

COLLEGE HAPPENINGS

March 16, 2021

FROM THE DEAN

Value of an Engineering, Computer Science, or Construction Management Degree

Last week, I was invited to provide a short speech for the virtual event releasing NDSU's Career Outcomes report, which summarizes our students' job placement data from the past year. The data showed that even during a pandemic year, where national unemployment peaked to a level not seen since the great depression, over 90% of our College of Engineering students were employed upon or within six months of graduation. In some programs, that number was 100%. That success builds on our long-standing reputation for producing high-quality, project-ready graduates, developed through a rigorous curriculum by world-class faculty who are experts in their field. Our graduates are not only in-demand; they also earn some of the highest starting salaries at NDSU, more than \$62,000 on average.

Our students gain tremendous value in deciding to pursue their engineering, computer science, and construction management careers. Research published by The Hamilton Project, a Washington D.C.-based organization focused on economic policy, showed that [the top ten highest-paying bachelor's degree majors were in the fields of engineering and computer science](#), with the median engineer at about \$2 million lifetime earnings. The research incorporated census data to determine the highest-paying college majors both annually and cumulative lifetime earnings. Teaching our students to be creative problem-solvers who have the skills to motivate and inspire will not only benefit them, but make the state and region a better place for everyone.



IN THE NEWS

[NDSU researchers to edit special issue of Smart Cities journal](#)

[Battle of the Cents-es to benefit NDSU graduate battling cancer](#)

[Senior design team develops innovative "Smart Wobbler"](#)

[Robotics minor offers new opportunities](#)

[Engineering to help the environment](#)

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

Thursday, March 25, **Menard Family Distinguished Speaker Series: "Trade Talks and Trailblazing: Lessons from a Former U.S. Trade Representative" with Susan Schwab.** This event is free and open to all members of the NDSU community. 3:00 p.m. on Zoom. [Register here.](#)

Thursday, March 25, The ADVANCE Partnership Project '[Joining Forces](#)' is hosting another free viewing of the movie [Picture A Scientist](#) at 6:00 p.m. RSVP for the event at: <https://bit.ly/3t8GJyn>.

Friday, March 26, **Academic Integrity in a Hyflex Environment.** Panel to include Mike Kessler, Dean of Engineering; Jeff Boyer, Director of Assessment and Accreditation; Stacy Duffield, Director of the Office of Teaching and Learning; and Shar Kurtz, Assistant Manager of Learning and Applied Innovation in IT. 1:00 – 1:50 p.m. on 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.](#)

WHO MAKES NDSU SMILE?

The Mary McCannel Gunkelman Recognition Award was established in January 1987, by the late John L. Gunkelman and his family in memory of Mrs. Gunkelman, who was a 1942 graduate of the College of Home Economics.

The purpose of this award is to honor the late Mary McCannel Gunkelman whose life, from the time she was a student on the campus of NDSU and throughout her unselfish life as a wife, mother, and active citizen in the Fargo-Moorhead community, found greatest expression and satisfaction in her contributions in creating an atmosphere of happiness for others to enjoy.

You are invited to nominate a student or employee of NDSU who you believe has made the most significant and unselfish contributions to creating a happy environment for the enjoyment of NDSU students. Nomination information can be found [here](#).

Nominations must be submitted by **Monday, March 29, 2021.**

NSF CAREER PROPOSAL DEVELOPMENT PROGRAM

The NDSU Office of Research and Creative Activity is offering some NSF CAREER-focused, virtual sessions over the next couple of months to assist potential applicants with preparing competitive proposals.

INTRODUCTION TO THE NSF CAREER PROGRAM

- March 30, 2021 | 12 - 1:15pm
- [Register to attend >>](#)

BROADER IMPACTS AND INTELLECTUAL MERIT

- April 14, 2021 | 12 - 1:15pm
- This session will focus on NSF's merit review criteria, and how to effectively address them in your CAREER proposal.

- [Register to attend >>](#)

NSF CAREER AWARDEE PANEL

- April 28, 2021 | 12 - 1:15pm
- For this session, four recent NSF CAREER awardees at NDSU will share their experiences and offer their tips for writing a successful proposal and answer your questions about the process.
- [Register to attend >>](#)

RCA RESEARCH SUPPORT SERVICES AWARD INCREASE

Research Support Services Awards have been increased to a maximum of \$2,500 per request. These funds are to help defray the costs of support services required for research, creative, or scholarly activity. For example, funds may be used in one of the NDSU Core Facilities, another recharge/service center, or for transcription services. More information and application instructions are posted on the [RCA website](#). Please contact ndsu.researchdev@ndsu.edu with questions.

FUNDING OPPORTUNITIES

NSF: Faculty Early Career Development Program

The National Science Foundation (NSF) Faculty Early Career Development ([CAREER](#)) Program is a prestigious grant award program that supports early career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization. Activities pursued by early-career faculty should build a firm foundation for a lifetime of leadership in integrating education and research.

Deadline: July 26, 2021

NASA: Research Opportunities in Space and Earth Sciences (ROSES) 2021

The National Aeronautics and Space Administration (NASA) Science Mission Directorate (SMD) has released its annual NASA Research Announcement (NRA), [Research Opportunities in Space and Earth Sciences \(ROSES\) – 2021](#). ROSES is an omnibus NRA, with many individual program elements, each with its own due dates and topics. Topics include:

- [Materials Science](#)
- [Physical Sciences Informatics](#)
- [Biophysics](#)
- [Earth Science Applications: Ecological Forecasting](#)
- [Terrestrial Ecology](#)
- [Earth Science Applications: Water Resources](#)

[View a complete list of topics >>](#)

Application deadlines vary by program

RECENTLY FUNDED GRANTS

- Nita Yodo (PI), David Grewell (CPI). Multi-functional Biodegradable Mulch for Specialty Crop Production. \$139,832 from the ND Corn Utilization Council. 01/01/2022 – 12/31/2023.
- Ravi Kiran Yellavajjala (PI). Corn-based Hydrogels for High-Performance Concrete. \$49,580 from the ND Corn Utilization Council. 07/01/2021 – 06/30/2022.
- Ravi Kiran Yellavajjala (PI). Corn-derived Emulsions for Corrosion Protection of Oil Pipelines. \$49,080 from the ND Corn Utilization Council. 07/01/2021 – 06/30/2022.

RECENTLY SUBMITTED PROPOSALS

- Ying Huang (CPI). CPS: Medium: Collaborative Research: Information Flow in Cyber-Physical Internet of Things Systems for Construction Sites. \$199,995 from the National Science Foundation. 01/01/2021 – 12/31/2023.
- Yao Yu (PI), Zhibin Lin (CPI), Zhili Gao (CPI), Qifeng Zhang (CPI). SCC-PG: Impact of Indoor Environment Quality on School Children: Long-term Monitoring and Assessment in a Smart and Connected Community. \$150,000 from the National Science Foundation. 09/01/2021 – 08/31/2022.
- Yao Yu (PI), Huojun Yang (CPI). Building energy efficiency improvement of A. Glenn Hill Center at North Dakota State University. \$27,000 from the ND Department of Commerce. 07/01/2021 – 06/30/2022.
- Dali Sun (PI). A novel pancreatic cancer treatment without side effects. \$12,700 from the NDSU Foundation and Alumni Association. 06/01/2021 – 05/31/2022.
- Qifeng Zhang (PI), Adam Curtis Gladen (CPI). Advanced Materials for Lithium Ion Batteries Phase IV. \$1,200,053 from the Department of Defense. 05/15/2021 – 05/14/2024.
- Changhui Yan (CPI). Comprehensive multi-omics analysis incorporating RNA secondary structure prediction to build causal models focused on SMAD4 and TGF β pathway genes in pancreatic ductal adenocarcinoma. \$1,839,065 from the National Institutes of Health. 01/01/2022 – 12/31/2026.
- Joao Paulo Cassol Flores (PI). Impacts of field rolling dry beans at different growth stages and times of the day on germination rate, stand loss, and yield. \$42,508 from the Northarvest Bean Growers Association. 04/01/2021 – 06/30/2022.
- Mijia Yang (PI), Ravi Kiran Yellavajjala (CPI), Zhili Gao (CPI). Automatic defect and blueprint recognition for estimating remaining strength of pipelines. \$276,783 from the Department of Transportation. 09/01/2021 – 05/31/2024.
- Ying Huang (PI), Juan Li (CPI), Simone Ludwig (CPI). Adaptive and automated pipeline risk management framework enabled by artificial intelligence and cloud based multi-parameter Monte Carlo probabilistic models. \$280,000 from the Department of Transportation. 09/30/2021 – 09/30/2024.
- Ying Huang (PI), Ravi Kiran Yellavajjala (CPI), Zhibin Lin (CPI), Danling Wang (CPI). An Advanced Multi-diagnostic Gas Leak Awareness, Identification, and Control Platform for Underground Natural Gas Storage Wells. \$625,000 from the Department of Transportation. 09/30/2021 – 09/30/2024.

RECENT PUBLICATIONS

For 2021, 46 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:

- Ajayi-Banji, A. A., and S. Rahman. 2021. "Efficacy of Magnetite (Fe₃O₄) Nanoparticles for Enhancing Solid-State Anaerobic Co-Digestion: Focus on Reactor Performance and Retention Time." *Bioresource Technology* 324 (March): 124670. <https://doi.org/10.1016/j.biortech.2021.124670>.
- Almen, Kristen, Xinhua Jia, Thomas DeSutter, Thomas Scherer, and Minglian Lin. 2021. "Impact of Controlled Drainage and Subirrigation on Water Quality in the Red River Valley." *Water* 13 (3): 308. <https://doi.org/10.3390/w13030308>.
- Bajwa, Dilpreet S., Jamileh Shojaeiarani, Joshua D. Liaw, and Sreekala G. Bajwa. 2021. "Role of Hybrid Nano-Zinc Oxide and Cellulose Nanocrystals on the Mechanical, Thermal, and Flammability Properties of Poly (Lactic Acid) Polymer." *Journal of Composites Science* 5 (2): 43. <https://doi.org/10.3390/jcs5020043>.
- Eshkabilov, Sulaymon, Arim Lee, Xin Sun, Chiwon W. Lee, and Halis Simsek. 2021. "Hyperspectral Imaging Techniques for Rapid Detection of Nutrient Content of Hydroponically Grown Lettuce Cultivars." *Computers and Electronics in Agriculture* 181 (February): 105968. <https://doi.org/10.1016/j.compag.2020.105968>.
- Flores, P., Z. Zhang, C. Igathinathane, M. Jithin, D. Naik, J. Stenger, J. Ransom, and R. Kiran. 2021. "Distinguishing Seedling Volunteer Corn from Soybean through Greenhouse Color, Color-Infrared, and Fused Images Using Machine and Deep Learning." *Industrial Crops and Products* 161 (March): 113223. <https://doi.org/10.1016/j.indcrop.2020.113223>.

- Jang, Youjin, Inbae Jeong, and Yong K. Cho. n.d. “Identifying Impact of Variables in Deep Learning Models on Bankruptcy Prediction of Construction Contractors.” *Engineering Construction and Architectural Management*. <https://doi.org/10.1108/ECAM-06-2020-0386>.
- Li, Jiqing, Jing Huang, Xuefeng Chu, and Jay R. Lund. n.d. “An Improved Peaks-Over-Threshold Method and Its Application in the Time-Varying Design Flood.” *Water Resources Management*. <https://doi.org/10.1007/s11269-020-02758-3>.
- Roy, Arighna, and Simone A. Ludwig. n.d. “Genre Based Hybrid Filtering for Movie Recommendation Engine.” *Journal of Intelligent Information Systems*. <https://doi.org/10.1007/s10844-021-00637-w>.
- Zolghadr-Asli, Babak, Omid Bozorg-Haddad, Maedeh Enayati, and Xuefeng Chu. n.d. “A Review of 20-Year Applications of Multi-Attribute Decision-Making in Environmental and Water Resources Planning and Management.” *Environment Development and Sustainability*. <https://doi.org/10.1007/s10668-021-01278-3>.

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*.

Follow the College of Engineering on social media.

