

# INDUSTRIAL AND SYSTEMS ENGINEERING



UNIVERSITY OF WISCONSIN-MADISON



## USING SMARTPHONE TECHNOLOGY TO COMBAT WORKPLACE INJURY



HONORING OUR ACCOMPLISHED ALUMNI





Jeffrey Linderoth

**GREETINGS!**

My name is Jeff Linderoth and I was recently appointed chair of the ISyE department. I wanted to take the opportunity to

introduce myself. I joined ISyE in 2007 as an assistant professor. Prior to joining UW-Madison, I was a research scholar at Argonne National Laboratory, a senior consultant for the financial products firm Axioma, and an assistant professor at Lehigh University. My research is focused on models and algorithms for numerical optimization, with my most recent applications in the energy sector. I am one of the primary instructors for ISyE 323, *Deterministic Methods in Operations Research*. I truly enjoy the opportunity to interact with our undergraduates as they tackle this challenging and important material.

As chair, I am deeply committed to leading the department in providing an exceptional world-class education for our students, cultivating an entrepreneurial spirit, fostering a strong tradition of excellence, and exploring new areas of cutting-edge research. As you

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**Aaron Mullins (608) 308-5287**  
[aaron.mullins@supportuw.org](mailto:aaron.mullins@supportuw.org)

can see later in this newsletter, our department is proud to have award-winning faculty members as well as distinguished alumni and gold-level student organizations.

However, we face significant challenges, including decreased state support and increased undergraduate enrollment. We face these challenges with a focus and mission of increasing the quality of our students' education and overall experience.

But with these challenges come opportunities, like leveraging the new Grainger Design Innovation Center, a makerspace for undergraduates, and instructional IT to offer students a broader, more engaging curriculum. To that end, we are also actively hiring new faculty to join our department to meet the growing undergraduate enrollment while maintaining our excellence in education.

As we step into the new year, there are many exciting things in store for ISyE and our alumni so make sure to follow us on Twitter via the handle @uwisye and connect with us on Facebook!

If you are ever in the Madison area, make sure to stop by Mechanical Engineering Building Room 3270 to say hello. We'd love to meet you!

ON, WISCONSIN!

Sincerely,

Jeffrey Linderoth, Professor and Chair  
[linderoth@wisc.edu](mailto:linderoth@wisc.edu) • (608) 890-1931

**Longtime engineering dean passes away**

As dean of the University of Wisconsin-Madison College of Engineering, Paul Peercy constantly sought ways to help students succeed in engineering. In ongoing efforts to educate "global" engineers, he focused on diverse and interdisciplinary experiences, innovations in teaching engineering, and hands-on work that connected the technical aspects of engineering students' education with real challenges facing society.

"Engineering is where science meets society," he said in a 2012 interview, referring to myriad global challenges, including energy needs and pollution. "These are problems that can't be solved without engineers and can't be solved by engineers alone."

Peercy, who served as dean from 1999 until his retirement in 2013, died Oct. 20, 2016, after a lengthy illness.

Read more and learn how you can make a gift in Peercy's memory that helps carry on his commitment to undergraduate education here: [go.wisc.edu/peercy-passes-away](http://go.wisc.edu/peercy-passes-away).





## SMARTPHONE TECHNOLOGY COMBATS WORKPLACE INJURY

Manufacturing industries in the United States rely on the tireless efforts of factory employees who work daily to make, package, prepare and deliver the products we find on our shelves.

And there's a lot of physical effort required of factory workers. The strain of repetitive motion can lead to various musculoskeletal injuries, such as carpal tunnel syndrome or tendonitis in the wrists, arms and shoulders. These injuries not only cause workers to suffer, but can create massive inefficiencies for companies themselves, through hidden costs such as workers' compensation, lost time and reduced productivity.

"We want to solve these problems before people get hurt," says Professor Rob Radwin, who has been studying this problem for more than two decades, and with the advent of technology, may be able to create a solution that is easy, efficient and economically viable.

Existing methods for measuring risk of injury leave much to be desired: Health and safety professionals often make subjective judgments of risk based on a 0-10 scale of hand activity. Although these measurements provide fairly reasonable predictions, there is immense room for error in human observation, and such conclusions require valuable time, expertise and training in ergonomics and safety. They also require following the nuanced actions of many individuals over a long period of time. Current technology may be the key to facing, and ultimately fixing, this issue.

Radwin and his students are collaborating with Yu Hen Hu, a professor of electrical and computer engineering. They already have developed computer vision algorithms to calculate hand activity level, funded through exploratory grants from the National Institute for Occupational Safety and Health (NIOSH) and the National Institutes of Health. In September 2016, Radwin received additional three-year funding of \$1.4 million from the NIOSH Centers for Disease Control and Prevention.

This new grant will allow Radwin and his colleagues to use videos collected from a variety of institutions—among them, UC-Berkeley, NIOSH, and the state of Washington Department of Labor and Industries—to develop an entirely new measure for assessing health

outcomes. This measure will use their video footage to visualize and track repetitive motions—establishing pattern recognition at which the hand demonstrates repetitive movements, grasps and exertions. By combining their recent epidemiological findings with this new measurement, they can create a basis for engineers to measure risk for injuries and redesign certain jobs in the workplace.

The ultimate goal is to not only create functioning, accurate measurements, but also to make them widely accessible to companies via computer vision. This is where smartphones come in.

"I envision an app, and I think all the technology we need exists on my smartphone today: a high definition camera, a high-speed processor, and the ability to do cloud computing," he says.

If Radwin can apply his measures to a smartphone application, manufacturing employers could assess risk of injury of their employees with relative ease. This would involve simply pointing a handheld video device, which is less intrusive and time-consuming than existing methods, such as attaching an instrument to a worker's arm or hand.

"We can program phones to measure motions and quantify them in a way that is not only more accurate than the current method, but also automatic and more objective and reliable," he says. "It's not just for big corporations using ergonomics to compete—it would allow medium-sized and small businesses to access this technology as well."

Combining the assets of multiple disciplines—electrical and computer engineering, industrial and systems engineering, and biomedical engineering—Radwin's research will help companies make often simple, but impactful changes to high-risk jobs.





## TWO ISYE ALUMS RECEIVED COLLEGE OF ENGINEERING AWARDS DURING THE **ENGINEERS' DAY** CELEBRATION NOV. 11, 2016

Read even more about our recipients: [www.engr.wisc.edu/eday](http://www.engr.wisc.edu/eday)



### EARLY CAREER AWARD

## JENNA MARQUARD

Associate Professor, Industrial Engineering  
University of Massachusetts-Amherst

MSIE '04, PhDIE '07  
(BSIE '03, University of Iowa)

### How did you choose to attend college at UW-Madison?

I was an undergrad in industrial engineering at Iowa and my husband was in industrial and systems engineering at UW. He worked as an undergraduate doing research with a faculty member in industrial and systems engineering named Bentzi Karsh, who has passed away. I got to see his research addressing how industrial engineering could be used to improve healthcare. It was really through his experience doing research as an undergrad that I found out about healthcare research as a possibility for grad school. When I was looking at grad schools, I talked with several faculty members at UW, and ended up working with Patti Brennan.

### As a student, what was your favorite place to eat or hang out on campus?

My family and I are big ice cream people, so Babcock was definitely the favorite place to eat. I also rowed with Mendota Rowing Club, so I was able to spend a lot of early mornings out on the lake.

### Of what professional accomplishment are you most proud?

Graduating my first PhD student was significant because I was working through a similar process as someone worked through with me. It was so rewarding having a student arrive who was not quite sure what to do, assessing what they needed to work through, and seeing them through the tough grad school experience.

### Who played the greatest role in your achievements?

There are several people, who together have helped me get where I am. I had my parents, who were very encouraging of me going into engineering, and going to grad school. When I took the job in Massachusetts, my husband and I moved away from the Midwest. Both my parents and my husband's parents were supportive of us doing that. My husband has also been incredible. He worked at Epic while I was in grad school, and was really supportive of me finding an academic job situation, even though that meant leaving his job. He really kind of took a leap of faith to move somewhere where we didn't have family, didn't have friends, and he didn't know what his job was going to be.



### DISTINGUISHED ACHIEVEMENT AWARD

## KIM CHRISTOPHER

Director of Product Management,  
Optum Solutions and Technology

BSIE '81  
(MBA '88, University of Minnesota)

### Why did you choose engineering as your major?

I went to Waukesha South High School about an hour from Madison, and at that time I was the only female in advanced math and science classes. As a junior, my guidance counselor asked me what I was going to study in college. I said "math." He asked if I had ever considered engineering, and I said, "What's that?" He gave me a nice glossy brochure from the UW-Madison College of Engineering describing the different kinds of engineering, the classes I would take and the types of jobs you could do with the degrees. I thought that industrial engineering fit me to a "T," based on this brochure. The next summer, I attended a weeklong camp at Madison for girls interested in engineering. Each day we learned about a different engineering discipline with discussions and hands-on labs. That really cemented that industrial engineering at Madison was for me.

### What lesson learned as a student has benefited you most in your career?

There are three things I learned as a student that have greatly benefited my career. The first is time management. To plan and organize and juggle competing priorities is a great life skill. With time management skills, I was able to finish the engineering program in four years while working every

summer and during the school year. The second skill is teamwork—accomplishing objectives with teammates that you did not choose. Professors would often randomly assign you to teammates, which is what will happen to you in the real world. You don't get to choose your boss or coworkers, and you still have to get things done as a team. The third skill I learned is having a good problem-solving approach. You apply all the skills you learn in school plus life experience in the job to analyze and solve complex engineering and business problems. That problem-solving skill and confidence is the third thing that's benefited me most in the real world.

### What was your favorite engineering class?

My favorite class was the senior design class. In that class, we were given a list of local companies or organizations to choose from that had real problems they wanted us to solve. We worked on these problems in a team environment. Our team chose a low-cost clinic in Madison that had problems with customer service, staffing and wait times. We collected data from the clinic leaders, employees and patients, and we observed their operations on-site for several

# THE ACCIDENTAL ENGINEER: PHD STUDENT WORKS TO MAKE DRIVING SAFER

When I was an undergraduate at the University of Iowa, I worked with John Lee doing research, and he's now at UW. He was the person who originally suggested going to grad school. When I was in grad school, the faculty members I mentioned before were so important. At UMass, I was lucky to come into a department that was incredibly supportive of young faculty members. The former department head here has been an incredible mentor, and I have been surrounded by nice people who have had my best interests in mind.

## What are your hobbies/interests?

My husband (Brett) and I are both runners and try to do at least one half marathon a year. Our family also loves cross-country skiing. We head back every winter to northern Wisconsin where Brett has done the Birkebeiner ski marathon for 14 years. Part of my sabbatical was spent at the University of Minnesota, so I was able to do the race that year, and I've done the half marathon several times. Having fun with our two kids is also a big hobby. Our oldest son (Edison) is four. Our younger son (Graham) was born in 2016. Keeping them entertained is a major hobby.

days and evenings. Our team used our industrial engineering systems thinking, combined with classes like organizational behavior and design, and we were able to improve the clinic's throughput and customer satisfaction without increasing their operational costs. The project was very rewarding, especially since they were serving low-income patients.

## Who played the greatest role in your achievements?

With all of those diverse industries, companies and roles, this is an easy question to answer—my husband Dave. We just celebrated our 30<sup>th</sup> anniversary. We are a two-career couple with two grown sons, and it takes a great partnership to advance both of our careers while raising kids. Dave's an awesome husband and dad, and also my greatest career supporter and coach. To have such a strong partner who is there for you 24/7 is such a gift.

## What are your hobbies/interests?

I enjoy traveling, bicycling and hanging out with family and friends. We've been to Italy a few times, which is one of my favorite places.

In her research, ISyE PhD student Morgan Price figures out ways to avoid accidents and improve vehicle safety—but when she first “bumped” into engineering, that was one accident she couldn't avoid. “When I stumbled upon it, I didn't realize how few women were in the field,” says Price. “Then what surprised me more was being a woman and a person of color. That is uber-rare.”

Price wasn't planning on being an engineer herself. However, as she began her undergraduate career at the University of Iowa with a focus on pre-med, the idea of cutting open others as a doctor grew less and less appealing.

That's when things started happening.

On the short list: She connected with the Women in Science and Engineering (WISE) group, which set her up with a mentor in emergency medicine at the University of Iowa Hospital. Price then got a job with the hospital as a research assistant tasked with examining ATV crashes and creating a database of YouTube videos. She earned a spot in the prestigious McNair Scholars program, which helps prepare undergraduate students for doctoral studies through involvement in research and other scholarly activities. She worked with Corrinne Peek-Asa of the Injury Prevention Research Center at the University of Iowa, and also collaborated with Dan McGehee, director of the Human Factors and Vehicle Safety Research Division at the University of Iowa Public Policy Center. She was a research assistant for the University of Iowa Public Policy Center, focused on teen drivers and the geographical locations of accidents and incidents.

After she earned a BS in biomedical engineering, Price travelled to Romania, where she researched pedestrian crashes and their causes. After a summer abroad, she returned to the University of Iowa as a master's student and as a research assistant for both Peek-Asa and McGehee. She worked for a summer at the SAFER Vehicle and Traffic Safety Centre at Chalmers University in Goteberg, Sweden, then returned to Iowa and graduated with a master's degree in injury epidemiology.

While Price completed both her bachelor's and master's degrees at the University of Iowa, she had one big reason to want to switch to UW-Madison for her PhD program.

That was John Lee. “When I decided to pursue a PhD, he was obviously the first option in my mind,” says Price. And Lee had already heard about Price and was eager to meet her. Shortly after, Lee invited her to join his lab, and from there, there was no looking back.

Currently, Price works in the Cognitive Systems Lab with Lee, where she is researching how vehicles convey their capability; in other words, how does a car tell the driver when it can and cannot handle a situation? Price hopes to expand that communication between car and driver to outside the vehicle via social interactions. For example, most drivers have stopped for a pedestrian to cross the street. However, that can oftentimes be an unspoken communication through a gesture or other signal. She is researching is how to incorporate that form of communication into a self-driving vehicle.

Price expects to earn her doctorate by 2019 and fulfill her childhood dream of earning a doctorate. And she knows whatever she does needs to have an impact for future women engineers, and specifically for women of color. “I've always felt like there was a greater purpose to my life than just getting a job and I think that that could be my purpose. Going the academic route, and trying to not necessarily break barriers, but just shake things up a bit,” says Price. “It doesn't always have to work like this and we can introduce different ideas.”



Read more: [www.engr.wisc.edu/accidental-engineer-phd-student-works-make-driving-safer/](http://www.engr.wisc.edu/accidental-engineer-phd-student-works-make-driving-safer/)

## WOGRAMMER—co-founded by alumna Zainab Ghadiyali—CELEBRATES WOMEN’S TECH ACCOMPLISHMENTS

Some of the things people associate most closely with Wisconsin—namely, cows and cold—almost kept Zainab Ghadiyali away. Yet the UW-Madison turned out to be a terrific choice for Ghadiyali, who earned a dual master’s degree in computer science and industrial engineering in 2012. “I don’t think I could have asked for anything more. It was the most productive two years of my life!” she says.

Now a software engineer, Ghadiyali is using her passion for science and technology to inspire other women. By day, she’s a tech lead for advertiser growth at Facebook, building products that help small businesses reach new customers.



In her off hours, along with her friend and Facebook colleague Erin Summers, Ghadiyali is the co-founder of Wogrammer, a project that celebrates the accomplishments of women in tech by telling their stories in short, snappy profiles. They want to shine a spotlight squarely on women in STEM who are doing what they love to do.

Launched in 2014 on Instagram, Wogrammer now features the stories of more than 150 women all over the world. The project reaches more than 2 million unique people quarterly through its website and social media channels like Facebook and Twitter.

Wogrammer embraces a “something for everyone” approach so that girls and women at various stages of their educational or career path will see themselves reflected. For example, browsing Wogrammer.org turns up profiles of engineers at well-known Silicon

Valley companies like LinkedIn and Facebook, a flight controller for the International Space Station who works at the European Astronaut Centre in Germany, a software developer and youth mentor in Nigeria, and an ambitious seventh-grader just discovering her passion for computing. “We want people to identify someone who looks like them, or has a similar background or age, or comes from the same community,” says Ghadiyali. “If we’re able to do that successfully, everyone can see somebody who is a role model or inspiration.”

The media has taken note; the initiative has been highlighted by CNN Money, the Huffington Post, *Vice* and *Foreign Policy* magazine, among others. *Foreign Policy* named the duo one of its 2015 leading global thinkers, recognizing Summers and Ghadiyali for “cracking the STEM ceiling.”

Ghadiyali and Summers are also working on partnerships with like-minded organizations and expanding outreach in other countries, such as Mexico, Kenya and South Africa, which are already big audiences for Wogrammer.org.

## OUR FALL 2016 SCHOLARSHIP RECIPIENTS

Thanks to many generous donors, we are able to award thousands of dollars in scholarships that help make obtaining an engineering education easier for our undergraduates.

If you would like to make a gift that helps make a difference in an undergraduate student’s education, you can be part of our effort to raise scholarship funds. Contact Aaron Mullins, [aaron.mullins@supportuw.org](mailto:aaron.mullins@supportuw.org), or (608) 308-5287, for information about how you can support our undergraduates.

### Victor W. Bergenthal Scholarship

Kelsey Connors : Chengyue Zhang  
Casey Grabow :

### Gilbert & Genevieve Buske Scholarship

Colin Freidel : Jonathan Santoso  
Anna Mathieu : Dylan Weber  
Mikaela O’Keefe :

### Fred W. & Josephine Colbeck Scholarship

Nicole Boehne : Anthony Jackley  
Colin Freidel : Jesse Parritz

### Dean’s Engineering Undergraduate Scholarship

Michael Baer : Adam Schmidt  
Stephen Bosak : Bridget Schuessler  
Rebecca Graven : Max Schwinghammer  
Jacob McReynolds : Andrew Trotter  
Siddarth Ramesh :

### Antoinette Derjani-Bayeh Scholarship

Morgan Price

### Martha Helen (Bergland) & George Walker Dollmeyer Scholarship

Ryan Behm : Bridget Roehrs  
Logan Dirx : Elizabeth Svigelj  
Eric Fleming : Tyler Wambeke

### Richard S. & Harriet K. Fein Scholarship

Abdallah Chehade : Xiufeng Shao  
Yuhang Liu : Kay Zheng

### Carl & Henry Grotophorst Scholarship

Adam Schmidt

### Rea C. & David H. Gustafson Scholarship

Raed Al Kontar : Sait Tunc  
Hyo Kyung Lee :

### Industrial & Systems Engineering Department Scholarship

Taylor Bruns : Whitney Nietz  
Kristen Cherney :

### John Deere Foundation Scholarship

Samuel Studinger

### W.G. Kirchoffer Memorial Scholarship

Grant Tesdahl

### Robert A. Ratner Scholarship in Industrial Engineering

Mohit Agarwal : Andrea Polis  
Greg Betman :

### Frank and Marilyn Roberts Scholarship

Samantha LeBlanc

### Vinod K. & J. Gail Sahney Scholarship

Upasana Raval

### Jeanne and Thomas Snodgrass Scholarship

Chengyue Zhang

### Eric Victor Streich Memorial Scholarship

Jacob McReynolds : Bridget Schuessler

### Anthony & Alice Thistlethwaite Scholarship

John Sandgren : Grant Tesdahl



**Turgay Ayer** (pictured), a former student of Associate Professor **Oguzhan Alagoz**, earned the Decision Analysis Society best student paper award.



Professor **Vicki Bier** received the Frank P. Ramsey Medal from the INFORMS Decision Analysis Society. The award recognizes her ability to bridge decision analysis and risk analysis, resulting in contributions in areas important to our society, such as counter-terrorism and nuclear safety.



Assistant Professor **Alberto del Pia** received \$327,000 from the National Science Foundation to support his effort to improve solver technology for mixed-integer nonlinear optimization problems.



Professor **Michael Ferris** was among campus recipients of support for research through the UW2020: WARF Discovery Initiative. Ferris is collaborating with Civil and Environmental Engineering Professor Katherine McMahon on an effort to acquire high-memory computation hardware for the UW-Madison campus.



Associate Lecturer **Chris Johnson** and Associate Professor **Doug Wiegmann** (left) are part of University of Oklahoma and Embry-Riddle Aeronautical University teams chosen to lead the new Federal Aviation Administration Air Transportation Center of Excellence for Technical Training and Human Performance. Researchers in the center will conduct research and development on technical training for air traffic controllers, aviation safety inspectors, engineers, pilots and technicians.



For his leadership in large-scale computational optimization, Professor **Jeff Linderoth** was named to the 2016 class of fellows of INFORMS, the Institute for Operations Research and the Management Sciences.



The National Science Foundation has awarded Associate Professor **Jim Luedtke** (left) and Professors **Stephen Wright** and **Jeff**

**Linderoth** \$400,000 to develop scalable methods for solving decision problems—such as those in science, engineering, economic analysis, and public-sector applications—that involve both discrete decisions and uncertainty about future outcomes.



Professor **Ananth Krishnamurthy** received a \$1.8 million grant from National Oilwell Varco to support his research project, “Being responsive in a custom-engineered manufacturing environment.”



Assistant Professors **Xin Wang** (left) and **Kaibo Liu** received \$875,000 from the National Science Foundation Division of Computer and Network Systems to study several aspects of a potential interface between transportation and power systems by arranging electric vehicle fleets in a way that provides interchangeable mobility and energy in a “smart” way.



Internet of Things technical director and instrumentation innovator and instructor **Thomas Yen** was a member of a panel that discussed innovation hubs and labs at the WCET (a cooperative for educational technologies) annual meeting in October.



## UW-MADISON ENGINEERS PROVE NEW HAMMER DOESN'T STRAIN

A staple in every well-stocked toolbox, the hammer has retained the same basic head-and-handle design for hundreds of years. But for craftspeople such as carpenters or roofers, years of hammering can take their toll, resulting in the painful injury known as tennis elbow.

It's a condition Fiskars, most well-known for its orange-handled scissors, hopes to alleviate in its customers. And Professor Rob Radwin recently helped the company test how effective its new shock-absorbing hammer is at helping users avoid overuse injuries.

“We provided physiological evidence that there is a benefit to using the shock-absorbing hammer and we've also looked into some of the mechanisms that cause overuse injuries, which could help us prevent people from getting hurt,” says Radwin.

Drawing on resources unique to UW-Madison, his research demonstrated that Fiskars' new hammers deliver more energy with every swing and cause people less muscle strain. The results helped Fiskars decide whether to move forward with its new product and bring it to market.

“This study validated what we believed our IsoCore technology would provide: make tough jobs easier on the body,” says Scott Roelke, director of new product development at Fiskars.

Read more about this research: [www.engr.wisc.edu/striking-right-balance-uw-madison-engineers-prove-new-hammer-doesnt-strain/](http://www.engr.wisc.edu/striking-right-balance-uw-madison-engineers-prove-new-hammer-doesnt-strain/).

## Student organization continues its winning streak with fifth Gold award

For the fifth year in a row, the UW-Madison student chapter of the Human Factors & Ergonomics Society (HFES) has earned the Outstanding Student Chapter Gold Award. The award recognizes the chapter's contributions to society, to the discipline as well as to the UW-Madison community and campus.

To be considered for the Gold-level award requires the chapter have “excellence” in five categories out of 12 as well as “activity” in at least eight categories. HFES was recorded with excellence in outreach/volunteerism, mentorship, information dissemination, social and guest speakers.





## From ISyE to SWE: Alumna Jessica Rannow



Jessica Rannow (BS '99) has been a member of the Society of Women Engineers (SWE) for more than half of her life. After receiving a flyer in the mail that discussed mentoring programs within the organization, she joined the UW-Madison SWE student section shortly before her freshman year at the university. Twenty-one years later, she is now the president of the international professional society, which boasts more than 35,000 members and 300 student sections in the United States.

Rannow got into engineering with an eye for melding her growing interests in accounting, business and consulting. The sense of organization and a desire for efficiency appealed to her. Through SWE, she was exposed to a tight-knit community of like-minded women, as well as myriad opportunities throughout her undergraduate career.

Rannow also was a member of Kappa Alpha Theta, the Polygon engineering student council, the Institute of Industrial Engineers, the engineering dean search and screen committee, and founded Wisconsin LeaderShape.

After taking EPD 160, *Introduction to Engineering*, she became a teacher's assistant for the same class for three years. In addition to her studies, she is proud to have only ever missed two Badger football games during her time in college, specifically to attend a SWE conference. She still remains linked to the university through the ISyE advisory board, visiting campus yearly to provide input on current needs in industry.

After she graduated, Rannow worked in consulting before gravitating toward more logistics-centered positions, and later, roles in management—yet experience and knowledge in supply chains have remained a constant throughout her career. She has continued working in warehouse logistics, providing insight and direction to companies such as Haworth Inc., Limited Brands, Cardinal Health, JCPenney, Vargo Companies and eBizNET Solutions Inc.



Department of Industrial and Systems Engineering  
1513 University Ave.  
Madison, WI 53706



Three decades of UW-Madison SWE presidents  
(from left): Molly (Johnson) Morgan (BSIE '08,  
MSIE '09), Jessica Rannow and  
Kimberly Miller (BSCHEM '12)

For Rannow, the fast-paced and product-focused nature of her work has kept her on her toes. "I've been able to work on some of the largest projects for a given company, and because getting a product out the door is super important, you know you're working on something that's moving the company forward, and having an impact both on customers and the companies involved," she says.

At this point in her career, she mostly works at home—currently, in Columbus, Ohio—but otherwise follows her projects wherever they take her. She balances her time between leadership roles with both SWE and AmerisourceBergen, a drug wholesale company.

While continuing to identify new challenges and opportunities in her career, Rannow has remained dedicated and highly involved in SWE. Since holding positions as vice president and president of the UW-Madison SWE student section, she has held additional leadership positions, first as a Region G governor, then as a director of professional excellence. At the beginning of July 2016, she became the organization's president. Her drive to become president was motivated by her desire to give back to the organization that first inspired her to pursue an engineering degree, as well as increase her impact in the engineering community. "Serving as president allows me to not only serve our SWE members, but the skills I've obtained have helped me immensely in my career," Rannow says. "And not to mention the great opportunities for me as SWE president that I've had to expand my horizons."

Sometimes, in a big way: As SWE president, Rannow has been able to travel to Madrid, Spain; attend four regional conferences in the United States and do an arrested landing and catapult launch on a U.S. Navy aircraft carrier.

But above all, Rannow has been motivated by her passion for working with students. "We're working on developing a stronger global presence and continuing to collaborate with corporate partners who want to offer the same opportunities to women overseas that they have in the U.S.," she says.