

COLLEGE HAPPENINGS

December 10, 2019

FROM THE DEAN

Importance of Diversity and Inclusion in Engineering

Last semester I was talking to one of our alumni from a major company that had a long history of hiring our graduates. I came to learn that the company has identified target schools where they invest the majority of their recruiting resources, and, unfortunately, NDSU was not one of those target schools. The reason was not because of the perceived quality of our graduates. It was because of their demographics. The company had goals in terms of the diversity of their engineering work force, and NDSU did not graduate a high enough percentage of female or underrepresented engineering students to be listed as a target school for recruiting. This company is not alone. Many companies tell us that they want and need a diverse mix of engineering professionals that can work effectively in a diverse and multicultural environment.

From 2016-2018, 11% of our undergraduate degrees were awarded to women and 6% of our undergraduate degrees were awarded to underrepresented racial minorities.¹ At the faculty ranks, 16% of our TT faculty (13 out of 83) are women and 5% (4 out of 83) are underrepresented minorities. We need to improve our diversity by increasing the number of women and underrepresented minority students and faculty. Specifically, we should have a goal to increase the percentage of women students in the College of Engineering to the national average of 22%,² and to increase the number of underrepresented minorities to reflect the population of North Dakota (9%).

One of the core values of the College of Engineering is “We are inclusive – we are proactive about diversity, knowing that we are far better together.” This is why I am proud to have signed the ASEE Dean’s Diversity Pledge (which was first signed by previous dean Gary Smith in 2016) to ensure that NDSU College of Engineering provides educational experiences that are inclusive and prevent marginalization of any groups of people. As the pledge says, “The evolving demographic landscape of the US, the need for constant economic competitiveness and the upholding of our core values to ensure equal opportunity and access to all who seek it, all point to the importance of actively embracing diversity and inclusiveness in all our endeavors. Diversity and inclusiveness are essential for the development of creative solutions to the world’s challenges and to enrich life.”

We are currently working on a Diversity, Equity, and Inclusion Plan for the College of Engineering which articulates the definition and the vision of diversity and inclusiveness for the college; assesses its need or justification; provides a statement of priorities and goals; commits to equity, implicit bias and inclusion training across the college; defines accountability; and the means of assessing the plan. If you are interested in providing input on the draft plan, please let me know. I also recently submitted an application for the bronze level of the [ASEE Diversity Recognition Program](#), to publicly recognize the progress we are making in increasing the diversity, inclusion, and degree attainment outcomes of our programs.



¹ Using the NSF definition for racial minority in STEM as Blacks, Hispanics, and American Indians or Alaska Natives

² ASEE's Engineering by the Numbers, <https://ira.asee.org/wp-content/uploads/2019/07/2018-Engineering-by-Numbers-Engineering-Statistics-UPDATED-15-July-2019.pdf>

IN THE NEWS

[NDSU institute hosts Cybersecurity Career Awareness Week speakers](#)

[Doctoral candidate excels in nanotechnology competition](#)

[NDSU students participate in Inaugural Hivestorm cybersecurity competition](#)

[NDSU professor named fellow of National Academy of Inventors](#)

[NDSU faculty member appointed to Vettel Family Fellowship](#)

[Mechanical engineering student named to Valley Football All-Academic Team](#)

[NDSU team takes seventh place in National Cyber League competition](#)

CONGRATULATIONS

David Grewell, chair and professor in the **Department of Industrial and Manufacturing Engineering**, has been named a fellow of the National Academy of Inventors. The NAI Fellows Program highlights academic inventors who have demonstrated innovation in creating or facilitating inventions that have made an impact on the quality of life, economic development and the welfare of society. The honor is considered the highest professional distinction accorded solely to academic inventors.

Val Marinov and **Lokesh Narayanan** from the **Department of Industrial and Manufacturing Engineering** and **Chad Ulven** and **Robert Sailer** from the **Department of Mechanical Engineering** were among 11 people named as the inaugural cohort of the new **NDSU Chapter of the National Academy of Inventors**. [Learn More](#)

Samee Khan from the **Department of Electrical and Computer Engineering** was awarded the 2019 IEEE ComSoc Technical Committee on Big Data Best Journal Paper Award.

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, December 12, **Ally Workshop offered by FORWARD Advocates**. 2:00 p.m. to 4:00 p.m. in the Memorial Union Mandan Room. Interested men faculty and men postdoc/graduate students should [register here](#).

Tuesday, December 17, **RCA Proposal Development Program: Peer Review**. 12:30 - 1:30 p.m. in the Memorial Union Hidatsa Room. [Register for this session >>](#)

Thursday, December 19, **Order of the Engineer Ceremony**. 5:30 p.m. in the Memorial Union Century Theater. All graduating seniors, faculty, staff and guests are invited. [More information](#).

Friday, December 20, **2019 Winter Commencement**. 2:00 p.m. at the SHAC.

2020 NSF ENG CAREER PROPOSAL WORKSHOP

An [NSF CAREER Proposal Workshop](#) focused on engineering will be held March 31 – April 2, 2020 in Arlington, Virginia. The objective of the 2020 NSF ENG Directorate Workshop is to introduce junior faculty who are interested in submitting NSF CAREER proposals to the Directorate for Engineering. The workshop aims to provide individuals with proposal development insights and a forum in which they can interact with NSF program directors and recent NSF CAREER awardees.

Workshop participation will be by invitation, based on applications, and limited to 300 participants who will be selected from the pool of applicants based on:

- a) applicability of the proposed research to the Directorate for Engineering,
- b) timeliness and completeness of the application, and
- c) preference given to those who have not previously attended an NSF Engineering CAREER workshop.

Please review the [application page](#) for further information.

Application Deadline: January 6, 2020

NORTH DAKOTA CYBER SECURITY CONFERENCE

Registration is now open for the 2020 North Dakota Cyber Security Conference.

This one-day conference will be held on Thursday, March 19, 2020 at NDSU and serves as the annual gathering for information security professionals in the region. For the past several years, the conference has sold out with more than 300 attendees from education, government and industry.

Secure your spot today and take advantage of early-bird pricing—only \$100 to register from now until January 15. Students pay only \$25! Learn more and register now: <https://ndcsc.sched.com/>.

REGISTRATION OPEN FOR SWE EVENTS

The NDSU chapter of the Society of Women Engineers will be holding several outreach events next semester including Dads and Daughters Do Science, Tech Teens and TechKids (co-sponsored by Tau Beta Pi). These events are a great way to get kids excited about engineering and science. For more information on dates, times and registration check out the links on the [College of Engineering Outreach Page](#).

FUNDING OPPORTUNITIES

L'Oréal USA For Women in Science Fellowship

The [L'Oréal USA For Women in Science fellowship program](#) awards five women postdoctoral scientists annually with grants of \$60,000 each for their contributions in Science, Technology, Engineering and Math (STEM) fields and commitment to serving as role models for younger generations. The program is the U.S. component of the [L'Oréal-UNESCO For Women in Science International Fellowships program](#). Celebrating its sixteenth year in the U.S., the For Women in Science program has awarded 80 postdoctoral women scientists over \$4 million in grants.

L'Oréal USA partners with the American Association for the Advancement of Science (AAAS) to manage the program's application and peer-review process. Each year, the program attracts talented applicants from diverse STEM fields, representing some of the nation's leading academic institutions and laboratories.

The application for the 2020 For Women in Science competition is now available at: <https://lorealfwis.aaas.org/>.

Application deadline: January 31, 2020

RECENTLY SUBMITTED PROPOSALS

- Beena D Ajmera (PI), Wenjie Xia (CPI), Long Jiang (CPI). EFRI E3P Preliminary Proposal: Optimizing the Mechanical, Environmental and Economic Performance of Soil-Crumb Rubber Mixtures in Geotechnical Applications. \$1,614,187 from the National Science Foundation. 01/01/2021 – 12/21/2024.
- Ravi Kiran Yellavajjala (PI). Monitoring Unpaved Roads Using Machine Learning Based Texture Analysis. \$221,724 from the Iowa Department of Transportation. 03/01/2020 – 02/28/2023.
- Zhao Zhang (PI). Use machine vision technology to recognize and distinguish corn with different foliar diseases. \$4,999 from the ND Corn Utilization Council. 01/01/2020 – 12/30/2020.
- Xinhua Jia (PI). Using UAS to evaluate a drainage system and develop educational materials. \$14,350 from the National Institute of Food and Agriculture. 12/01/2019 – 12/31/2020.
- Zhibin Lin (PI), Juan Li (CPI). Guideline for Applications of RFID and Wireless Technologies in Highway Construction and Asset Management. \$370,000 from the Department of Transportation. 06/10/2020 – 12/09/2022.
- Shafiqur Rahman (PI), Xin Sun (CPI). Extending educational outreach and capacity building in precision agriculture and sustainable farming at Kazakh National Agrarian University. \$19,948 from the American Councils for International Education. 01/01/2020 – 09/30/2020.
- Kalidas Shetty (PI). Pea Flour as Value-Added Food Ingredient for Human Gut Health Benefits. \$41,120 from USA Dry Peas, Lentils and Chickpeas. 07/01/2020 – 12/31/2021.

RECENT PUBLICATIONS

For 2019, 133 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:

- Cao, Qi, Huan Li, and Zhibin Lin. 2019. "Study on the Active Confinement of GFRP-Confined Expansive Concrete under Axial Compression." *Construction and Building Materials* 227 (December): UNSP 116683. <https://doi.org/10.1016/j.conbuildmat.2019.116683>.
- Gajan, Sivapalan, and Buddika Godagama. n.d. "Seismic Performance of Bridge-Deck-Pier-Type-Structures with Yielding Columns Supported by Rocking Foundations." *Journal of Earthquake Engineering*. <https://doi.org/10.1080/13632469.2019.1692737>.
- Grimm, Kendall, and Xuefeng Chu. n.d. "Depression Threshold Control Proxy to Improve HEC-HMS Modeling of Depression-Dominated Watersheds." *Hydrological Sciences Journal-Journal Des Sciences Hydrologiques*. <https://doi.org/10.1080/02626667.2019.1690148>.
- Lin, Zhulu, Siew Hoon Lim, Tong Lin, and Michael Borders. 2020. "Using Agent-Based Modeling for Water Resources Management in the Bakken Region." *Journal of Water Resources Planning and Management* 146 (1): 05019020. [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0001147](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001147).
- Wang, Xingyu, Fujian Tang, Xiaoning Qi, Zhibin Lin, Dante Battocchi, and Xi Chen. 2019. "Enhanced Protective Coatings Based on Nanoparticle Fullerene C60 for Oil & Gas Pipeline Corrosion Mitigation." *Nanomaterials* 9 (10): 1476. <https://doi.org/10.3390/nano9101476>.
- Yinyan, Shi, Xin Sun, Wang Xiaochan, Hu Zhichao, David Newman, and Ding Weimin. 2019. "Numerical Simulation and Field Tests of Minimum-Tillage Planter with Straw Smashing and Strip Laying Based on EDEM Software." *Computers and Electronics in Agriculture* 166 (November): 105021. <https://doi.org/10.1016/j.compag.2019.105021>.

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.

