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4-2017

## Inspire e-News 4 2017

College of Engineering and Applied Sciences

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### ***Concrete canoe team hopes it has a “Blueprint” for success***

WMU’s concrete canoe team is getting ready for race day in April, when members will compete against other schools in the region – both off and on the water.

[Read Full Story](#)



### ***Steel bridge team builds momentum before competition***

After months of designing, cutting and welding, WMU's steel bridge team is getting ready for the regional steel bridge competition April 6-8 at Lawrence Technological University in Southfield, Mich.

[Read Full Story](#)



### ***Engineering student named University Innovation Fellow by Stanford***

Two Western Michigan University students are among 224 nationally and internationally named University Innovation Fellows, a global program run by Stanford University that empowers student leaders to increase campus engagement with innovation, entrepreneurship, creativity and design thinking.

[Read Full Story](#)



### ***Saeed receives \$418,000 grant from National Institutes of Health***

Dr. Fahad Saeed, assistant professor of computer science and electrical and computer engineering, recently was awarded a research grant of US \$418,533 from the National Institutes of Health (NIH).

[Read Full Story](#)



## ***Top engineering seniors honored as 2017 Presidential Scholars***

Fifty students – including seven from the College of Engineering and Applied Sciences -- were recognized as Western Michigan University's top seniors for 2017 during the 37th annual Presidential Scholars Convocation on March 28.

[\*Read Full Story\*](#)

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Students team up with youth at engineering competition for girls



Tsang announces retirement at year end

# PITCH

THE K.C. O'SHAUGHNESSY BUSINESS PITCH COMPETITION AND SHOWCASE



Engineers pitch, present and sweep awards



Industrial engineering team takes 2nd place in national conference



WESTERN MICHIGAN UNIVERSITY

## College of Engineering and Applied Sciences

College Snapshot: Students and Faculty



Alumni Spotlight: Dr. Bob White

## Even MORE Success Stories

from The College of Engineering and Applied Sciences

- Student takes 2nd place in poster presentation at national conference
- Bray receives 2017 paper industry leadership award
- Paper engineers attend TAPPI Student Summit
- Graduate students receive awards for research, travel
- Honor society hosts Q/A session with local engineering community

### Upcoming Events

 Send us YOUR news!

# Steel bridge team builds momentum before competition

After months of designing, cutting and welding, WMU's steel bridge team is getting ready for the regional steel bridge competition April 6-8 at Lawrence Technological University in Southfield, Mich. The steel bridge team designs, fabricates and constructs a scale-model bridge based on criteria established by the American Society of Civil Engineers and the American Institute of Steel Construction. The competition involves building a 1:10 scale bridge that must be 20.5 long, have a 1.5-foot clearance, be able to hold 2,500 pounds and be assembled quickly from pieces no longer than 3 feet.

The team will compete against at least seven steel bridge teams from universities from Michigan and Ohio.

Nathanael Gommesen, steel bridge team captain and civil engineering major, said the relatively young team is building momentum as it gets closer to the contest. "We had several freshmen and transfer students join this year, which is exciting for the future of the team," he said. "We've been putting in some long hours in the student projects lab to finish fabrication on time."

He said it is challenging to build a bridge that meets the requirements, is efficient to build and is aesthetically pleasing. "We have been practicing to perfect the assembly process. It will be exciting to see our design come to life on competition day."



The categories of competition are display, construction speed, lightness, stiffness, construction economy and structural efficiency. Bridges also are rated on overall performance.

WMU will host the North Central Region's steel bridge and concrete canoe competitions in 2018.

## Engineering student named University Innovation Fellow by Stanford

Two Western Michigan University students are among 224 nationally and internationally named University Innovation Fellows, a global program run by Stanford University that empowers student leaders to increase campus engagement with innovation, entrepreneurship, creativity and design thinking.

Jill Puckett, a student majoring in advertising and promotion, with minors in general business and gender and women's studies, is from Marshall, Mich., while Nathan LaWarre, a student majoring in electrical engineering with a minor in environmental studies and sustainability, is from Saranac, Mich. They have just completed training to join the University Innovation Fellows, a program run by Stanford University's Hasso Plattner Institute of Design.

Students chosen for the program represent 58 higher education institutions in seven countries. The program empowers students to become agents of change at their schools. Fellows work to ensure that their peers gain the knowledge, skills and attitudes required to compete in the economy of the future and make a positive impact on the world.



*Nathan LaWarre*

Fellows advocate for lasting institutional change and create opportunities for students to engage with innovation, entrepreneurship, design thinking and creativity. They design innovation spaces, start entrepreneurship organizations, host experiential learning events and work with faculty to develop new courses.

Puckett hopes to better connect students from different areas in interdisciplinary projects and research.

"I believe that to truly foster innovation and entrepreneurship on campus, we need to have students from all areas working and learning together," Puckett says. "So far, working with Nathan and other students through the Innovation Club, I have learned so much from students outside my major. Because of this experience, I think differently, with more creativity, because I see things from a different perspective."

LaWarre also credits the Innovation Club and other opportunities for entrepreneurship on the WMU campus, including Starting Gate, student project labs at the College of Engineering and Applied Sciences, WMU's entrepreneurship minor and student research grants.

"I am looking forward to the road ahead of me," LaWarre says. "Learning doesn't stop at the ending of our UIF training. Hopefully, we will be able to make an impact on WMU's campus and fuel the entrepreneurial spirit."

LaWarre, an active member of the Sunseeker solar car team at WMU, works as a tutor at Kalamazoo high schools and at an architectural engineering firm as an intern. He hopes to one day work in the renewable energy field, researching and creating more efficient sources of energy.

Puckett works as an office assistant in the WMU Office of the Vice President of Research. Starting this summer, she will take on the marketing capabilities and strategies intern position at Amway in Grand Rapids. After graduating in spring 2018, she plans to move on to grad school and earn a master's degree in market research before starting her career.

With the addition of this year's fellows, the University Innovation Fellows program has trained 1,000 students at 185 schools since its creation. Fellows are sponsored by faculty and administrators as individuals or teams of students and selected through an application process twice annually. Following acceptance into the program, schools fund the students to go through six weeks of online training and travel to the annual University Innovation Fellows Silicon Valley Meetup. Throughout the year, they take part in events and conferences and have opportunities to learn from each other, Stanford mentors, and leaders in academia and industry.

"During their training, fellows learn how to analyze their campus innovation and entrepreneurship ecosystems and understand the needs of stakeholders with the goal of uncovering opportunities to enrich the education opportunities for peers," says Leticia Britos Cavagnaro, program co-director.



For more information on the program, go to [universityinnovationfellows.org](http://universityinnovationfellows.org). For information on WMU's fellows, go to [universityinnovation.org/wiki/Western\\_Michigan\\_University\\_Student\\_Priorities](http://universityinnovation.org/wiki/Western_Michigan_University_Student_Priorities).

## Saeed receives \$418,000 grant from National Institutes of Health

Dr. Fahad Saeed, assistant professor of computer science and electrical and computer engineering, recently was awarded a research grant of US \$418,533 from the National Institutes of Health (NIH). The goal of the funded research is to develop core algorithms (sets of rules in computerized solutions) and techniques to enable scalable, efficient and high-performance computing solutions for big mass spectrometry data-based proteomics.



*Dr. Fahad Saeed*

Saeed's research is expected to have a significant impact in systems biology research since the proposed techniques will allow scientists to perform much more complex and accurate proteomics analysis than was previously possible. The findings of such analysis can lead to prevention, diagnosis and treatment of diseases with genetic predisposition such as cancer, obesity, diabetes, heart disease and mental illness. The efficiency and portability of the proposed techniques will have seminal impact in precision and personal medicine.

Dr. Steve Carr, chair of the Department of Computer Science, said the grant obtained by Saeed is significant for Western Michigan University. "This award confirms that Dr. Saeed's work is at the cutting edge of research in computing solutions for biological problems," he said. "We are all proud of Dr. Saeed and feel very fortunate that he is having such a significant impact for WMU."

## Top engineering seniors honored as 2017 Presidential Scholars

Fifty students – including seven from the College of Engineering and Applied Sciences -- were recognized as Western Michigan University's top seniors for 2017 during the 37th annual Presidential Scholars Convocation on March 28. Each year, faculty members from across the University select the most outstanding senior in their various academic schools, departments and programs to represent their units as a WMU Presidential Scholar. This year, 50 scholars were chosen from a senior class of more than 5,941 students.

The Presidential Scholar designation is the highest academic honor that WMU can bestow on its undergraduates. Selection is based on the students' general academic excellence, academic and artistic excellence relative to their majors, and intellectual and artistic promise.

The 2017 Presidential Scholars Convocation, which was by invitation only, included a program featuring a keynote address by Dr. John M. Dunn, president of WMU. Also making remarks were Dr. Suzan F. Ayers, president of the WMU Faculty Senate, and Taylor Hall, vice president of the Western Student Association. After each of this year's scholars were recognized and awarded certificates, a dessert reception was held while the scholars had their pictures taken with Dunn and Ayers.

## 2017 PRESIDENTIAL SCHOLARS

- Chemical and Paper Engineering—Daniel J. VanZweden of Kalamazoo
- Civil and Construction Engineering—Alec J. Ingram of Grand Rapids
- Computer Science—Andrew S. Gifford of Portage
- Electrical and Computer Engineering—Sarah K. Seng of Battle Creek
- Engineering Design, Manufacturing and Management Systems—Regan H. Elzerman of Fowlerville
- Industrial and Entrepreneurial Engineering and Engineering Management—Michelle M. Valente of Rockford
- Mechanical and Aerospace Engineering—Zachary A. Reinke of Bushton, Kansas

# Students team up with youth at engineering competition for girls



With the help of WMU's Society of Women Engineers student chapter, young aspiring engineers took to the floor of the Air Zoo and competed in engineering projects, competitions and activities as part of the 4<sup>th</sup> Annual Corporate Engineering Challenge. The event, hosted by the Society of Women Engineers South Central Michigan Section, gives girls ages 9-12 the opportunity to spend the day at the Air Zoo and team up with professional and student female engineers to compete for prizes in a fun and exciting engineering challenge.

Each challenge team was associated with a local corporation with a history of innovation and advancement in the engineering field. The Society of Women Engineers student chapter also participated and worked with one of the teams.

"This is a great opportunity for girls to interact with female engineering students and successful female engineers in a variety of industries and fields," said Anetra Grice, STEP program manager and SWE faculty advisor. "They have a chance to experience engaging, hands-on engineering and science activities provided by the sponsors."

This year's corporate sponsors included: Mann + Hummel, Performance Validation, Perrigo, Pfizer, Stryker, Rockwell Automation, Albemarle, Bendix, Consumers Energy, CRB, Parker

Hannifin, Whirlpool, WMU College of Engineering & Applied Sciences, Zoetis, JR Automation Technologies, ThermoFisher Scientific, Solvay, among others.

## Tsang announces retirement at year end

Dr. Edmund Tsang, Associate Dean for Undergraduate Programs and Assessment, has announced his retirement effective Dec. 31, 2017. Tsang joined the college in July 2001 in his current position as Associate Dean. While at WMU, he has been the Principal Investigator (PI) or Co-PI of externally funded grants totaling more than \$6 million on engineering education and student success. Tsang will retire as Professor Emeritus of Mechanical and Aerospace Engineering and Associate Dean Emeritus of the College of Engineering and Applied Sciences.



*Dr. Edmund Tsang*

During his time at the college, Tsang published -- with other CEAS and WMU faculty, staff and students -- three refereed journal articles and 18 refereed conference proceedings articles on engineering education.

He also authored a textbook on engineering mathematics -- Introduction to Engineering Analysis: Applying Algebra II to Solve Engineering Problems -- which was published in 2016. Tsang was recognized with an Excellence in Service-Learning Faculty Award in 2012; Faculty Fellow of Lee Honors College in 2010; Phi Kappa Phi-WMU in 2005; and the Platinum Award by the WMU Division of Multicultural Affairs in 2002.

In addition to serving as Associate Dean, Tsang served as Interim Chair of the Department of Industrial Design from 2005-2011, Interim Chair of the Department of Materials Science and Engineering from 2009-2011, and Interim CEAS Dean from 2013-2015.

Tsang received a Bachelor of Science (distinction) in Mechanical Engineering from the University of Nebraska, and a Ph.D. in Metallurgy from Iowa State University. Dr. Tsang was a post-doctoral researcher fellow in the Institut für Atom- und Festkörperphysik, Freie Universität Berlin, West Germany. Prior to joining WMU, he was Associate Professor of Mechanical Engineering at University of South Alabama in Mobile, Ala., and the PI of federal and state grants totaling more than \$800,000 on engineering education.

# Engineers pitch, present and sweep awards

Teams from the College of Engineering and Applied Sciences swept the awards at the WMU Business Pitch Competition with products ranging from a heat-to-cool mattress pad that combats insomnia to a rotating drying rack that serves as an indoor alternative to hanging laundry outside.

First- and second-place awards went to teams from WMU's industrial and entrepreneurial departments. The teams that pitched their idea are part of Dr. Bob White's Entrepreneurial Engineering course, IEE 2010. Third and fourth place awards -- as well as the People's Choice award -- went to students from WMU's mechanical and aerospace engineering program.



*Just Right Temp winning team*

Participants agreed the pitch competition was an invaluable experience. "It was a chance to showcase our creativity, innovation and of course, fine tune our presentation skills," said Morgan Kronner, whose first place team of four pitched the idea of a mattress pad that could both heat and cool and was designed for individuals who have difficulty regulating their body temperature when trying to sleep.

Michael Leonard and his team – who came in second place -- designed an indoor drying rack with a metal base and tower that would rotate, require less electricity than a conventional dryer, and emit a "clean-laundry" scent. "We're evaluating whether to pursue it further," Leonard said.

The WMU Business Pitch Competition is named in memory of Dr. K.C. O'Shaughnessy, a professor of management in the Haworth College of Business and director of the Center for Entrepreneurship and Innovation, who passed away in 2011. The work he started in the area of entrepreneurship led to the creation of events like the pitch competition, a major and minor in entrepreneurship, and the formation of WMU's business accelerator, Starting Gate. His legacy lives on in the students who now benefit from these programs.

## **1st Place (\$2,000)**

Just Right Temp - Victoria Blaine, Morgan Kronner, Sarah Jozwiak, Aseel Munshi, industrial and entrepreneurial engineering

## **2nd Place(\$1,400)**

The Rotating Drying Rack - Emma Dubensky, Cortney York, Jasmine Fails, Michael Leonard, industrial and entrepreneurial engineering

**3<sup>rd</sup> Place (\$800)**

SmartShot - Conner Knepley, Jorge Diaz-Sanin, mechanical and aerospace engineering

**4<sup>th</sup> Place (\$500)**

Multi Use Recyclable Arcade - Ramin Mirshab – mechanical and aerospace engineering

**People's Choice (\$300)**

Smart Shot - SmartShot - Conner Knepley, Jorge Diaz-Sanin, mechanical and aerospace engineering

## **Industrial engineering team takes 2nd place in national conference**

A team from the College of Engineering Applied Sciences industrial engineering program recently took 2<sup>nd</sup> place in a Student Simulation Contest at the 2017 Healthcare Systems Process Improvement Conference in Orlando, Fla. Ryan Mabie, Matt Bracey and Dr. Azim Houshyar, professor of industrial and entrepreneurial engineering and faculty advisor, participated in the event, which was put on by the Society for Health Systems in early March 2017.

For the simulation, teams of a maximum of four students and an advisor solve a "real-world" healthcare situational case study using simulation software. They are given nine weeks to develop their solutions. Three finalist teams then are selected to present their solutions for final judging at the conference.



*Ryan Mabie, Matt Bracey and Dr. Azim Houshyar*

Each of the three finalist teams received \$1,250 for travel expenses to the finals, plus complimentary conference registration, cash awards and a framed certificate.

Western Michigan University was one of 31 teams that had started the competition, but only 19 teams were able to finish the project and compete. “In the first round of the competition, our team was recognized as one of the top three,” Houshyar said. “After a very nice presentation by Matt and Ryan, 10 judges selected Western for second place.”

Both students received their bachelor’s degrees from the college and were admitted into the accelerated degree program to pursue their master’s degrees.

## College Snapshot: Students and Faculty



**3,000 STUDENTS**

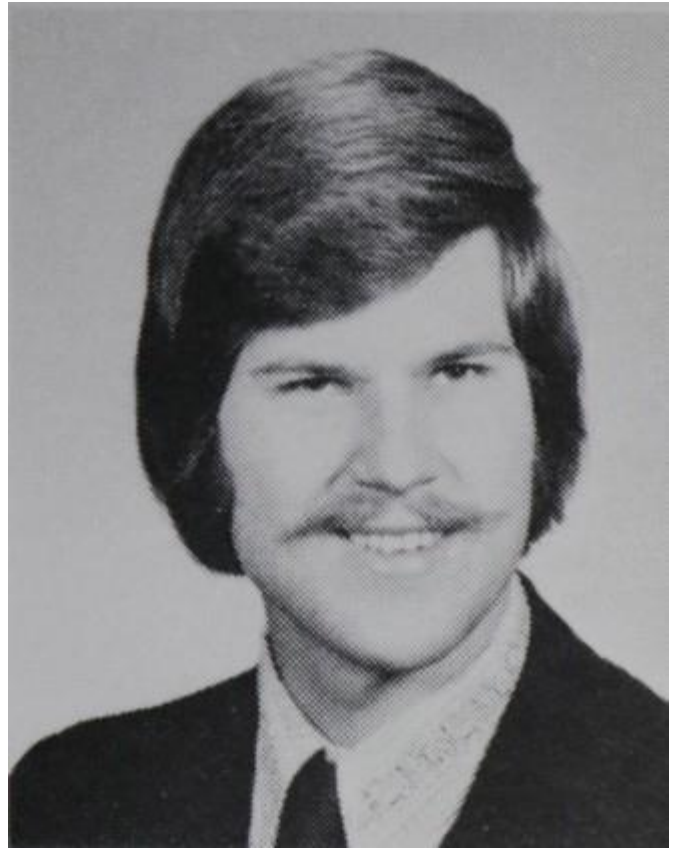
*Including 400 MS students  
and 150 PhD students*

**90 FACULTY**

*that are highly successful and internationally  
recognized professors and researchers*

# Alumni Spotlight: Dr. Bob White

This month we have a twist on our usual Alumni Spotlight. We are featuring Dr. Bob White, a professor here at the College of Engineering and Applied Sciences – who also happens to be an alumnus. White graduated from WMU with both a bachelor's degree in industrial engineering in 1972 and a master's degree in operations research in 1976. He received his Ph.D. in engineering valuation from Iowa State University in 1980 and returned to Western as a faculty member in industrial engineering. His current research interests are the integration of cost accounting and project justification methods and the analysis of salvage methods for public utilities. With ties to WMU going back more than 40 years, White has seen tremendous growth and change in the college during that time. He can be reached at [bob.white@wmich.edu](mailto:bob.white@wmich.edu).



*WMU yearbook photo of Dr. Bob White*

**You have been affiliated with WMU for many years, as both a college student pursuing your bachelor's and master's degrees, and then as a faculty member. Why did you initially select Western for college?**

I was studying pre-engineering at Kalamazoo College and after two years I planned to transfer to an engineering program. I looked at Western's Industrial Engineering program and decided it was a good fit for me.

**After receiving your Ph.D., why did you decide to return to Western?**

As I was finishing my Ph.D. at Iowa State University I was interested in a faculty position and I was looking at opportunities at several schools, including Western. I considered several factors including teaching opportunities, research opportunities, size and location of the school, proximity to family, and where I thought I could make a contribution and make a difference. Considering all of these things made Western the best choice.



**What are some of the most significant changes you've seen at WMU -- and specifically, with the college -- since you first came here?**

When I started at Western there were two engineering programs, industrial engineering and paper science and engineering. There were also several technology programs, including electrical engineering technology and mechanical engineering technology. Within a few years electrical and mechanical changed to engineering programs, and the college went through a significant expansion with the addition of several new engineering programs.

**What are you passionate about in your work?**

My passion is working with young people and helping them become what they want to be. Young people come to a university to make their lives better, to have a better future. It is very exciting to work with these young people, to help them focus their energy, and to watch them grow and mature into outstanding young engineers. I tell my students I hope they will have what I have and that is a job and a career they will enjoy as much as I enjoy mine.

**What do you love to teach?**

I love to teach students about the broad reach of engineering. I want to help them realize that engineering is more than equations and numbers. Engineering is about using our knowledge of math and science to make everyone's life better.

**What do you remember most vividly about your time as a Bronco engineering student?**

When I was a senior in Industrial Engineering, the assistant Dean of the College of Engineering and Applied Sciences, Robert Boughner, approached me and asked if I would be interested in helping to start a student chapter of the American Institute of Industrial Engineers -- what is today the Institute of Industrial and Systems Engineers. I recruited some additional students to help, and together we organized and founded the Institute of Industrial Engineers Student Chapter at Western Michigan University. As a student, I had the privilege of serving as the first president. As a faculty member, for many years I had the privilege of serving as the faculty advisor. This year over 40 members of the IISE Student Chapter attended the IISE Regional Conference in Athens, Ohio. Through the years, it has been very exciting to be involved in the growth and development of the IISE student chapter.

**Anything else we should know?**

I consider it a privilege and honor to be a professor of engineering. All of us that work at Western are in a position to have a great influence on young people. Faculty, with their daily contact with students, have opportunities to shape and influence many lives. We should never lose sight of how important our work is.