5-2018

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Outstanding students honored at luncheon

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Oh named president-elect of engineering organization

Ph.D. student earns honor from foundry society

Ph.D. student recognized for best research paper
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Message from the Dean

Dear Friends:

As we head into summer, I want to pass on my heartfelt thanks to our faculty, staff, department chairs and associate deans for a great spring semester! I am so appreciative of their ongoing support and commitment to the 3,000 students in our college. At spring commencement, we graduated 225 students with bachelor’s degrees, 55 master’s students, five Ph.D. students and one student with a certificate in paper engineering.

Our students are challenged in the classroom, have rich learning experiences, are offered meaningful research opportunities, and feel supported by caring faculty and staff -- all which allow them to reach their full potential and prepare them for careers in engineering and applied sciences.

I look forward to the possibilities and further successes of our students in the upcoming 2018-2019 academic year.

Regards,

Dean Houssam Toutanji

Georgeau Construction Research Center awards grants

Three research grants have been awarded to faculty through the Georgeau Construction Research Center at WMU’s College of Engineering and Applied Sciences.

“We are pleased to be able to fund these research projects that address some of the challenges of the U.S. construction industry,” said Dr. Osama Abudayyeh, chair of the Department of Civil and Construction Engineering and founding director of the center. “These grants build on important research funded by the center in 2017.”

Establishment of the center at WMU was made possible by a generous $5 million gift from Phil and Betty Georgeau. Phil Georgeau is a graduate of WMU and founder of Chem Link, a company based in Schoolcraft, Mich., that manufactures products for the construction industry.

The vision of the center is to advance the construction industry through innovative research focused on addressing global construction challenges and creating better, stronger, sustainable, safer and more resilient construction systems and materials.
Fire Safety for Smart Buildings – Big Data Analytics for Fire and Smoke Prediction

Dr. William Liou, PI

The nearly half million structure fires in the U.S. each year cause 17,000 injuries and deaths, and $10 billion in property losses. Dr. William Liou built a predictive tool to simulate incidents of fire and smoke events and predict the location and likely growth of fire and smoke in smart buildings. The project uses computational fluid dynamics software and WMU’s Floyd Hall in the model. This second phase of research now being funded involves developing two datasets for predicting fire spread in smart buildings and then using those datasets to design an artificial intelligence (AI)-based algorithm for big data analytics for fire safety in smart buildings.

Development of Simulation and Experimental Environment for Evaluating Structural System Performance Under Wind Loads

Dr. Upul Attanayake, PI

Dr. William Liou, Co-PI

Roof covering failure is a common occurrence in hurricane and tornado disasters. Roof covering failure allows water penetration, leading to significant damage to a building’s interior, and in most cases, structural failure. This grant will further Dr. Upul Attanayake’s recent research evaluating various roof systems and materials for improving structural resilience in damaging winds. His research has identified the need to develop numerical simulation expertise to assess the performance of roofing and structural systems. The grant also includes designing a mobile outdoor experiment facility to evaluate sensors and validate numerical simulation models. It also will be used for outreach activities such as the promotion of STEM education.
A Simulation-Based Investigation of Adhesive Construction to Enhance Hazard Resilience of Wood Frame Residential Buildings

Dr. Xiaoyun Shao, PI

Wood frame construction is predominantly used for homes in the United States and Canada. Damage from natural hazards, such as earthquakes and hurricanes, lead to tremendous economic loss, in addition to emotional loss and stress. Dr. Xiaoyun Shao’s recent research studied an innovative application of construction adhesives to enhance the resilience of wood frame buildings. This new grant will continue to investigate novel approaches to dramatically enhance the resilience of wood frame buildings using construction adhesives to improve strength and stiffness.

Kujawski receives ADVANCE grant

Dr. Daniel Kujawski, professor of mechanical and aerospace engineering, is one of five people from five universities who have been selected to receive a 2018 award from the ADVANCE Grant Proof of Concept Fund. The awards incentivize faculty members at Michigan public universities to engage with their technology transfer office to move their early-stage technologies toward commercialization. They are administered by Michigan State University and the Michigan Strategic Fund, through the Michigan Economic Development Corporation and range from $15,000 to $80,000.

Kujawski, who directs WMU’s Fatigue and Fracture Laboratory, received $49,892 for a project that improves prediction of the fatigue properties of materials. His methodology will lower the expense of providing designers with material properties over the lifecycle of manufactured parts. The technique promises higher reliability from nondestructive testing and analysis.
The College of Engineering and Applied Sciences annual Outstanding Student luncheon was held April 12 at Floyd Hall. Seniors with the highest GPA in each major were invited. Students were asked to select a faculty or staff mentor from the college who had an important influence on their academic career.

Listed below are the outstanding students, their major and mentor.

**Omar Ali K Alharbi**, Construction Engineering, Dr. Osama Abudayyeh

**Thomas Anderson**, Paper Engineering: Environmental Engineering and Sustainable Processes, Jennifer Johnson

**Juan Andrade**, Manufacturing Engineering Technology, Dr. Paul Engelmann

**Lucas Essenburg**, Electrical Engineering, Dr. Damon Miller

**Jessica Graves**, Chemical Engineering, Martin Duke

**Kevin Greer**, Mechanical Engineering, Dr. Javier Montefort

**David Haruza**, Industrial and Entrepreneurial Engineering, Dr. Bob White
Dr. Andy Kline, associate dean of the college, handed out plaques to each student and mentor. Congratulations to our outstanding students on their accomplishments.

**Professor named president-elect of professional engineering organization**

Dr. Jun-Seok Oh, professor in the Department of Civil and Construction Engineering, recently was elected president-elect of the Korean-American Scientists and Engineers Association (KSEA). Representing all Korean-American scientists and engineers, KSEA ([www.ksea.org](http://www.ksea.org)) is a non-profit professional organization with more than 6,000 registered members in 70 local chapters and branches and 13 technical groups across the U.S.

Oh previously was vice-president of the organization. He currently is serving as the executive director of the US-Korea Conference on Science, Technology and Entrepreneurship 2018 that will be held August 1-4 at St. John’s University Conference Center in New York. The conference is hosted together with the Korean Foundation of Science and Technology Societies and attracts more than 1,200 attendees from the U.S. and Korea. Every year, more than 50 agencies, institutions and companies participate in the conference as sponsors. As president-elect, Oh will serve as conference chair in 2019.

“It truly is my honor to serve this organization,” Oh said. “I believe my position will raise recognition of Western Michigan University and benefit our college in many ways.”

Oh also is director of the Transportation Center for Livable Communities, a Western Michigan University-led consortium of five universities established in fall 2013 through a $4.3 million grant from the [U.S. Department of](http://www.dot.gov)
Transportation. The center aims to address the nation's critical transportation challenges through the prism of livable communities.

**Ph.D. student earns honor from foundry society**

Congratulations to Industrial Engineering Ph.D. student Prayag Patel for receiving the Foundry Education Foundation Scholarship from the American Foundry Society, Northeastern Wisconsin chapter. He also received a Certificate for Excellent Academic Achievement for the research work he is doing on “qualification of chemically bonded sand systems” for his dissertation.

Patel has developed a quality control framework to qualify chemically bonded sand systems. He also has developed process monitoring techniques to administer chemically bounded sand systems in foundries.

**Ph.D. student recognized by graphic arts organization for best research paper**

Bilge Altay, a graduate student working on a Ph.D. in paper and printing science, recently received the 2018 Dusty Rhodes Graduate Student Paper Award through the Technical Association of the Graphic Arts. The award was established in 1995 to recognize the quality of research papers authored by graduate students.

Altay’s graduate program advisor, Dr. Paul Fleming, professor of chemical and paper engineering, said she is an “outstanding student who has already made significant accomplishments in research.” Altay’s work involves the study of nickel, an abundant metal with high electrical conductivity. “Less expensive than silver and gold, its magnetic properties open up a new class of printed electronic devices, including wireless power, electromagnetic sensors, proximity sensors and micro magnetic field sources,” Fleming said. Her work will contribute to the quickly growing technology of printed electronics.

Altay is the author or co-author of 18 peer-reviewed articles and has presented her work at both national and international conference venues. She currently is interning with BASF Corp. in Wyandotte, Mich., and will complete her doctorate this summer.
2018 Graduate Research and Creative Scholar Awards

2017–18 Graduate Research and Creative Scholar Awards

The Graduate College, the Graduate Studies Council, and the Graduate Student Association announced the 2017–18 recipients of the Graduate Research and Creative Scholar Awards, including the following students from the College of Engineering and Applied Sciences:

The All-University Scholars for 2017–18

Doctoral Level

- Majdi Maabreh, Computer Science
- Hossein Mohammadi, Mechanical and Aerospace Engineering

The Department Scholars for 2017–18

Doctoral Level

- Mohammed Hussain, Electrical and Computer Engineering
- Majdi Maabreh, Computer Science
- Robert Makin, Electrical and Computer Engineering
- Hossein Mohammadi, Mechanical and Aerospace Engineering
- Fehime Utkan, Industrial and Entrepreneurial Engineering and Engineering Management

Master's Level
Successful spring "Stuff the Bus"

The college’s spring “Stuff the Bus” event brought in 2,225 pounds of food -- and $1,400 in cash donations -- for WMU’s Invisible Need Project food pantry. The event was well supported by staff and students who volunteered on a cold, wet day and made it a huge success! We greatly appreciate everyone in the community who contributed. Thank you!
Graduate students receive awards for diverse research activities

From left to right, Fehime Utkan, Megan Kuk, and Joan Martinez, were recognized for their outstanding poster presentations at the 12th Annual Research and Creative Activities Poster and Performance Day, hosted by the Graduate College. All three are students.