NDSU | COLLEGE OF ENGINEERING

COLLEGE HAPPENINGS

July 7, 2020

FROM THE DEAN

College Update

I hope you all had a relaxing 4th of July weekend. I am just returning from spending four days in Voyageurs National Park in northern Minnesota. While I did not have as much success fishing as I had hoped, it was a welcome chance to relax and recharge in nature's beauty and solitude.

This summer we have had notable successes in completing several important faculty searches, and I am really excited to announce them.

First was our search for an interim department chair in Computer Science. I am pleased that **Simone Ludwig** has agreed to serve in this important leadership role. Dr. Ludwig joined NDSU as an associate professor in 2010, after beginning her independent faculty career at the University of Saskatchewan. She was promoted to Professor in 2018 and has an impressive record of teaching and research in the area of computational intelligence including swarm intelligence, evolutionary computation, neural networks, and fuzzy reasoning. Simone will begin her new role as interim chair on August 1, replacing Dr. Ken Nygard who is retiring from NDSU on August 15 following 43 years of service to NDSU. (https://www.linkedin.com/in/simone-ludwig-7b85a12/)

The Department of Electrical and Computer Engineering was successful in recruiting two new assistant professors starting this summer. **Farhad Shirani** joins us from New York University, where he is a Research Assistant Professor. He previously held a postdoctoral research fellowship at the University of Michigan, where he also obtained his Ph.D. in Electrical Engineering. His research interests are in privacy and security, wireless communications, information theory, and learning theory. (https://www.linkedin.com/in/farhad-shirani-48b63349/)

Sumitha George recently completed her Ph.D. requirements from Penn State University, where she worked in the microsystem design lab on memory architecture-circuit design for emerging devices. While earning her Ph.D. she also interned at Intel Corporation. Prior to her graduate studies, she worked for seven years for IBM in their Systems and Technology Group as a computer chip designer. (https://www.linkedin.com/in/sumitha-george-1a23029/)

The Department of Civil and Environmental Engineering hired their first new faculty member to support the new B.S. program in Environmental Engineering. **Syeed Md Iskander** is joining us from a postdoctoral research position at the University of Southern California where he is researching antibiotic resistance genes (ARGs) fate in anaerobic membrane bioreactors (AnMBRs) managing food waste. Before joining USC, he completed his Ph.D. at Virginia Tech. His research interests include sustainable solid waste management, anaerobic biotechnology, desalination, and environmental health. (https://syeedmdiskander.com/dr-iskander/)

Supporting our new minor in Robotics, will be **Inbae Jeong**, who is joining the Department of Mechanical Engineering as an Assistant Professor. Dr. Jeong is currently a postdoctoral researcher at Georgia Tech, where his focus is on robotic

system design and robot control programming. Dr. Jeong received his PhD from Korea Advanced Institute of Science and Technology (KAIST) and has experience in ubiquitous robots, robotic fish, mobile robots, humanoid robots, and artificial intelligence. (https://www.linkedin.com/in/inbae-jeong-a68275143/)

Youjin Jang will be joining the Department of Construction Management and Engineering also from Georgia Tech, where she is a postdoctoral research associate in the Robotics and Intelligent Construction Automation Lab (http://rical.ce.gatech.edu/). Prior to her position at Georgia Tech, she was a postdoctoral associate at the Industry-University Cooperation Foundation, Hanyang University. Dr. Jang earned her Ph.D. in Construction Engineering and Management from Seoul National University. Her research interests include application of data science to construction management, enhanced decision-making, sustainable building, and construction automation.

There are a few ongoing searches that have not yet been finalized, including a lecturer in the Department of Computer Science, and a faculty position in Cyber Security Policy in the Department of Computer Science (funded by the Challey Institute). I really appreciate the work that many of you did on all of these searches, especially the search committee members.

Go Bison!

IN THE NEWS

Five Bison Named WGCA All-American Scholars

NDSU's Elliott Stone Becomes Three-Time Academic All-American

New environmental engineering major highlighted on Valley News Live

CONGRATULATIONS

Research by Ravi Kiran Yellavajjala, Hizb Ullah Sajid and Dayakar L. Naik on microstructural changes in structural steels exposed to fire accidents; and understanding their influence on post-fire mechanical properties has been named an Editors Choice by ASCE Publishing. Check out their paper here.

Please let *College Happenings* know about honors, awards, new grants and other announcements so we can share them with other faculty and staff.

FULBRIGHT U.S. SCHOLAR PROGRAM

Fulbright offers more than 800 grants to over 130 countries annually for scholars in **all disciplines** to advance their research and teaching interests, promote mutual understanding, and collaborate with scholars abroad. Opportunities range from 2 to 12 months in length and include flexible options for multiple shorter visits to many host countries. Additionally, some awards provide dependent support for scholars wishing to bring family members. The deadline to apply is **September 15, 2020**. To join an office hour, register your interest or refer a colleague, visit Connect with Fulbright. Regional and discipline-focused webinars are held every Wednesday from 1:00 – 2:00 p.m. Start your application today.

Please direct questions to:

Deborah Maertens
Assistant Director of Faculty Immigration
deborah.maertens@ndsu.edu, (701) 231-8779

FUNDING OPPORTUNITIES

Center for Bioplastics and Biocomposites

The Center for Bioplastics and Biocomposites (CB^2) has announced a call for proposals for research projects to begin in 2021. The National Science Foundation Industry & University Cooperative Research Center program is a vehicle for encouraging formal, topical relationships between academic institutions and industry collaborators. Research projects that make a good fit to the program and to CB^2:

- Address any of the request for proposal topics from the Industry Advisory Board (IAB). (See attached proposal topics or "seed concepts" from IAB.)
- Aim to solve an applied problem on an aspect of the bioplastics or biocomposites supply chain. Review CB^2's research thrust areas »
- May be of particular interest to one industry partner, but preferably of broader significance.
- Build off collaborative projects you have had with potential members in the past.
- Highlight the unique capabilities and expertise of affiliated faculty.
- Offer precompetitive, but compelling solutions to difficulties the industry must overcome to advance.

Funding per project should range from $40,000 to $60,000 of direct cost per year with a typical project duration of one year. Projects requiring more than one year of funding must submit new proposals for additional years. You can find submission forms and deadlines here.

NIH: Enhancing Science, Technology, EnginEering, and Math Education Diversity (ESTEEMED) (R25)

The NIH Research Education Program (R25) supports research education activities in the mission areas of the NIH. The overarching goal of this R25 program is to support educational activities that encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical and behavioral sciences, to pursue further studies or careers in research

To accomplish the stated over-arching goal, this Funding Opportunity Announcement (FOA) (PAR-20-223) will support creative educational activities with a primary focus on ***Courses for Skills Development*** and ***Research Experiences*** for undergraduate freshmen and sophomores from diverse backgrounds, including those from groups underrepresented in bioengineering or STEM fields relevant to bioengineering, such as engineering or the physical / computational sciences, which play key roles in biomedical technologies and innovation.

Application Deadline: July 24, 2020; June 24, 2021; June 24, 2022

NSF: Research Experiences for Undergraduates

The National Science Foundation (NSF) Research Experiences for Undergraduates (REU) program [NSF 19-582] supports active research participation by undergraduate students in any of the areas of research funded by NSF. REU projects involve students in meaningful ways in ongoing research programs or in research projects specifically designed for the REU program.

This solicitation features two mechanisms for support of student research:

1. ***REU Sites*** are based on independent proposals to initiate and conduct projects that engage a number of students in research. REU Sites may be based in a single discipline or academic department or may offer interdisciplinary or

multi-department research opportunities with a coherent intellectual theme. Proposals with an international dimension are welcome.

2. ***REU Supplements*** may be included as a component of proposals for new or renewal NSF grants or cooperative agreements or may be requested for ongoing NSF-funded research projects.

Deadline: August 26, 2020

RECENTLY FUNDED PROPOSALS

- Ravi Kiran Yellavajjala (PI). Mitigation of chloride-induced corrosion through chemisorption. $117,522 from the Iowa Highway Research Board. 07/01/2020 – 06/30/2022.
- Ravi Kiran Yellavajjala (PI). Drone-based Technology for early detection of Palmer Amaranth. $49,080 from the ND Corn Utilization Council. 07/01/2020 – 06/30/2022.
- Shafiqur Rahman (CPI). Indirect Calorimetry Equipment to Enhance Multidisciplinary Research, Teaching, and Extension Programs on Beef Cattle Production Systems. $49,250 from the National Institute of Food & Agriculture. 02/01/2020 – 01/31/2021.
- Kenneth Hellevang (PI), Momono Ewumnua (CPI). Evaluating the Allowable Storage Time of Two Soybean Varieties at Two Moisture Levels at Typical Storage Temperatures. $34,875 from the ND Soybean Council. 07/01/2020 – 06/30/2021.
- Kalpana Katti (PI), Dinesh R Katti (CPI). Development of health targeted high value crops in North Dakota for prevention, treatment and management of breast and prostate cancer metastasis. $55,540 from the ND Department of Agriculture. 06/01/2020 – 05/31/2021.
- Jordi Estevadeordal (PI), Yildirim B Suzen (CPI). Advanced Diagnostics and Smart Morphing Flow Control for Unsteady Aerodynamics. $397,622 from the U.S. Navy. 09/01/2020 – 08/31/2023.
- Alan R Kallmeyer (PI). Acquisition of Supplies to Support Robotics Education at NDSU. $5,000 from the PMMI Foundation. 06/15/2020 – 12/31/2020.
- Wei Lin (PI), Kelly Ann Rusch (CPI). Sampling Wastewater for Covid-19. $50,000 from the Federal Emergency Management Agency. 06/18/2020 – 12/31/2020.

RECENTLY SUBMITTED PROPOSALS

- Zhibin Lin (PI), Juan Li (CPI). CPS: Medium: Collaborative Research: Cyber-Physical-Human System Networking, Modeling, and Control for Smart and Connected Stadiums and Other Densely Populated Infrastructure. $822,300 from the National Science Foundation. 01/01/2021 – 12/31/2023.
- Kelly Ann Rusch (PI). Collaborative Research - NSF INCLUDES Alliance: Cultivating Indigenous Research Communities for Leadership and Education in STEM (CIRCLES)-75%EPSCoR/25%CEE. $205,330 from the National Science Foundation. 08/01/2020 – 07/31/2021.
- Ewumbua Monono (PI), Ademola Monsur Hammed (CPI). Pilot Scale Degumming/Bleaching Unit (Armfield FT66-F) for Refining of Crude Vegetable Oil. $154,643 from the National Institute of Food and Agriculture. 10/01/2020 – 09/30/2021.
- Dali Sun (PI). A Novel Prevention of Pancreatic Cancer by Amino Acids. $99,136 from the Prevent Cancer Foundation. 01/15/2021 – 01/15/2023.
- Chad A Ulven (PI), Benjamin Davis Braaten (CPI), Robert Alan 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.
- Jessica Lynne Lattimer Vold (PI). SOLVENT ENGINEERING FOR DECONSTRUCTION OF PLASTIC WASTE. .$592,582 from the C2renew Corporation. 12/01/2020 – 12/01/2023.

- Jeremy A Straub (PI). Supporting the Growth of Interdisciplinary Cybersecurity Efforts at NDSU. $35,000 from the NDSU Foundation and Alumni Association. 01/01/2021 – 12/31/2022.
- Jeremy A Straub (PI). CAREER: Integrated Research and Education in Cybersecurity for Cyber-Physical Systems. $553,312 from the National Science Foundation. 01/01/2021 – 12/31/2025.
- Jeremy A Straub (PI), Kendall E Nygard (CPI). NDSU Application to CyberCorps Scholarship for Service. $2,327,563 from the National Science Foundation. 07/01/2021 – 06/30/2026.
- Jeremy A Straub (PI). Innovation in Cybersecurity Instruction Methods. $186,936 from the National Science Foundation. 03/01/2021 – 02/28/2024.
- Jeremy A Straub (PI). Autonomous Technologies for Wide-Scale Cyber Defense. $0 from the National Science Foundation. 01/01/2021 – 12/31/2024.

RECENT PUBLICATIONS

For 2020, 94 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:

- Ahmadianfar, Iman, Mehdi Jamei, and Xuefeng Chu. 2020. "A Novel Hybrid Wavelet-Locally Weighted Linear Regression (W-LWLR) Model for Electrical Conductivity (EC) Prediction in Surface Water." *Journal of Contaminant Hydrology* 232 (June): 103641. https://doi.org/10.1016/j.jconhyd.2020.103641.
- Awan, Wahaj Abbas, Niamat Hussain, Syed Aftab Naqvi, Amjad Iqbal, Ryan Striker, Dipankar Mitra, and Benjamin D. Braaten. 2020. "A Miniaturized Wideband and Multi-Band on-Demand Reconfigurable Antenna for Compact and Portable Devices." *AEU-International Journal of Electronics and Communications* 122 (July): UNSP 153266. https://doi.org/10.1016/j.aeue.2020.153266.
- Guerrero, Jennifer, Elizabeth Regedanz, Liu Lu, Jianhua Ruan, David M. Bisaro, and Garry Sunter. 2020. "Manipulation of the Plant Host by the Geminivirus AC2/C2 Protein, a Central Player in the Infection Cycle." *Frontiers in Plant Science* 11 (May): 591. https://doi.org/10.3389/fpls.2020.00591.
- Hassanijalilian, Oveis, C. Igathinathane, Curt Doetkott, Sreekala Bajwa, John Nowatzki, and Seyed Ali Haji Esmaeili. 2020. "Chlorophyll Estimation in Soybean Leaves Infield with Smartphone Digital Imaging and Machine Learning." *Computers and Electronics in Agriculture* 174 (July): 105433. https://doi.org/10.1016/j.compag.2020.105433.
- Jalil, Nauman, Scott C. Smith, and Roger Green. 2020. "Performance Optimization of Rotation-Tolerant Viola-Jones-Based Blackbird Detection." *Journal of Real-Time Image Processing* 17 (3): 471–78. https://doi.org/10.1007/s11554-018-0795-7.
- Khan, Muhammad Saeed, Adnan Iftikhar, Raed M. Shubair, Antonio-Daniele Capobianco, Sajid Mehmood Asif, Benjamin D. Braaten, and Dimitris E. Anagnostou. 2020. "Ultra-Compact Reconfigurable Band Reject UWB MIMO Antenna with Four Radiators." *Electronics* 9 (4): 584. https://doi.org/10.3390/electronics9040584.
- Qi, Wenrui, Danguang Pan, Yongtao Gao, Wenyan Lu, and Ying Huang. 2020. "A Fast Frequency Domain Method for Steady-State Solution of Forced Vibration of System with Complex Damping." *Applied Sciences-Basel* 10 (10). https://doi.org/10.3390/app10103442.
- Wang, Xingyu, Fujian Tang, Qi Cao, Xiaoning Qi, Matthew Pearson, Mingli Li, Hong Pan, Zi Zhang, and Zhibin Lin. 2020. "Comparative Study of Three Carbon Additives: Carbon Nanotubes, Graphene, and Fullerene-C60, for Synthesizing Enhanced Polymer Nanocomposites." *Nanomaterials* 10 (5): 838. https://doi.org/10.3390/nano10050838.

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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