

Message from Department Head

We started the semester off with two new faculty promotions: **Dr. Lesley Strawderman** to full Professor and **Dr. Linkan Bian** to Associate Professor. As well, we have a new visiting Assistant Professor in the department for this academic year and his biography appears on page 3. The faculty continue to be heavily involved in a variety of research projects. Among these projects, we had two new NSF grants awarded this semester involving five of the faculty in the department. You can read more about those projects on page 2.

For the first time, the department sent a team of five students to compete in a case-study competition at the annual American Society of Engineering Management conference. Details on this event are on page 4. This semester the department received one new endowment for an undergraduate scholarship and funding for the renovation of both the student lounge and the laboratory used for the capstone design course. Student and faculty teams currently exploring design options for these two areas.

Wishing everyone a Happy New Year.

John



Summer and Fall 2018 Graduates

Doctoral:

- **John Debusk**, Summer 2018 - "An assessment of unmanned aircraft pilot discomfort and fatigue." Advisor: Kari Babski-Reeves.
- **Olivia Ivy**, Summer 2018 - "Measuring patient trust in their physician and its impact on telemedicine." Advisor: Lesley Strawderman.
- **Mohannad Kabli**, Summer 2018 - "Modeling the effects of electric power disruption and expansion on the operations of EV charging stations." Advisor: Mohammad Marufuzzaman.
- **Michael Sherwin**, Summer 2018 - "An optimized resource allocation approach to identify and mitigate supply chain risks using fault tree analysis." Advisor: Hugh Medal.
- **Bryan Asuncion**, Fall 2018 - "Determination of salient design elements through eye movements, aesthetics, and usability." Advisor: Lesley Strawderman.
- **Md Abdul Quddus**, Fall 2018 - "Models and algorithms to solve electric vehicle charging stations designing and managing problem under uncertainty." Advisor: Mohammad Marufuzzaman.
- **Manikantan Shanmugham**, Fall 2018 - "Modification of training methods and alarm thresholds: two ways to reduce potential hazardous clinical alarm related incidents." Advisor: Lesley Strawderman.

Master's:

- **Summer** - Randy Bunch, Patrick Doyle, Jenna Johnson, Justin McMahan, and Kristin Sharp.
- **Fall** - Bryan Asuncion, Tanveer Bhuiyan, Rachel Creely, William Leonard, Vanda Spencer, and Yuwei Sun.

Undergraduates:

- **Summer** - Ben Elmore, William Johnson, Andrew Nemes, Nija Owens, and Patrick Wagner.
- **Fall** - Abdulaziz Alhumoud, Mahdi Boucetta, Alis Castro Barreto, Jonathan Ferrell, Siobhan Grogan, Clara Henderson, Lauren Higgins, Hebah Mimesh, Eugene Prude, Madison Purvis, Blake Reeves, Christopher Savell, Bradford Simpson, Teddy Wallace, and Thomas Welsch.

Research

- **Reuben F. Burch** (ISE), **Brian Smith** (ISE), John E. Ball (ECE), Harish Chander (Kinesiology), Adam Knight (Kinesiology), Rajkumar Prabhu (ABE), and Mark Ronay (LiquidWire LLC), were recently awarded a 3-year National Science Foundation grant of \$750K for support of their project “From the Ground Up: Using Soft Robotic Sensors to Create a Foot and Ankle Wearable that Accurately Captures Real-time, Kinematic and Kinetic Data During Athletic Training.” The proposed project repurposes soft robotic sensors to accurately and noninvasively capture movement and force data in near real-time at the foot-ankle to provide meaningful performance and risk assessment for tailoring training regimens. This wearable solution is in response to collegiate and professional-level strength and conditioning coaches and trainers desire for a precise solution that captures movement data "from the ground up". The proposed solution will accurately capture ankle kinematic and kinetic data outside of the lab, giving coaches, trainers, medical staff, and researches a wealth of information that was previously not available or trusted by field practitioners.
- **Raed M. Jaradat** (ISE), **Junfeng Ma** (ISE), Deborah K. Eakin (Psychology), and **Lesley Strawderman** (ISE) were recently awarded a two-year National Science Foundation grant of \$200K for support of a project entitled "Leveraging Systems Thinking to Enhance the Holistic Formation of Engineers." The project addresses a recognized challenge of current engineering formation: how to prepare future holistic engineers to better handle complex multidisciplinary problems. While systems thinking has been recognized as one of the essential skills for future engineers, measurement of systems thinking capability in this project will provide new insights. The project will 1) evaluate current engineering students' systems thinking capability, using a previously validated survey instrument, and connect systems thinking capability to the established theoretical frameworks (inductive and deductive reasoning) 2) identify and explore various cognitive, demographic, academic, and intuitional factors that influence systems thinking capability; and 3) evaluate employers' needs to investigate gaps between students' systems thinking capacity and employers' needs.



Faculty News and Awards

- A conference paper authored by ISE faculty **Michael Hamilton** and **Raed Jaradat**, along with graduate students **Lakshika Dayarathna** and **Parker Jones**, and ISE alumnus, **Emily Wall**, was selected within ASEE to receive the **Industrial Engineering Division's Best Paper Award** and the **New IE Educator Outstanding Paper Award**. This same paper was also selected as the best paper for the Professional Interest Council I to be presented at the upcoming ASEE conference in the summer of 2019. The title of their paper is: "Immersive Virtual Training Environment for Teaching Single and Multi-Queuing Theory Industrial Engineering Queuing Theory Concepts."
- Bagley College of Engineering Associate Dean and ISE Professor **Kari Babski-Reeves** has been elected as president of the board of directors for the Board of Certified Professional Ergonomists.
- **Raed Jaradat** is a guest lead editor of an upcoming special issue of [IEEE Transactions on Engineering Management](#) that focuses on military and government systems applications.
- **Linkan Bian** was appointed to serve a 3-year term as an Associate Editor of the Design and Manufacturing focus area of the IISE Transactions journal.
- **Junfeng Ma** was selected to serve as the associate editor of Journal of Industrial and Production Engineering for 2018.

New Visiting Faculty

The ISE Department welcomes Omid Shahvari as a new **Visiting Assistant Professor**. **Dr. Omid Shahvari** received his Ph.D. degree in Industrial Engineering from Oregon State University in 2017. He received his MASc degree in Industrial Engineering from Mazandaran University of Science & Technology, Iran in 2009 and B.Sc degree in Industrial Engineering from Azad University, Iran in 2004. Dr. Shahvari has over eight years of industry experience in manufacturing companies working in process optimization, production planning and control, and decision analysis. His research interests are in the area of scheduling, logistics, transportation, and supply chain optimization. He is an active member of the Institute of Industrial and Systems Engineers (IISE) and Institute of Operations Research and the Management Sciences (INFORMS). His teaching interests include engineering statistics, engineering economy, linear programming, and production planning and control systems.



Student Awards

- **Eboni Smith** (ISE PhD student) was selected to join MSU's Dr. Harold Grier Doctoral Scholars Program. This initiative is part of the Southern Regional Education Board connecting scholars all across the U.S. As a participant of this program, Eboni will receive financial support, quality mentoring, and professional development opportunities. She will have the opportunity to attend the Institute of Teaching and Mentoring, meet one-on-one with recruiters who represent colleges and universities from across the nation, and network with like-minded peers.
- ISE PhD students, **Farjana Nur** and **Jack Francis**, were both selected to each receive a **Gulf Region Intelligent Transportation Society (GRITS) Scholarship**.
- **Sayali Joshi**, ISE PhD student, received the **Daniel P. Jenny Research Fellowship** of 2018-2019 from the Precast/Prestressed Concrete Institute.



Student Competition

The ISE Department sent a team of five students to compete in the student case study competition at the American Society for Engineering Management's (ASEM) International Annual Conference (IAC) held in Coeur d'Alene, Idaho. The team consisted of **Trey Wallace**, **Jacob Billingsley**, **Madison Kendall**, **Gavin Funderburg**, and **Kris Davis** under the direction of **Dr. Brian K. Smith**. This was the first time MSU sent a team to compete in the ASEM IAC competition. The team was sequestered for five hours to develop a strategy recommendation for a real-world case study documented in Harvard Business Review. The students were not allowed to use any materials or internet resources to formulate their solution and proposal. The team was given 20 minutes to present their solution to a panel of five judges comprised of academic faculty and practicing managers followed by a grueling 15 minute Q&A period.

Our team competed against stiff competition from Gonzaga (2 teams), James Madison, Missouri University of Science and Technology, Montana State University, United States Military Academy (West Point), and Western Michigan University. All of the competing schools have previously competed in the competition. In the end, our team was edged out by Montana State for the win, but everyone was impressed with our team and encouraged us to return.

The conference and competition was a great experience for the students, and we are coaching and preparing another team to compete at the next ASEM IAC during October in Philadelphia, Pennsylvania.



Pictured from left to right: Brian Smith, Jacob Billingsley, Trey Wallace, Gavin Funderburg, Madison Kendall, and Kris Davis

New Advisory Board Members

Sustin Anderson - Sustin Anderson has worked in healthcare services since 1992, specifically in physician practice management, process improvement and consulting. He began his career as a Management Engineer at Ochsner Clinic in New Orleans, Louisiana, providing systems engineering and process improvement expertise to a 400 physician multi-specialty clinic. Since that time he has worked in the healthcare industry for Premier, Inc., a healthcare management consulting firm, Vanderbilt Medical Group at Vanderbilt University Medical Center, Vice President of Strategy and Analytics at digiChart, and Director of Operations at Lifepoint Health. He currently is the Executive Director of Meharry Medical Group at Meharry Medical College in Nashville. His expertise and interests are in the transformational change in healthcare service delivery. Sustin graduated from MSU in 1989 with a B.S degree in IE and from the University of New Orleans in 1998 with an MBA.



Ginny Cavett is a Senior Operations Manager at GE Aviation in Auburn, AL. She began her career with GE in 2012 after being accepted to their Operations Management Leadership Program, where she held various supply chain roles in Ohio, South Carolina, and Alabama. After completing the program, Ginny she spent four years as a Lead Process Engineer, where she led several high-technology product introductions. She currently serves as the Business Leader for TCF Operations. Ginny is from Ocean Springs, Mississippi and graduated Summa Cum Laude with a degree in IE from MSU. She also studied international business at the Univ. of Young-in in South Korea and Univ. of Salamanca in Spain and was a member of the MSU's Shakoul's Honors College. She was honored

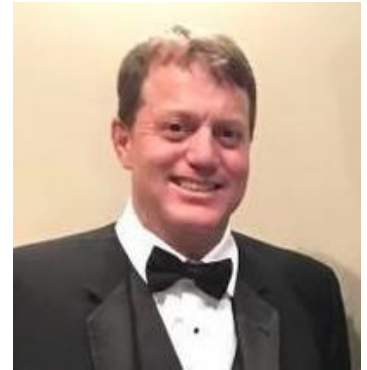
with the Harry C. Simrall Aware for Engineering Excellence and the Mississippi Engineering Society's Most Outstanding Engineering Senior Award in 2011. Ginny and her husband John have been in Auburn for 4 years and welcomed their first son, Harry, this past October.

Sabrina N. Williams is the owner of Ergonomic Workplace Solutions, an ergonomics consulting firm based in Pearl, MS. She also services as a distance learning educator in the area of occupational safety and health with an Alabama based distance learning program. She received a BS degree in Mathematics from Southern Univ. in Baton Rouge, LA; and both an MS and PhD degree in IE from MSU. Sabrina has dedicated her life to improving the lives of working Americans and has a career that spans over 20 years in various aspects of the safety profession including academia, consultation, and manufacturing. She also spent 8 years working in regulatory compliance as a Safety Engineering with the U.S. Dept. of Labor Occupational Safety and Health Administration (OSHA). Sabrina has been recognized for her leadership with the National Society of Black Engineers of the Year Award, the US Black Engineer of the Year Award, and the Women of Color Technology Leadership Award. In addition to her professional commitments, Dr. Williams is a wife and mother of two teenage sons.



Development

- A \$25K endowment for the **Rick Welch Entrepreneurial Scholarship** was recently established within the department to provide support for ISE students who possess an entrepreneurial interest. Mr. Welch earned his BS in IE at MSU in 1991. Upon graduation, he served as an engineer in North Carolina before returning to MSU to earn an MBA and open his first business, Rick's Café. Mr. Welch has a history of philanthropy and has been very involved in supporting the Oktibbeha County Humane Society, as well as other animal rescue organizations.



- **International Paper** has provided an endowment and donation to ISE that will support the redesign and update of both the **Design Suite** used by the capstone design course and the **Student Study Lounge**, affectionately known as the **Bungalow**. The update to the design suite will feature new furnishings and implementation of media sharing technology in support of a collaborative design process. The new International Paper Study Lounge will redesign the existing student work area to feature new multi-monitor workstations and reconfigurable furnishings that encourage collaboration and teamwork. The plan is to have these updates in place for the fall 2019 semester.

Alumni Award

- **Catherine Dunn** (IE alumnus) was selected as a 2018 MSU Alumni Fellow. The Alumni Fellows Program recognizes alumni who have distinguished themselves in their respective careers. Catherine graduated from MSU in 1975 with a B.S. degree in Industrial Engineering and has graduate studies in both civil and industrial engineering. Catherine says that the time spent at MSU was instrumental in developing her as an engineer and problem solver. Now retired, Catherine has served in a range of leadership positions at the Port of New Orleans, completing her career as Director of Port Development. She has served as an ABET (engineering accreditation organization) Commissioner in Industrial Engineering, as well as the University of New Orleans (UNO) Engineering Advisory Council. Even though Catherine is retired, she currently is working for two consulting firms and as an adjunct faculty at UNO, all while serving on the MSU-ISE Advisory Board and as Treasurer for the COPRI Nation Board (of ASCE). [For more information click this link.](#)



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The gifts that we receive from alumni, corporate sponsors, and other partners directly impact the student, staff, and faculty of the department. The ISE department needs your help with:

- scholarships and fellowships for recruiting and retaining students,
- funding access to state-of-the-art technology through equipment purchases for enhancing classroom and laboratory experiences,
- support for student leadership groups, and
- professorships to attract and retain top-caliber faculty.

These programs are not supported through state appropriations and therefore, are not possible without your help. Such gifts are an investment in the future, helping us to achieve excellence in the classroom and laboratory. You can use the form on the next page to contribute to these programs. You can also contact John Usher (662-325-7624; usher@ise.msstate.edu) or Bennett Evans, Director of Development (662-325-0386; bevans@bagley.msstate.edu) to learn about other ways to support the department.

If you want to make a donation online you can go to msufoundation.com and click on the "Give Now" link at the top right of the screen. When specifying the "Designation" select "College/ School/Preferred Area." When a new screen comes up, type "Systems Engineering" and select "Industrial & Systems Engineering (310506)". The account 310506 should appear as the "Selected Designation."

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