

## Message from Department Head

Season's Greetings from the faculty and staff of ISE. It has been a busy semester for everyone. We welcomed three new tenure-track faculty to the department this fall. A short biography of each appears on pages 3 and 4. This past year, Dr. Hu left to join the University of Illinois at Chicago, and Dr. Greenwood retired to take a position at Poznan University of Technology in Poland. We have already started the process to search for their replacements. The faculty have been heavily involved in a variety of research projects in collaboration with each other, as well as with faculty members in other departments at MSU. Included in this newsletter is a brief introduction to one project being conducted as a part of the MSU Distributed Analytics and Security Institute.

The department has strived this year to increase student recruiting via college fairs, promotional mailings, and campus tours. The new ASPIRE program offering additional scholarship opportunities for ISE students will help (see page 2). If you know a student you would like for us to reach out to, just send me their contact information. As well, let me know if you would like to help with our recruiting efforts.

This semester the department received a new endowment (see page 2). Your gifts have made it possible for us to provide continued support for students and faculty that enhance our program's excellence. This past year we were able to offer scholarships to nearly 25% of our students while also increasing the level of support for some of these scholars. Thank you!

Go Dawgs!  
John



## Fall 2015 Graduates

### Doctoral:

- **Paul Babin** – “Simulation modeling and analysis of adjustable service-rate queueing models that incorporate feedback control,” Advisor: Allen Greenwood
- **Venkata Surya Vadlamani** – “A mixed-integer programming approach for jammer placement problems for flow-jamming attacks on wireless communication networks,” Advisor: Hugh Medal

**Master's Non-Thesis:** Maeghan Hudon, Lucas McDowell, John Moore, Krystin Nowicki, Robert Perry, and Lynley Walters.

**Undergraduates:** James Beckham, William Bullington, Sara Campbell, Jonathan Daniels, Lacy Duplantis, Ethan Fayard, Christian Harden, Dean Harrison, Jeffrey Jinkerson, Justin Johnson, Lucy Ly, Jon Mathis, Megan Mollendor, Stephen Riser, William Scarbrough, Nicholas Winters, and John Wynne.

Visit us at: <http://www.ise.msstate.edu>

Contact: [usher@ise.msstate.edu](mailto:usher@ise.msstate.edu) or 662-325-7624

**Linked in** Aside from the ISE website, the best way to stay on top of the latest news about ISE students, faculty, and the department is to join the [Mississippi State University Industrial & Systems Engineering](#) LinkedIn group. There are over **650** MSU ISE alumni members in that group, so it is a great way to reach out to other ISE Bulldogs. (Use the link: <http://bit.ly/msu-ise>)

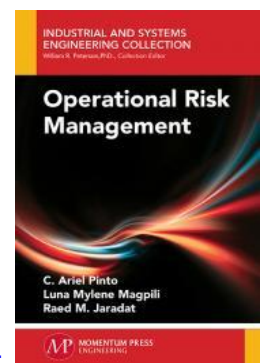
### New ISE Endowment

In addition to his outright gifts of support for ISE over the years, Prentice McKibben recently chose to make a generous deferred gift through a bequest in his will creating the Prentice McKibben Endowed Excellence Fund. Prentice earned his BS in IE at MSU in 1973, followed by an MBA in 1974, also at MSU. He then started a 34-year career with Eastman Chemical Co. where he held numerous positions of increasing responsibility finally retiring in 2008 as the vice president of strategic planning and corporate development. In addition to his financial support, Prentice has been of great service to the department participating on the ISE Advisory Board, as well as serving on the faculty in 2008-2009. His gift will help support the continued success of the ISE Department and its programs.



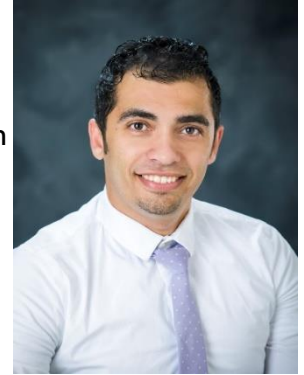
### Department & Faculty News

- **Lesley Strawderman** (ISE), Rani Sullivan (ASE), and Jean Mohammadi-Aragh (ECE) recently received \$595,000 in funding from the **National Science Foundation** (NSF) in the Division of Undergraduate Education for their project entitled "Aerospace and Industrial Engineering Scholarship Program" (ASPIRE). This project will provide support for undergraduate S-STEM Fellows over a 5-year period with the first group starting in Fall 2016. Fellows will receive \$2,500 in scholarship support each semester, be paired with industry mentors, and will participate in a number of professional development opportunities. Learn more at [www.ise.msstate.edu/aspire](http://www.ise.msstate.edu/aspire)
- **Kari Babski-Reeves** is serving this year as the **Interim Associate Dean for Research & Graduate Studies** in the Bagley College of Engineering.
- With financial support from **International Paper** (IP), the ISE Department hosted another **Six Sigma** training class this semester. 58 students representing various majors in the College participated in the class resulting in a Yellow Belt certification from IIE. In conjunction with IP, we will be offering a one-day class in January for students who already received Yellow Belt certification to permit them to gain additional experience in both **Lean** and **Six Sigma** via further instruction and activities involving physical simulations.
- **Mohammad Marufuzzaman** received the "Best Track Chair Award" at the International Conference on Operations Excellence and Service Engineering (IEOM) in Orlando, FL this past September. As well, he will be serving as the Chair of the Corporate Outreach Committee of the Mississippi Academy of Sciences with responsibilities for developing strategies to increase the involvement of corporations in the Academy.
- **Raed Jaradat** recently published a new book: Pinto, C.A., Magpili, L.M., and **Jaradat, R.M.**, "Operational Risk Management," Momentum Press, 2015. <http://www.momentumpress.net/books/operational-risk-management>



### New ISE Faculty

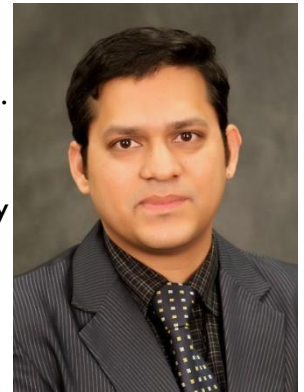
**Dr. Raed Jaradat** received a Ph.D. in Engineering Management and Systems Engineering from Old Dominion University in 2014 and his B.S. in Business Administration and M.S. in Operations Management from Hashemite University in Jordan in 2003 and 2005, respectively. His main research interests include engineering management, systems engineering and management systems, systems thinking and complex system exploration, systems simulation, risk and vulnerability in critical infrastructures with applications to diverse fields ranging from the military to industry.



Dr. Jaradat's publications have appeared in journals such as the *Requirements Engineering Journal*, *International Journal of Critical Infrastructures Protection*, *International Journal of System of Systems Engineering*, and *Administrative Theory and Praxis*. He has also published numerous conference proceedings as well as a book entitled 'Operational Risk Management.' He is a topic leader in systems thinking, including systems theory and complex systems for the Society for Engineering and Management Systems (SEMS). Dr. Jaradat is a past proceedings chair of the American Society for Engineering Management and is currently a member of the Academy of Management and Institute of Industrial Engineers (IIE).

Prior to his academic career, Jaradat worked as a systems analyst and operations officer at the Ministry of Industry & Trade in Jordan. He was an under-22 - international soccer player in Jordan. His favorite actor is Liam Neeson and his favorite author is Peter Senge. During his free time, Raed likes to play soccer and watch movies.

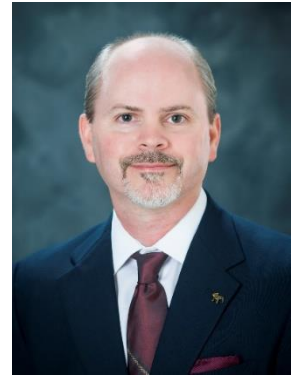
**Dr. Mohammad Marufuzzaman** (Maruf) received his Ph.D. in Industrial & Systems Engineering from Mississippi State University in 2014. He received his MASc degree in Industrial Systems Engineering from University of Regina, Canada in 2010 and B.Sc degree in Industrial & Production Engineering from Shah Jalal University of Science & Technology (SUST), Bangladesh in 2006. His main areas of interest are in supply chain optimization with applications in renewable energy, stochastic programming, decomposition methods, solving large scale supply chain network problems, supply chain risk management and drone routing and optimization.



Dr. Maruf's publications have appeared in journals such as *Transportation Science*, *Computers & Operations Research*, *Transportation Research Part E*, *Computers & Industrial Engineering*, *International Journal of Production Economics*, *Canadian Journal of Chemical Engineering* and several conference proceedings. He received "Best Track Chair Award" in IEOM Conference, 2016; *Interactive Presentation Winner* in INFORMS Annual Meeting, 2013; *J. R. "Ron" Walsh Outstanding ISE PhD Student* award in 2013 and *Research Paper* award in 2014. He is currently chairing the *Corporate Outreach Committee* at the Mississippi Academy of Sciences (MAS) and is an active member of the Institute for Operations Research and the Management Sciences (INFORMS) and the Institute of Industrial Engineers (IIE). In his free time, Maruf likes to play cricket and take drives with his wife "Rantu".

### New ISE Faculty

**Dr. Brian Smith** holds a Bachelor of Science degree in Industrial Engineering from Mississippi State University along with Master of Science and Ph.D. degrees in Industrial Engineering from University of Arkansas. He is a Professional Engineering Manager, certified by the American Society for Engineering Management. Dr. Smith has over ten years of engineering and management experience with Global 500 companies. Dr. Smith's research interests are in the area of management systems engineering involving complex system modeling, process improvement, and performance measurement. He conducts research within a variety of applications including healthcare, transportation, new product development, and natural systems modeling.



Dr. Smith leverages his industry experience with academic expertise in management systems engineering, optimization, and decision analysis to provide novel breakthroughs and solutions. His work is published in the Quality Management Journal, Engineering Management Journal, and International Journal of Data Analysis Techniques and Strategies.

Dr. Smith serves on the board of directors for the Institute of Industrial Engineering (IIE): Society for Engineering and Management Systems and is a past board member of the American Society for Engineering Management. Outside of his family, Brian's passion for Industrial Engineering is only rivaled by his passion for MSU athletics.

### Research Highlight

**Hugh Medal, Linkan Bian and Mohammad Marufuzzaman**, assistant professors of ISE, are applying industrial engineering tools such as statistics and optimization to cyber security. Their project, funded through the Distributed Analytics and Security Institute (DASI) on campus, addresses the problem of identifying malicious nodes in a cyber network. Specifically, the goal is to use graphs generated from NetFlow data to identify potential botnets. The novelty of this project is that the detection methods will explicitly consider the fact that if an attacker knows he/she is being monitored, the attacker will modify its behavior accordingly. This results in a two-player game between the detector and the attacker. The project seeks to explicitly consider this two-player strategic interaction in detecting botnets in a graph.



### Student Highlights

- ISE seniors **Leigh Ayers** and **Rachel Creely** were awarded the **Mississippi Automotive Manufacturer's Association Scholarship**.
- The **INFORMS** National Chapter recognized the MSU-ISE INFORMS Student Chapter with the **Student Chapter Annual Award at the Cum Laude level**, for the second year in-a-row. The purpose of the award is to recognize the outstanding achievements of student chapters. The award was presented at the Student Awards Ceremony in November at the INFORMS Annual Meeting in Philadelphia, PA (see picture below). **Eghbal Rashidi** (PhD student) serves as the current President of the chapter with **Dr. Linkan Bian** serving as their Faculty Advisor.
- **Eghbal Rashidi** (PhD student) received the **Judith Liebman Award** from the INFORMS society. This award was established to recognize outstanding student volunteers who have been "moving spirits" in their universities, their student chapters, and the Institute.



- **Derrick Stanley** (MS distance student) has been awarded the **Modern Day Technology Award** of the 2016 Black Engineer of the Year Awards. This award recognizes Derrick's contributions to the aerospace industry and to the technological advancements of the Boeing Company. The award will be presented at the Modern Day Technology Leaders Luncheon at the 30th BEYA Science, Technology, Engineering, and Mathematics Global Competitiveness Conference in Philadelphia, PA, to be held in February of 2016.



## **Stephen D. Lee Society**

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## **Your support makes a difference...**

We wanted to be sure you know that when giving to the University, it is possible for you to make gifts directly to the ISE Department through the MSU Development Foundation. However, this requires that you explicitly specify that your gift is for the Department of Industrial & Systems Engineering.

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](http://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."

Please join those listed at right who made a difference with their support to the department in the last four years.

### **Dean's Delegate (continued)**

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