

COLLEGE HAPPENINGS

June 29, 2023

IN THE NEWS

[NDSU senior gets prestigious astronaut scholarship](#)

[NSF Engines FARMS partnership group reach semifinal round for groundbreaking grant](#)

CONGRATULATIONS

Professor Kambiz Farahmand has been appointed Interim Chair of the **Department of Industrial and Manufacturing Engineering**, effective July 1, 2023. Dr. Farahmand has been a faculty member in the IME Department at NDSU since 2005, and has served in various leadership roles including Chair, ABET coordinator, CoE International Agreements liaison, and Director of the NDSU Veterans Engineering Resource Center.

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

July 10-13, **STEM Kids Camp Session 1**. Students in grades K-8 will be on campus for a variety of summer kids camps focused on topics in STEM. Morning sessions will run from 9 a.m. - 12 p.m., and afternoon sessions will run from 1 p.m. - 4 p.m.

July 17-20, **STEM Kids Camp Session 2**. Students in grades K-8 will be on campus for a variety of summer kids camps focused on topics in STEM. Morning sessions will run from 9 a.m. - 12 p.m., and afternoon sessions will run from 1 p.m. - 4 p.m.

July 24-27, **STEM High School Camp**. Mornings will be spent on campus working with NDSU faculty in the labs and afternoons students will be going out on engineering industry visits.

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](#)

PTE INFORMATION SESSIONS

The NDSU Provost Office is hosting several information sessions for Fall 2023 PTE Candidates:

- Thursday June 22, 10:00-11:00 am, via Zoom
- Thursday July 27, 10:00-11:00 am, via Zoom
- Wednesday August 30, 1:00-2:00 pm, MU Nueta
- Thursday September 7, 2:00-3:00 pm, MU Nueta

The 2023-24 PTE Materials are now available to download from the Promotion and Tenure website at:

<https://www.ndsu.edu/facultyaffairs/pte/>

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 for ranked faculty are due to the Office of the Provost/Faculty Affairs no later than December 29, 2023. If you have any questions regarding PTE, please contact Canan Bilen-Green (canan.bilen.green@ndsu.edu, 1-7040).

FUNDING OPPORTUNITIES

NDSU Foundation Impact Grants

The NDSU Foundation Grants Committee is accepting applications for the 2023 Impact Fund Grant Program. [Apply today!](#)

The application deadline is **Wednesday, August 2, 2023, by 4:30 p.m.**

The Impact Fund Grant Program provides funding for projects that make a significant impact on excellence and the educational experience for students at North Dakota State University. This program is supported by annual contributions from alumni and friends of the University.

Applications are accepted from faculty, staff, and recognized student groups. The Impact Fund Grant Program offers grants of \$20,000 to \$75,000. Find more information on the [NDSU Foundation website](#).

Questions? Email Janna Swanson, Grants Committee Staff Liaison, at janna.swanson@ndsufoundation.com.

NSF: Computational and Data-Enabled Science and Engineering

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 22-8084] 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.

The CDS&E meta-program encourages research that pushes the envelope of science and engineering through computation and data, welcoming proposals in any area of research supported by the participating divisions. A proposal may address topics that develop or enable interactions among theory, computing, experiment, and observation to achieve progress on hitherto intractable science and engineering problems. Areas of emphasis for CDS&E vary by program.

Deadlines vary by program

RECENTLY AWARDED GRANTS

- Jeremy A Straub (PI). Northern Great Plains VICEROY. \$749,862 from the Griffiss Institute. 5/29/2023 – 5/25/2025.
- Jiale Xu (PI). Innovative Pathogen Disinfection Technology by Coupling Far UVC and Peracetic Acid. \$5,000 from the NDSU Foundation. 5/1/2023 – 10/31/2024.
- Jiale Xu (PI). Efficient control of pesticide contamination in rinsate by KrCl* excimer lamps to protect farmer health and ecosystems. \$15,000 from the NDSU Foundation. 5/1/2023 – 10/31/2024.
- Jiale Xu (PI). Coupling Sterilization and Pesticide Removal by Far-UVC System for Juice and Milk Production. \$1,000 from the NDSU Foundation. 5/1/2023 – 10/31/2024.
- Jiale Xu (PI). Control Uptake of Per- and Polyfluoroalkyl Substance (PFAS) by Crops via Precision Nutrient Management. \$6,000 from the NDSU Foundation. 5/1/2023 – 10/31/2024.
- Ivan T Lima, Jr. (PI). Software and Hardware integration for the Development of a Device Prototypes for the Monitoring of Surgery Patients. \$4,082 from the NDSU Foundation. 5/1/2023 – 10/31/2024.
- Grant Lebahn (PI). NDSU Foundation - Board of Trustees Endowment Grant Program. \$300 from the NDSU Foundation. 5/1/2023 – 10/31/2024.

RECENTLY SUBMITTED PROPOSALS

- Benjamin Davis Braaten (PI), Sulaymon Eshkabilov (CPI), Umamaheswara Rao Tida (CPI), Shuvashis Dey (CPI), Qifeng Zhang (CPI), Xin Sun (CPI), Ewumbua Monono (CPI). Fusion of Machine Learning and Electromagnetic Sensors for Real-Time Local Decisions in Agriculture. \$1,237,337 from the Agricultural Research Service. 7/1/2023 - 10/31/2024.
- Jeremy A Straub (PI). GenCyber Teacher Camp. \$51,674 from the National Security Agency. 6/1/2023 - 5/31/2025.
- Chad A Ulven (PI). Manufacturing and Integration of Lightweight Composite Structures Phase II. \$805,193.15 from the Department of Defense. 6/1/2023 - 5/31/2025.
- Anne Denton (CPI), Simone Ludwig (CPI). Empowering Women Leaders and Transforming Agribusiness Education through an Experiential MS Program in Agribusiness and Data Analytics. \$262,500 from the National Institute of Food & Agriculture. 5/16/2024 - 5/15/2028.
- Inbae Jeong (PI). PMMI Skills Fund Future Workforce. \$5,000 from the PMMI Foundation. 8/15/2023 - 8/14/2024.
- Inbae Jeong (PI). PMMI Skills Fund Future Workforce - Aagard Match. \$5,000 from the Aagard Group. 8/15/2023 - 8/14/2024.
- Zhulu Lin (PI). Evaluating the Effectiveness of Agricultural Conservation Practices in Improving Surface Water Quality in the Red River of the North Basin (Minnesota) through Trend Analysis. \$25,000 from the International Water Institute. 9/1/2023 - 8/31/2025.
- Di Wu (PI). Toward a Network-Based Framework for Analysis and Control of Inverter-Dominated Power Grids. \$249,980 from the National Science Foundation. 9/1/2023 - 8/31/2025.
- Ewumbua Monono (PI), Xin Sun (CPI). Application of sensors and image analysis to improve phenotyping throughput of sunflower germplasm. \$65,000 from the Agricultural Research Service. 8/1/2023 - 7/31/2024.

RECENT PUBLICATIONS

For 2023, 121 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:

- Adeniyi, Adewale, Ibrahim Bello, Taofeek Mukaila, Ewumbua Monono, and Ademola Hammed. 2023. "Developing Rumen Mimicry Process for Biological Ammonia Synthesis." *Bioprocess and Biosystems Engineering*, May. <https://doi.org/10.1007/s00449-023-02880-7>.
- Afrin, Tanzina, Lucy G. Aragon, Zhibin Lin, and Nita Yodo. 2023. "An Integrated Data-Driven Predictive Resilience Framework for Disaster Evacuation Traffic Management." *Applied Sciences* 13 (11): 6850. <https://doi.org/10.3390/app13116850>.
- Ahiable, Cyril, Abdulaziz Banawi, Zhili Gao, and Simon Boateng. 2023. "Developing an Interactive Model to Integrate Human Expertise with Building Information Modeling." *Journal of Architectural Engineering* 29 (1): 04022041. <https://doi.org/10.1061/JAEIED.AEENG-1275>.
- Ahmad, Hafiz Farooq, Wajid Rafique, Raihan Ur Rasool, Abdulaziz Alhumam, Zahid Anwar, and Junaid Qadir. 2023. "Leveraging 6G, Extended Reality, and IoT Big Data Analytics for Healthcare: A Review." *Computer Science Review* 48 (May): 100558. <https://doi.org/10.1016/j.cosrev.2023.100558>.
- Alqarni, Abdulsalam Ahmed, Phat K. Huynh, Om Prakash Yadav, Trung Q. Le, and Ying Huang. 2023. "Multi-Sensor Corrosion Growth Modeling with Latent Variables Using Hierarchical Clustering and Vector Autoregression Model." In *2023 Annual Reliability and Maintainability Symposium, Rams*. New York: Ieee. <https://doi.org/10.1109/RAMS51473.2023.10088257>.
- Al-Qudah, Saleh, and Mijia Yang. 2023. "Large Displacement Detection Using Improved Lucas-Kanade Optical Flow." *Sensors* 23 (6): 3152. <https://doi.org/10.3390/s23063152>.
- Bazrafkan, Aliasghar, Harry Navasca, Jeong-Hwa Kim, Mario Morales, Josephine Princy Johnson, Nadia Delavarpour, Nadeem Fareed, Nonoy Bandillo, and Paulo Flores. 2023. "Predicting Dry Pea Maturity Using Machine Learning and Advanced Sensor Fusion with Unmanned Aerial Systems (UASs)." *Remote Sensing* 15 (11): 2758. <https://doi.org/10.3390/rs15112758>.
- Bello, Ibrahim, Adewale Adeniyi, Taofeek Mukaila, and Ademola Hammed. 2023. "Developing and Modelling of Sustainable Protein Extraction Using Ammonium Hydroxide-A Recoverable and Reusable Solvent." *Food and Bioprocess Processing* 140 (August): 16–28. <https://doi.org/10.1016/j.fbp.2023.04.005>.
- Boateng, Simon B., Abdul-Aziz Banawi, Eric Asa, Yao Yu, and Cyril Ahiable. 2023. "Environmental and Economic Outlook of Construction and Demolition Waste Management Practices in a Mid-Sized City." *Journal of Material Cycles and Waste Management*, April. <https://doi.org/10.1007/s10163-023-01667-y>.
- Cao, Zhiqiang, Zhaofan Li, Sara A. Tolba, Gage T. Mason, Miao Xiong, Michael U. Ocheje, Amirhadi Alesadi, et al. 2023. "Probing Single-Chain Conformation and Its Impact on the Optoelectronic Properties of Donor-Acceptor Conjugated Polymers." *Journal of Materials Chemistry A*, February. <https://doi.org/10.1039/d2ta09389h>.
- Chang, Choongseok, Volker L. Deringer, Kalpana S. Katti, Veronique Van Speybroeck, and Christopher M. Wolverton. 2023. "Simulations in the Era of Exascale Computing." *Nature Reviews Materials*, March. <https://doi.org/10.1038/s41578-023-00540-6>.
- Chen, Yanlin, Qian Ma, Ke Wang, Andrew Mahoney, Rui Miao, and Long Jiang. 2023. "The Synergistic Effects of Lignin and Cellulose Nanofibers on the Properties of Starch/Zein Blends." *Journal of Composite Materials*, May. <https://doi.org/10.1177/00219983231176025>.
- Chen, Yiming, Yushen Fu, Mingyen Lee, Sumitha George, Yongpan Liu, Vijaykrishnan Narayanan, Huazhong Yang, and Xueqing Li. 2023. "FAST: A Fully-Concurrent Access SRAM Topology for High Row-Wise Parallelism Applications Based on Dynamic Shift Operations." *IEEE Transactions on Circuits and Systems II-Express Briefs* 70 (4): 1605–9. <https://doi.org/10.1109/TCSII.2022.3231589>.
- Chia, Leonard, Ying Huang, Wenjie Xia, Pan Lu, and Dawei Zhang. 2023. "Carbon Nanotube (CNT) Reinforced Cementitious Composites Using Carboxymethyl Cellulose (CMC) Treatment for Enhanced Dispersion, Mechanical, and Piezoresistive Properties." *Construction and Building Materials* 377 (May): 131104. <https://doi.org/10.1016/j.conbuildmat.2023.131104>.
- Fehrenbach, Joseph, Eric Hall, Luke Gibbon, Tanner Smith, Ali Amiri, and Chad Ulven. 2023. "Impact Resistant Flax Fiber Fabrics Using Shear Thickening Fluid." *Journal of Composites Science* 7 (1): 31. <https://doi.org/10.3390/jcs7010031>.

- Gajurel, Amit, Hiramani Chimaurya, Nripojoyoti Biswas, Burak Boluk, Surya Sarat Chandra Congress, and Anand J. Puppala. 2023. "Post-Construction Monitoring of Rehabilitated Highway Embankment Slope in Texas." In *Geo-Congress 2023: Geotechnical Systems from Pore-Scale to City-Scale*, edited by E. Rathje, B. M. Montoya, and M. H. Wayne, 116–25. New York: Amer Soc Civil Engineers. <https://www.webofscience.com/wos/woscc/full-record/WOS:000995387300011>.
- Godfrey, Mary, Daniel Ewert, Ryan Striker, and Benjamin Braaten. 2023. "A Microstrip Transmission Line Biosensor to Measure the Interaction between Microliter Aqueous Solutions and 1.0-17.0 GHz Radio Frequencies." *Sensors* 23 (11): 5193. <https://doi.org/10.3390/s23115193>.
- Gulfam-E-Jannat, Syeda, Debasis Golui, Shafkat Islam, Biraj Saha, Sheikh Mokhlesur Rahman, Achintya N. Bezbaruah, and Syeed Md Iskander. 2023. "Industrial Water Demand and Wastewater Generation: Challenges for Bangladesh'S Water Industry." *ACS ES&T Water*, February. <https://doi.org/10.1021/acsestwater.3c00023>.
- Huynh, Phat, Leah Irish, Om Prakash Yadav, Arveity Setty, and Trung Tim Q. Le. 2022. "Causal Inference in Longitudinal Studies Using Causal Bayesian Network with Latent Variables." In *2022 68th Annual Reliability and Maintainability Symposium (Rams 2022)*. New York: Ieee. <https://doi.org/10.1109/RAMS51457.2022.9893992>.
- Huynh, Phat K., Abdulsalam A. Alqarni, Om P. Yadav, and Trung Q. Le. 2023. "A Physics-Informed Latent Variables of Corrosion Growth in Oil and Gas Pipelines." In *2023 Annual Reliability and Maintainability Symposium, Rams*. New York: Ieee. <https://doi.org/10.1109/RAMS51473.2023.10088241>.
- Jamei, Mehdi, Masoud Karbasi, Mumtaz Ali, Anurag Malik, Xuefeng Chu, and Zaher Mundher Yaseen. 2023. "A Novel Global Solar Exposure Forecasting Model Based on Air Temperature: Designing a New Multi-Processing Ensemble Deep Learning Paradigm." *Expert Systems with Applications* 222 (July): 119811. <https://doi.org/10.1016/j.eswa.2023.119811>.
- Jamei, Mehdi, Bakhtiar Karimi, Mumtaz Ali, Fariba Alinazari, Masoud Karbasi, Eisa Maroufpoor, and Xuefeng Chu. 2023. "A Comprehensive Investigation of Wetting Distribution Pattern on Sloping Lands under Drip Irrigation: A New Gradient Boosting Multi-Filtering-Based Deep Learning Approach." *Journal of Hydrology* 620 (May): 129402. <https://doi.org/10.1016/j.jhydrol.2023.129402>.
- Jasuja, Haneesh, Sharad Jaswandkar, Dinesh R. Katti, and Kalpana S. Katti. 2023. "Interstitial Fluid Flow Contributes to Prostate Cancer Invasion and Migration to Bone; Study Conducted Using a Novel Horizontal Flow Bioreactor." *Biofabrication* 15 (2): 025017. <https://doi.org/10.1088/1758-5090/acc09a>.
- Jiang, Shuang, Yao Yu, Shuangshuang Li, Shugang Wang, Zhenjun Ma, and Jihong Wang. 2023. "Simulation and Optimum Control of a Two-Stage Compression Air Source Heat Pump System: A Comparison of Two Kinds of Variable Volume Approaches." *Applied Thermal Engineering* 226 (May): 120149. <https://doi.org/10.1016/j.applthermaleng.2023.120149>.
- Khumprom, Phattara, Alex Davila-Frias, David Grewell, and Dollaya Buakum. 2023. "A Hybrid Evolutionary CNN-LSTM Model for Prognostics of C-MAPSS Aircraft Dataset." In *2023 Annual Reliability and Maintainability Symposium, Rams*. New York: Ieee. <https://doi.org/10.1109/RAMS51473.2023.10088251>.
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- Mahmood, Yasir, Tanzina Afrin, Ying Huang, and Nita Yodo. 2023. "Sustainable Development for Oil and Gas Infrastructure from Risk, Reliability, and Resilience Perspectives." *Sustainability* 15 (6): 4953. <https://doi.org/10.3390/su15064953>.
- Mahmud, Md Sultan, Azlan Zahid, and Anup Kumar Das. 2023. "Sensing and Automation Technologies for Ornamental Nursery Crop Production: Current Status and Future Prospects." *Sensors* 23 (4): 1818. <https://doi.org/10.3390/s23041818>.
- Malik, Asad Waqar, Zahid Anwar, and Anis U. Rahman. 2023. "A Novel Framework for Studying the Business Impact of Ransomware on Connected Vehicles." *IEEE Internet of Things Journal* 10 (10): 8348–56. <https://doi.org/10.1109/JIOT.2022.3209687>.

- Mishra, Rahul, Siba Prasad Datta, Debasis Golui, Mahesh Chand Meena, Bramha Swaroop Dwivedi, Mohammad Mahmudur Rahman, Kalikinkar Bandyopadhyay, Arti Bhatia, and Punyavrat S. S. Pandey. 2023. "Evaluation of Different Extractants to Estimate Bioavailable Arsenic in Soil." *Communications in Soil Science and Plant Analysis*, June. <https://doi.org/10.1080/00103624.2023.2224383>.
- Naleway, Steven E., Dhruv Bhate, David Restrepo, Kalpana Katti, and Ling Li. 2023. "Biological Translation: Biological Materials Science and Bioinspired Design." *JOM*, May. <https://doi.org/10.1007/s11837-023-05890-8>.
- Patton, Erik M., Claudia Adam, David R. Steward, and Saugata Datta. 2023. "Effect of Low-Permeability Layers on Vadose Well Recharge Rates*." *Groundwater for Sustainable Development* 21 (May): 100938. <https://doi.org/10.1016/j.gsd.2023.100938>.
- Ponugoti, Kushal K., Sudarshan K. Srinivasan, and Nimish Mathure. 2023. "Verification of Serialising Instructions for Security against Transient Execution Attacks." *IET Computers and Digital Techniques*, May. <https://doi.org/10.1049/cdt2.12058>.
- Rahman, Md Atikur, Eric Hall, Luke Gibbon, Md Zahirul Islam, Chad A. Ulven, and John J. La Scala. 2023. "A Mechanical Performance Study of Dual Cured Thermoset Resin Systems 3D-Printed with Continuous Carbon Fiber Reinforcement." *Polymers* 15 (6): 1384. <https://doi.org/10.3390/polym15061384>.
- Rehman, Khushbakht, Nadeem Fareed, and Hone-Jay Chu. 2023. "NASA ICESat-2: Space-Borne LiDAR for Geological Education and Field Mapping of Aeolian Sand Dune Environments." *Remote Sensing* 15 (11): 2882. <https://doi.org/10.3390/rs15112882>.
- Sajid, Junaid, Kadhim Hayawi, Asad Waqar Malik, Zahid Anwar, and Zouheir Trabelsi. 2023. "A Fog Computing Framework for Intrusion Detection of Energy-Based Attacks on UAV-Assisted Smart Farming." *Applied Sciences-Basel* 13 (6): 3857. <https://doi.org/10.3390/app13063857>.
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- Xu, Jiale, and Ching-Hua Huang. 2023. "Enhanced Direct Photolysis of Organic Micropollutants by Far-UVC Light at 222 Nm from KrCl* Excilamps." *Environmental Science & Technology Letters* 10 (6): 543–48. <https://doi.org/10.1021/acs.estlett.3c00313>.
- Zamora, Ricardo, John McEvoy, Christopher Colbert, Jaime Chacana Olivares, Puangrat Kaewlom, and Eakalak Khan. 2023. "Blocking Bacterial Appendage Attachment to Wastewater Treatment Membranes Using Anti-Adhesins." *Chemosphere* 323 (May): 138246. <https://doi.org/10.1016/j.chemosphere.2023.138246>.

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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