Form by **Friday, April 30 at 5:00 p.m.** if you plan to participate in commencement.

***DO NOT RESPOND** if you are a member of the stage party or a college marshal.*

For questions or additional information about faculty/staff participation, please email **Jackie Schluchter** at jackie.schluchter@ndsu.edu.

NDSU EXLOPRE

Mark your calendar and plan to attend the annual NDSU EXPLORE Showcase of Undergraduate Research and Creative Activity. This year's showcase will be virtual and held during Undergraduate Research Week, April 19-23.

Details can be found on the NDSU EXPLORE website. If you have any questions about this event, please send an email to ndsu.researchdev@ndsu.edu.

SARAH MARTINSEN OUTSTANDING SERVICE AWARD

Sarah Martinsen, a junior at NDSU on her first STLF Pay it Forward Tour, passed away in Pensacola, Florida on March 16, 2010. Everyone who knew Sarah could tell you that she was a young woman with a passion to serve. The NDSU Volunteer Network has made a commitment to remember Sarah with this special annual award. In addition to the recognition, the recipient will receive a $500 scholarship to put towards the 2021-2022 academic year. The deadline for applications is April 16, 2021 and the award will be given out at the NDSU Bison Leader Awards on April 28th at 5:30 pm.

If you know an NDSU student who has made a positive impact while volunteering/giving back to the community, please consider nominating them! For more information on the nomination criteria and the application process please visit the following link: https://ndstate.co1.qualtrics.com/jfe/form/SV_b8jjHgZRUGAkO5E

FUNDING OPPORTUNITIES

NSF: Engineering Research Initiation

The National Science Foundation (NSF) Directorate for Engineering (ENG) seeks to build engineering research capacity across the nation by investing in new academic investigators who have yet to receive research funding from Federal Agencies. The Engineering Research Initiation (ERI) program [NSF 21-574] aims to support new investigators as they initiate their research programs and advance in their careers as researchers, educators, and innovators. This funding opportunity also aims to broaden the base of investigators involved in engineering research and therefore is limited to investigators that are not affiliated with "very high research activity" R1 institutions.

Deadline: June 18, 2021

RECENTLY FUNDED GRANTS

- Ravi Kiran Yellavajjala (PI). CAREER: Reduced-scale Additively Manufactured Models for Quantifying the Behavior of Large Structural Steel Castings. $535,141 from the National Science Foundation. 07/01/2021 – 06/30/2026.
- Ravi Kiran Yellavajjala (PI). Low-cost and Sustainable Corrosion Mitigation Products Derived from Agricultural Feedstocks. $190,140 from the National Institutes of Food and Agriculture. 08/01/2021 – 07/31/2023.
- Trung Quoc Le (PI). Smart IoT system for Obstructive Sleep Apnea Monitoring and Forecasting in Cancer Patients under Radiotherapy. $75,000 from the National Institutes of Health. 09/01/2020 – 08/31/2021.
- Chad A Ulven (PI), Benjamin Davis Braaten (CPI), Robert Allan Sailer (CPI). Additive Manufacturing for RF Antennas, Waveguides, Connectors on Flexible Substrates. $30,000 from the Department of Defense. 10/15/2020 – 04/14/2022.
- Benjamin Davis Braaten (PI). Analytical Model Development on Propagation in Biological Tissue. $109,999 from the U.S. Air Force. 12/01/2020 – 12/31/2021.

RECENTLY SUBMITTED PROPOSALS

- Adam Curtis Gladen (PI). Developing a novel, molten salt torrefaction process to enable solar- or waste-heat driven torrefaction. $310,425 from the National Institutes of Food and Agriculture. 07/01/2021 – 06/30/2023.
- Adam Curtis Gladen (PI). Upgrading Sugar Beet Pulp to a Nanocellulose-based Energy Storage Material. $419,852 from the National Institutes of Food and Agriculture. 07/01/2021 – 06/30/2023.
- Zhibin Lin (PI), Yiwen Xu (CPI), Juan Li (CPI). Implementing and Leveraging Machine Learning at State Departments of Transportation. $350,000 from the National Academies. 09/01/2021 – 08/31/2023.
- Fardad Azarmi (PI). Advancing Water Sustainability by Developing and Applying a Novel Coating on Cooling Towers' Panels. $336,274 from South Dakota State University. 09/01/2021 – 08/31/2023.
- Ravi Kiran Yellavajjala (PI). Biobased Hydrogel Crystals for Lowering the Air Entrainment of Fine Particulates. $300,000 from South Dakota State University. 07/01/2021 – 06/30/2023.
- David Grewell (PI), Nita Yodo (CPI). Hemp Product Commercialization. $332, 029 from South Dakota State University. 12/01/2021 – 11/30/2023.
- Abdulaziz Ali H Banawi (PI), Huojun Yang (CPI), Yao Yu (CPI). Development of Interactive Research Portal for the College of Engineering- NDSU. $3,964 from the NDSU Foundation and Alumni Association. 05/07/2021 – 11/06/2022.
- Di Wu (PI), Dali Sun (CPI). An interactive graph-based methodology for cancer drug screening. $5,000 from the NDSU Foundation and Alumni Association. 05/17/2021 – 10/31/2022.
- Yechun Wang (PI). Influences of micro-patterned channel surface on blood cell motion in microfluidics. $5,000 from the NDSU Foundation and Alumni Association. 05/17/2021 – 12/16/2021.
- Beena D Ajmera (PI). Influence of Salt Concentration on the Occurrence of Slope Failures in North Dakota. $1,000 from the NDSU Foundation and Alumni Association. 06/01/2021 – 11/06/2022.
- Beena D Ajmera (PI). Earthquake-Induced Degradations in Soil Strength. $1,000 from the NDSU Foundation and Alumni Association. 06/01/2021 – 11/06/2022.
- Long Jiang (PI), Mijia Yang (CPI). Developing printable concrete using eco-friendly recycled carbon fiber/epoxy composites. $5,000 from the NDSU Foundation and Alumni Association. 05/07/2021 – 11/06/2022.
- Ivan T Lima Jr (PI). Development of Device Prototypes for the Monitoring of Surgery Patients. $3,000 from the NDSU Foundation and Alumni Association. 05/16/2021 – 10/31/2022.
- Inbae Jeong (PI). Board of Trustees Endowment Grant Program: Development of Remote Lab System. $1,000 from the NDSU Foundation and Alumni Association. 05/17/2021 – 08/13/2021.

- Qifeng Zhang (PI). Reform Electrical Engineering Lab course (ECE 306) to enhance students' conceptual understanding of electric circuits by integrating computer simulations into laboratory experiments. $1,000 from the NDSU Foundation and Alumni Association. 06/15/2021 – 08/14/2022.
- 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 and Alumni Association. 06/01/2021 – 12/31/2022.
- Wenjie Xia (PI). Materials-by-Design for Mechanical Performance of Biopolymer Films. $5,000 from the NDSU Foundation and Alumni Association. 06/01/2021 – 10/31/2022.
- Nita Yodo (PI). Sustainable logistics for cash crops commercialization. $3,000 from the NDSU Foundation and Alumni Association. 08/01/2021 – 12/31/2021.
- Trung Bao Le (PI). Precise hydrodynamic mapping for urban flood. $3,080 from the NDSU Foundation and Alumni Association. 06/01/2021 – 05/31/2022.
- Ali Amiri (PI). UV stabilization of hemp fiber reinforced composites (bio-based composites). $4,594 from the NDSU Foundation and Alumni Association. 06/01/2021 – 12/31/2021.
- Jessica Lynne Lattimer Vold (PI). Entrepreneurial Mindset in the College of Engineering. $5,000 from the NDSU Foundation and Alumni Association. 05/07/2021 – 11/06/2022.
- Sumitha George (PI). Emerging Systems with Heterogeneous Cache Memory Hierarchy. $5,000 from the NDSU Foundation and Alumni Association. 06/01/2021 – 05/31/2022.
- Simone Ludwig (PI), Muhammad Z Malik (CPI), Jeremy A Straub (CPI), Pretap Kotala (CPI), Joseph Bartlett Latimer (CPI). GenCyber Camp - Learning and Fun with Programming, Security, Robotics and AI. $78,785 from the National Security Agency. 03/01/2022 – 02/28/2023.
- Ewumbua Monono (PI). Advanced Oilseed Biorefineries for High Value Oil, Protein, and Bioproducts. $87,150 from the National Institute of Food and Agriculture. 07/01/2021 – 06/30/2023.
- John Edward Stenger (PI). Creation of an information pipeline for cultivar specific management of dry beans under abiotic stress. $102,760 from the ND Department of Agriculture. 10/01/2021 – 09/30/2023.
- Xinhua Jia (PI), Thomas Scherer (CPI). Automated irrigation for commercial production of watermelon, squash, and muskmelon cultivars in Oakes. $104,301 from the Agriculture Marketing Service. 10/01/2021 – 09/30/2022.
- Xinhua Jia (PI). Food security solution: Demonstration, education, and innovation via hydroponic technology for vegetable productions. $92,546 from the Agriculture Marketing Service. 10/01/2021 – 09/30/2023.
- Jeremy A Straub (PI). Support for the Development of K-12 School Cybersecurity Education in North Dakota. $6,516 from the University of Washington. 01/01/2022 – 12/31/2023.
- Nurun Nahar (CPI). Using Renewable Energy to Catalyze an Agricultural System Transformation (RECAST). $10,000,000 from the National Institutes of Food and Agriculture. 10/01/2021 – 09/30/2026.

RECENT PUBLICATIONS

For 2021, 67 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:

- Jamei, Mehdi, Iman Ahmadianfar, Xuefeng Chu, and Zaher Mundher Yaseen. 2021. "Estimation of Triangular Side Orifice Discharge Coefficient under a Free Flow Condition Using Data-Driven Models." *Flow Measurement and Instrumentation* 77 (March): 101878. https://doi.org/10.1016/j.flowmeasinst.2020.101878.
- Karki, Ritesh, Joseph M. Krienert, Minki Hong, and David R. Steward. n.d. "Evaluating Baseflow Simulation in the National Water Model: A Case Study in the Northern High Plains Region, USA." *Journal of the American Water Resources Association*. https://doi.org/10.1111/1752-1688.12911.
- Karuth, Anas, Amirhadi Alesadi, Wenjie Xia, and Bakhtiyor Rasulev. 2021. "Predicting Glass Transition of Amorphous Polymers by Application of Cheminformatics and Molecular Dynamics Simulations." *Polymer* 218 (March): 123495. https://doi.org/10.1016/j.polymer.2021.123495.

- Le, Trung Bao. 2021. “Dynamic Modes of Inflow Jet in Brain Aneurysms.” *Journal of Biomechanics* 116 (February). https://doi.org/10.1016/j.jbiomech.2021.110238.
- Masud, Muhammad Mubeen, Dipankar Mitra, Bilal Ijaz, Irfan Ullah, and Benjamin D. Braaten. n.d. “Using the Zeroth Order Resonance of an Inter-Digital Capacitive Unit-Cell to Design Antennas for Passive UHF RFID Tags.” *Electronics Letters*. https://doi.org/10.1049/ell2.12153.
- Meng, Zhangyu, Jun Kong, and Juan Li. 2021. “Utilizing Binary Code to Improve Usability of Pressure-Based Authentication.” *Computers & Security* 103 (April): 102187. https://doi.org/10.1016/j.cose.2021.102187.
- Ullah, Al Habib, Braden L. Rostad, and Jordi Estevadeordal. 2021. “Three-Cylinder Rotating System Flows and Their Effects on a Downstream Dimpled Airfoil.” *Experimental Thermal and Fluid Science* 124 (June): 110343. https://doi.org/10.1016/j.expthermflusci.2020.110343.
- Willison, Rebecca S., Kelly A. Nelson, Lori J. Abendroth, Giorgi Chighladze, Christopher H. Hay, Xinhua Jia, Jeppe Kjaersgaard, Benjamin D. Reinhart, Jeffrey S. Strock, and Christopher K. Wikle. n.d. “Corn Yield Response to Subsurface Drainage Water Recycling in the Midwestern United States.” *Agronomy Journal*. https://doi.org/10.1002/agj2.20579.
- Yang, Juechen, Jun Kong, and Chunying Zhao. 2021. “A Smartphone-Based Cursor Position System in Cross-Device Interaction Using Machine Learning Techniques.” *Sensors* 21 (5): 1665. https://doi.org/10.3390/s21051665.
- Zhang, Dawei, and Ying Huang. 2021. “Influence of Surface Roughness and Bondline Thickness on the Bonding Performance of Epoxy Adhesive Joints on Mild Steel Substrates.” *Progress in Organic Coatings* 153 (April): 106135. https://doi.org/10.1016/j.porgcoat.2021.106135.
- Zhang, Song, Amirhadi Alesadi, Gage T. Mason, Kai-Lin Chen, Guillaume Freychet, Luke Galuska, Yu-Hsuan Cheng, et al. n.d. “Molecular Origin of Strain-Induced Chain Alignment in PDPP-Based Semiconducting Polymeric Thin Films.” *Advanced Functional Materials*, 2100161. https://doi.org/10.1002/adfm.202100161.
- Zhou, De, Zhulu Lin, Liming Liu, and Jialing Qi. n.d. “Spatial-Temporal Characteristics of Urban Air Pollution in 337 Chinese Cities and Their Influencing Factors.” *Environmental Science and Pollution Research*. https://doi.org/10.1007/s11356-021-12825-w.

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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