Robotic prosthetic ankle and foot project in Professor Sup's Mechatronics and Robotics Lab with funding from NSF's National Robotics Initiative Program
Greetings Alumni, students, faculty and friends:

First, a warm welcome to our new Dean of the College of Engineering, Sanjay Raman. A professor of Electrical and Computer Engineering at Virginia Tech, Raman most recently served as associate vice president of the Virginia Tech National Capital Region and president and CEO of Virginia Tech Applied Research Corporation.

A second welcome to our three new faculty members arriving in September: Associate Professor in Renewable Energy, Golbon Zakeri, Director of Engineering Management, Woodrow Winchester, and Professor of Practice in Manufacturing, James Lagrant. Find out more about these new hires, as well as our updated online M.S. program in Engineering Management, in this issue.

And a final welcome to two MIE alumni who are joining our Industry Advisory Board Members, Julia Saulino and Frank Riordan. Julia received her BS from UMass in 2003 in Industrial Engineering and is currently Director of Six Sigma for Raytheon Seapower Capability Systems. Frank received his BS in Mechanical Engineering in 1991 and is the founder and President of the engineering and software development firm DMC.

Meanwhile, our MIE faculty continue to shine: on top of our record-breaking three NSF CAREER awards, this year has brought forth a wealth of exciting new initiatives and accomplishments. They include Professor Stephen Nonnenmann winning both the COE’s Outstanding Teaching Award as well as Outstanding Junior Faculty in the College; Professor Xian Du being awarded a TIDE Ambassador Faculty Fellowship for teaching excellence and faculty development, and Professor Jinglei Ping receiving a Discovery Award from the Department of Defense to develop a miniaturized device to detect heavy metals in blood. And finally, Professor and Director of the UMass Wind Energy Center Jim Manwell received the prestigious European Academy of Wind Energy Scientific Award.

Our current students are also distinguishing themselves by winning coveted awards: Rebecca Castonguay received the UMass Spring 2019 Rising Researcher award; Andrew Metz was named Welch Scholar at the 2019 Commencement; and Mahdiar Edraki won the 21st Century Leader Award. The Minuteman SMV Team took fifth place at the SAE annual Supermileage Competition, and our Rocket Team was featured in the national news. Finally, congratulations to doctoral students Destenie Nock who will be joining Carnegie Mellon as an assistant professor in the Fall of 2020 and Swaminathan Kandaswamy who will join Emory University this fall as an instructor in the medical school.

What more can I say but that I am so incredibly proud of the continued hard work and accomplishments of our outstanding faculty, students and alumni! We thank all of you for your interest in the Mechanical and Industrial Engineering Department at UMass Amherst and welcome your feedback on our newsletter.

Sincerely,

Sundar Krishnamurthy

Professor and Department Head
Mechanical & Industrial Engineering

IN THIS ISSUE

Welcome Letter---------------------- 2
Faculty Spotlight ------------------- 3
Faculty Spotlight-------------------- 4
New Faculty------------------------- 5
Faculty News----------------------- 6
Faculty Research------------------- 7
Graduate Student News ............... 8
Graduate Student News.............. 9
Graduate Student Spotlight......... 10
Undergraduate Student News......... 11
Undergraduate Student Activities.... 12
Undergraduate Student Spotlight.... 13
Alumni Spotlight-------------------- 14
Department News------------------- 15

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Faculty Spotlight: Jenna Marquard

US health care is famously complex, and the field of health informatics aims to simplify it. We often expect doctors and nurses to do their jobs perfectly, but more frequently than we may imagine, they miss or misinterpret information in health care records – leading to potentially serious errors. MIE associate professor Jenna Marquard is on the front line of research designing clearer health care interfaces in order to transmit complex information to doctors and nurses, with better patient outcomes.

Marquard’s accomplishments at UMass are impressive: A recipient of an NSF-CAREER award in 2012, Professor Marquard also won the 2012 COE Outstanding Junior Faculty Award. In 2016 she received the University of Wisconsin-Madison’s Early Career Achievement Award and in 2018 was named a UMass Public Engagement Faculty Fellow for the substantial potential of her research record to impact health care policy and practice. She has been awarded over $4 million as PI or co-PI in research grants, including as director of the “Human Factors Core” of a $1.23 million NIH grant to create the UManage Center to Build the Science of Symptom Self-Management and a $1.7 million NIH grant to develop an easy-to-use device for maintaining a medication regime.

“We are at an exciting time in healthcare,” says Marquard. “We are making tremendous advances in data collection and analysis through the wide adoption of electronic health records, development of smart mobile devices and sensors, genetic profiling, and application of artificial intelligence and machine learning algorithms. We need to present these data and analyses to decision-makers in understandable and actionable ways. The visualizations need to aid physicians, nurses, and consumers making a wide range of decisions such as diagnosing illnesses, treating chronic conditions, or improving athletic performance.”

According to Professor Marquard, collaboration is the most rewarding aspect of her research work: “I especially love being on teams where diverse perspectives are highly valued, and everyone is focused on addressing a problem of societal significance.”

And indeed, much of her research work is socially meaningful and highly interdisciplinary. As a director of UManage, a large NIH P20 center led by the College of Nursing, Marquard helps team members from multiple departments account for human factors as they seek to develop technologies that help people with chronic illnesses manage fatigue and impaired sleep. And her work on data visualization design tackles “information overload” on graphs of vital signs for parents to use in a pediatrician’s online portal, or for nurses to use during and after a patient’s blood transfusions.

Professor Marquard enjoys mentoring both graduate and undergraduate students. “I think students can tell when you genuinely care, listen to them, and are responsive to their feedback,” says Marquard.

Throughout her years of teaching, Marquard says she has learned important lessons about what it means to be a good mentor to students. “Mentors first need to listen and understand your values. Based on this understanding, they help you determine your vision for your future self, what your strengths are, and what gaps you need to fill. They often see strengths in you – and possibilities for you – that you don’t see in yourself.”

Professor Marquard received her BS from the University of Iowa in 2003, followed by her MS and PhD from the University of Wisconsin-Madison in 2004 and 2007, respectively. She joined the Department of Mechanical and Industrial Engineering at UMass in 2008. Professor Marquard hails from Minnesota and she, her husband, and their kids are avid Nordic skiers who often travel back to the Midwest for the adult and youth Birkebeiner races in northern Wisconsin.
Faculty Spotlight: Stephen S. Nonnenmann

Professor Stephen S. Nonnenmann won an astonishing trifecta of awards in 2019: the COE Outstanding Junior Faculty Award, the COE Outstanding Teaching Award, and a prestigious NSF CAREER Award. These accomplishments did not surprise his students and colleagues, who have long valued his creative spirit, intellect, and commitment to the Department.

The Nonnenmann Lab focuses on nanomaterials research. “We study the response of materials to applied stimuli at interfaces critical to modern technologies on the scale which operation occur using scan probe microscopy.” His research in materials science spans several disciplines, as evidenced by his multiple collaborations with colleagues in Chemical Engineering, Electrical and Computer Engineering, Chemistry, Microbiology, Physics, and Polymer Science and Engineering. “What I like about Amherst,” says Professor Nonnenmann, “is that it is easy to find likeminded researchers to collaborate with and do exciting science.”

Professor Nonnenmann first learned about materials science in his 7th grade English class. While the rest of his class selected sports biographies or various animals as their subject, he chose a book with a floating magnet on the cover called “Superconductivity”. That book taught him how ceramics were used for magnetic levitation trains. He was hooked: “Later, in high school, Alfred University handed out engineering program flyers that mentioned ceramic engineering during lunch. I asked if they did superconductivity and they said yes. I enrolled and have been working in materials science ever since.”

New work on energy conversion and storage applications proposed by Professor Nonnenmann earned a recent NSF CAREER Award. The project also includes an educational component for undergraduate student teams to develop microscopy modules that they demonstrate to summer high school programs and broadcast over social media to motivate and inspire students to pursue STEM disciplines.

Inspiring others is a theme of Professor Nonnenmann’s teaching and mentoring style. One student says, “He truly cares about every student in the class.” Not only do Professor Nonnenmann’s students win awards (like the UMass Rising Researcher award), he strongly advocates for inclusivity and diversity. As one member of the Society for Women in Engineering explained, “It is vital for the women in our college to feel respected, heard, and supported, and Professor Nonnenmann is an exemplary model of how to do just that.”

To create a more inviting classroom environment, Professor Nonnenmann introduces new technology initiatives, like incorporating Slack and Poll Everywhere into lectures and labs: “Engaging a large student body requires the creation of multiple communication pathways on all levels, especially between student peers and between the students and faculty.”

Professor Nonnenmann says some of his most satisfying moments with students come from watching them evolve as engineers and interacting in the lab setting: “I really enjoy teaching the majority of sophomores and transfers in MIE 201 – Introduction to Materials Science and witnessing their evolution as students and individuals in MIE 302 – Mechanical Engineering Lab. In the lab setting I learn more about their interests, personalities, and what drives them all to become engineers.”

Professor Nonnenmann received his Ph.D. in Materials Science & Engineering from Drexel University in 2010. Professor Nonnenmann joined the Department of Mechanical and Industrial Engineering as an Assistant Professor in September 2013.
WOODROW WINCHESTER
Director of Engineering Management Program

The MIE Department welcomes Woodrow Winchester as our new Director of Engineering Management. Winchester has almost a decade of experience in academic program planning, design and leadership as director of Robert Morris University's engineering management graduate program. He also brings with him over twelve years of active teaching and scholarly activities centered on advocating for more humanity-centered approaches to the design and management of technological systems.

“Engaged learning is at the heart of my instructional philosophy and hands-on activities are central,” says Winchester. “I actively pursue opportunities that allow students to be exposed to and explore multiple perspectives and viewpoints.”

While Professor Winchester will teach engineering management courses for the Master’s in Engineering Management (MSEM) program, he will also advise and recruit students, as well as promote a vibrant and diverse community in which they can thrive. His industry background will enable him to coordinate crucial capstone experiential activities and internships.

Professor Winchester received his PhD in 2005 and his MS in 1994 in Industrial and Systems Engineering at North Carolina AT & T State University, Greensboro. He is a Certified Professional in Engineering Management (CPEM) with over ten years of industry experiences. Active in advancing engineering management as a practice, Professor Winchester is currently the Co-Director, Professional Development & Continuing Education for the American Society for Engineering Management (ASEM).

JIM LAGRANT, Professor of Practice in Manufacturing

Jim Lagrant joins the department this Fall as our new Professor of Practice in Manufacturing. He brings with him more than twenty years of experience in manufacturing engineering, with an emphasis on process automation, new process development and information-driven decision making.

“I feel strongly that providing students with the opportunity to apply their education before graduation is essential for success in today's manufacturing environment,” says LaGrant. As Professor of Practice, LaGrant will teach basic and advanced manufacturing related courses as well as lead the graduate program in manufacturing and serve as faculty advisor for the students in the manufacturing program. His industry background will enable him to further build on our working relationships with local and national manufacturers, as well as contribute to research proposals to strengthen educational components and industry partnerships.

LaGrant received his BS and MS in Manufacturing Engineering at Worcester Polytechnic Institute. Jim has served on the board of the Advanced Casting Research Consortium at WPI, and is a current board member of the Foundry Education Foundation. He also serves as a peer reviewer of the International Journal of Metalcasting. He has given numerous presentations on enterprise manufacturing intelligence across the country.
STEPHEN NONNENMANN WINS COE OUTSTANDING TEACHING AWARD

MIE Professor Stephen Nonnenmann was one of two winners of the UMass College of Engineering Outstanding Teaching Award for 2019. “Professor Nonnenmann has clearly established himself as one of the best young teachers in the department and the college,” said MIE Department Head Sundar Krishnamurty, “as evidenced by the student evaluations and letters of support reflecting his innovative pedagogical initiatives, his outstanding mentoring activities, and his overall contributions to the teaching mission of the department, the college, and the university.”

STEPHEN NONNENMANN WINS COE OUTSTANDING JUNIOR FACULTY AWARD

MIE Professor Stephen Nonnenmann was one of two COE faculty members winning the 2019 College of Engineering Barbara H. and Joseph I. Goldstein Outstanding Junior Faculty Award. Nonnenmann is recognized for his contributions in both research and teaching. He received an NSF CAREER award for his research in nano-scale physics for energy applications, the results of which have been published in a number of high-impact, high-visibility journals. In addition, he received this year’s College of Engineering Outstanding Teacher award, which was supported by every single teaching-related metric, ranging from outstanding SRTI scores, superlative comments from students, and the large number and high quality of student researchers he has mentored.

XIAN DU WINS TIDE AMBASSADORS AWARD FROM UMASS INSTITUTE FOR TEACHING EXCELLENCE

MIE Assistant Professor Xian Du is one of 12 winners in the 2019-20 TIDE Ambassadors (Teaching for Inclusiveness, Diversity, and Equity) faculty fellowship awards, as chosen by the UMass Institute for Teaching Excellence and Faculty Development. “I am teaching a large-sized undergraduate class in the MIE department,” says Du about his motivation for applying for a TIDE fellowship. “My students have various cultures, educations, and learning backgrounds. The TIDE Ambassador program can offer me an excellent chance to learn how to leverage the class environment, culture, and other resources for an excellent teaching approach.”

JIM MANWELL WINS EUROPEAN ACADEMY OF WIND ENERGY SCIENTIFIC AWARD

The European Academy of Wind Energy (EAWE) has presented the 2019 EAWE Scientific Award to Professor James F. Manwell, a professor in the MIE Department and the director of the UMass Wind Energy Center. The award was handed over during the conference banquet of the Wind Energy Science Conference in Cork, Ireland, on June 19. “Jim has distinguished himself not only for his lifelong commitment to wind energy, but also for his educational activities,” explained the EAWE release. “We thank Prof. Manwell for his vision, service to the community, and good work.”

WINCHESTER LECTURES AT GONZAGA UNIVERSITY ON ADDRESSING RACIAL BIASES IN DESIGN AND ENGINEERING OF TECHNOLOGY

On March 26, the newest MIE faculty member, Dr. Woodrow W. Winchester III, lectured at Gonzaga University on “Afrofuturism as a Design Lens for Inclusive Technological Innovation”. Winchester spoke about how to address racial biases in the design and engineering of technological products and systems such as soap dispensers that only recognize pale hands, facial recognition sensors that can't see dark faces. “It’s my intention to motivate,” said Winchester, “just continue deeper thought around these sorts of issues, and begin to think about intersectionality and how it fits around STEM.”
Professor Chaitra Gopalappa has received a $1.2 million National Science Foundation (NSF) award to develop decision-analysis algorithms for integrated modeling of diseases. This research will develop mathematical models to capture the interactions between multiple diseases, and develop decision-support methods that enable economic analysis of cost-effective combinations of structural interventions as part of an overall public health strategy.

A $1.4 million National Science Foundation (NSF) award has been awarded to Professor Stephen Nonnenmann for research into conductive protein nanowires as next generation polymer nanocomposite fillers.

In developed countries, the activated sludge process (ASP) is the primary wastewater treatment method. A 100-year old technology, ASP not only requires huge capital outlays but also is energy intensive. Professor David Schmidt is a co-investigator on a project led by Professor Chul Park (UMass Civil and Environmental Engineering) to scale up a solar-powered process relying on oxygenic photogranaules. Professor Schmidt will simulate the light propagation and mixing in a test reactor, shown to the left.

Professors Yubing Sun and Byung Kim received a grant from the Massachusetts Technology Transfer Center (MTTC) Acorn Innovation Fund for a project titled, “A SERS-based immunoassay for cancer biomarkers detection.” Kim and Sun have developed a novel SERS-based antigen detection system that can quantify the concentration of biomarker with ultra-high sensitivity, reproducibility, and low cost.

Professor Blair Perot also received a Massachusetts Technology Transfer Center ACORN Innovation Fund grant for a project called “Wind turbine power augmenter.” This device increases the power of wind turbines, especially when they are located near each other. This grant will be used to perform wind tunnel demonstrations of the effectiveness of the technology.

Professor Jinglei Ping has received a Discovery Award of over $270,000 from the Department of Defense Congressionally Directed Medical Research Programs. The goal of Ping’s research is to develop a miniaturized device for precise quantification of heavy metals in a drop of human blood at the point of care. “Heavy metals are serious toxicants that can lead to multiple organ impairments even at low exposure levels,” says Ping. “Early screening of heavy metal in the blood allows immediate intervention to alleviate adverse health effects, but current analytical approaches have problematic sensitivity for heavy metals at low level and are usually lab-based or centralized.”

Professor Xian Du has received a two-year National Science Foundation (NSF) award of $498,764 to support his research into a novel sensing and control technology for a roll-to-roll printing process. Du’s research project, supported through the NSF Grant Opportunities for Academic Liaison with Industry (GOALI) award program, is meant to establish a technological base for the development of a multiscale in-line metrology platform that, according to Du, could promote “both the invention and manufacturing of revolutionary new flexible electronics products, giving the U.S. a competitive edge in the global economy.”
MIE Doctoral Student Prashant Meckoni wins best paper at the Institute of Industrial & Systems Engineers’ Annual Conference

MIE Doctoral student Prashant Meckoni won first place in the Best Student Paper competition during the Health Systems Track at the Institute of Industrial & Systems Engineers’ IISE Annual Conference. Meckoni’s winning paper was titled “Appointment Scheduling in Primary Care with Recurring Visits,” and his faculty advisor is MIE Professor Hari Balasubramanian.

MIE PhD Student Mangalore Wins Honda Outstanding Student Paper Award Honorable Mention

The 10th International Driving Symposium on Human Factors in Driver Assessment, Training, and Vehicle Design has announced that IE graduate student Ganesh Pai Mangalore has been awarded a 2019 Honda Outstanding Student Paper Award honorable mention for his paper titled “Can Virtual Reality Headsets Be Used to Measure Accurately Drivers’ Anticipatory Behaviors?”

Graduating IE Doctoral Student Swaminathan Kandaswamy hired as faculty in the School of Medicine at Emory University

Congratulations to Professor Jenna Marquard’s doctoral student, Swaminathan Kandaswamy, for successfully defending his dissertation. He will now head to Emory University’s school of medicine in the department of pediatrics with an initial rank of research instructor. His research work will involve the study of antibiotic stewardship, and improvement of usability of Electronic Health Record (EHR).
Mechanical Engineer doctoral student Todd Currier was the Winner of this year’s Graduate Gallery Contest, a competition that awards prize money for the best student image or video highlighting current research. Currier's image depicts a robotic fish that escapes faster than the quickest live fish ever observed. Second prize was awarded to doctoral student Hannah Johlas for her NSF-funded graduate research fellowship work on computational fluid dynamics applied to offshore wind energy. The image in the gallery contest is from a large eddy simulation of the wake behind a floating offshore wind turbine.

Below: Nariman Banaei’s image depicts using a SERS based immunoassay to detect multiplex cancer biomarkers for evaluating the risk of pancreatic cancer in the early stage.

Above: Swimming Fish by Todd Currier

Above: Hannah Johlas’ second place image

Above: Migrating Neural Crest by Tianfa Xie
You’ve been a UMass Amherst student for how many years? What do you love most about UMass now that you’ve experienced it in so many different roles? What was it that enticed you to stay even after your Masters, for your PhD?

I have been a UMass Amherst student for 7 years! I completed my undergraduate degree in Mechanical Engineering in 2016 and continued my studies as a graduate student. I am now pursuing the MS/PhD track.

Thus far, I have played the role of student, advisor, and research assistant. I love how UMass fosters a creative and collaborative environment and I love how supportive my peers are.

I decided to stay at UMass to pursue the MS/PhD track because I found an amazing committee: Dr. Juan Jiménez, Dr. Craig Albertson, and Dr. Maureen Lynch. Most notably, I stayed because of my advisor and mentor, Dr. Juan Jiménez. I admire Dr. Jiménez’s work ethic and selflessness and cannot reiterate enough how fortunate I am to be a part of his lab.

Can you describe your research? How might you save the world with it? Where do you see your research field heading in 5-10 years and what do you hope to contribute?

In Dr. Jiménez’s lab, I am being trained in the areas of fluid dynamics, biofluids, in vitro experimentation, cell mechanotransduction, and translational research.

My research is categorized as basic research, where the aim is to further the scientific knowledge of my field. While my research on mechanotransduction in the context of bone development will not itself save the world, it may act as a building block for future researchers.

For example, insight gained from my project could be used when developing targeted therapies for bone diseases such as osteoporosis.

How did your graduate work evolve from your undergrad experience in ME?

After realizing I wanted to incorporate biology into my studies, my undergraduate advisor, Dr. Sundar Krishnamurty, introduced me to biomedical research through the Research Experience for Undergraduates program at UMass. For ten weeks during the summer before my senior year, I was a part of the Center for e-Design team at UMass working on the design of a laparoscopic stapler with an articulating staple line. I essentially learned how to conduct research while I was a part of Dr. Krishnamurty’s lab.

What is your hometown and year of graduation (BS, MS)?

Hometown: Dartmouth, MA
Year of Graduation: 2016 (BS)
I switched from the MS track to the MS/PhD track last Semester (01/2019).

You’ve been a UMass Amherst student for how many years? What do you like most about UMass? What do you like most about the graduate program?

I started at UMass in the Fall 2016 semester (nearly 3 yrs now). What I like the most about UMass is the work environment around fellow students, the collaboration and exchange of ideas can contribute significantly to each one’s work, and the lab environment has a personal touch.

Can you describe your research? How will you use it in your future career? What kind of career path do you envision?

I am currently working on a Knee Brace for Osteoarthritis. The main ideas is to extend the life of the knee joint in OA patients by reducing the internal joint contact forces by means of an external assistive device. The knowledge I am acquiring along the way will help me develop in Sports Biomechanics moving forward. My main goal upon finishing my degree is to work in the Baseball Biomechanics field, focusing on injury prevention and rehabilitation.

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MIE Senior Mahdiar Edraki Selected as 21st Century Leader

Mahdiar Edraki was a Commonwealth Honors College student who graduated this spring with a degree in mechanical engineering. As a first-year student, Edraki began working in Professor Yahya Modarres-Sadeghi’s fluid-structure interactions lab and went on to present his work at the American Physical Society Division of Fluid Dynamics meeting. As a student, Edraki volunteered with and became captain of the UMass Supermileage Vehicle Team, which each year designs and constructs a highly fuel-efficient vehicle for competition.

IE Senior Rebecca Castonguay Selected for UMass Amherst Rising Researcher Award

Senior industrial engineering major Rebecca Castonguay, a Commonwealth College honors student, has been selected among six undergraduates from across the campus to receive the spring UMass Amherst Rising Researcher Award. The Rising Researcher program celebrates undergraduate students who excel in research, scholarship, or creative activity.

“Rebecca is the best industrial engineering undergraduate student I have taught in my 10 years at UMass Amherst,” says IE Professor Hari Balasubramanian.

As part of her summer research and honors thesis, Castonguay developed new models to understand the mathematical structures of networks of contacts between people during infectious disease epidemics.

IE Senior Andrew Metz Named Jack Welch Scholar

Andrew Metz of Longmeadow was one of two graduating UMass seniors named Jack Welch Scholars for their leadership and executive ability. Metz was an industrial engineering major with a minor in classical piano performance. Metz plans to pursue a career in the wind energy industry, and in the long-term he wants to look for careers that combine his interests in teaching and technical problem solving.

Six Novel and Useful Designs Win Prizes at MIE Capstone Design Competition

Six innovative projects, designed and fabricated by seniors in the MIE Department for their Senior Design Project course, won various prizes during the Capstone Design Competition at the end of the spring semester.
Supermileage Team Finishes in Fifth Place and Wins Best Design Execution Award

The 2019 Minuteman Supermileage Team took fifth place out of 30 international teams in the Society of Automotive Engineers (SAE) annual Supermileage® Competition held on June 6 and 7 in Marshall, Michigan. The MIE UMass team also won the competition's Best Design Execution Award. “Our new composite body was a hit and will position the program well for the next several years of competition,” said MIE Supermileage Team faculty advisor Robert Daniello after the competition.

The engineering design goal for the SAE Supermileage competition is to develop and construct a fuel-conserving vehicle that complies with competition rules. On competition day, each vehicle runs the specified course to obtain the highest combined kilometers per liter (miles per gallon) rating, and students are exposed to a design segment consisting of a written report and verbal presentation.

UMass Rocket Team Launches at NASA Competition

This year’s UMASS Rocket Team had a successful launch at the annual collegiate NASA competition in Huntsville, Alabama. But the venture was not without setbacks. The team competed against roughly 40 other collegiate rocket teams. At their first launch, a full-scale vehicle demonstration flight, their ten foot, nearly 40 pound rocket crashed to the ground at 520 mph and exploded. Within six days the team built another rocket from scratch, and were able to successfully launch their rocket in competition on February 23rd. Faculty advisor Jim Rinderle sums up the dedicated group UMass Rocketeers: “bright, determined, hard-working and … extraordinarily resilient!”
Why did you choose UMass?
Before finalizing my university pick, I spent a summer weekend with some current UMass students. One friend, a political-science Senior, talked about the enthusiasm students had for social issues on and off campus and the opportunities the school had to offer for students interested in getting involved. A Junior industrial engineer inspired me with her energy and fierce attitude about women in engineering. She eased my worries about large classes, assuring me that I was in charge of my college experience.

How did you get involved on campus?
UMass has a big activities expo each semester and after seeing all the possible clubs I could join (and boy are there a lot to choose from!) I decided to audition for one of the improv groups on campus, Mission:IMPROVable and made the cut! I also joined multiple intramural teams, the parkour club, the Society of Women Engineers, and I helped out at department Open Houses. I recently joined the Brazilian Jiu Jitsu club, reminding myself that it’s never too late to try something new!

What are your future plans?
After graduation I would like to work my way up to a leadership position at an engineering company. One day, I would like to run for office. My life-long dream is to be President of the United States. Currently, my sister and I are working on a comedy duo act.

What influenced you to go into engineering?
I have always had a deep love for physics and the environment, it was this natural inclination toward the focus of mechanical engineering but it was also my friend Hannah Frilot who encouraged me to pursue my interests. Hannah inspired me to jump into a world that is very male-dominated and was at the time mostly unfamiliar to me. Hannah was an engineering student and passed away in her Junior year at UMass. I’m grateful to Hannah for the confidence she instilled in me.

What are some of your favorite experiences here at UMass so far?
I’ve enjoyed doing such a wide variety of all this school has to offer, such as performing with the short-form improv troupe, which introduced me to life-long friends and taught me so much about myself. Many of my favorite moments at UMass have been in thought-provoking classes where I feel my mind expanding. Most recently I completed my semester-long Senior Design Project, a group effort that resulted in a fully functioning scale model of a compost heat exchanger and an award for Best Student Concept design.

What is your hometown, and year of graduation?
Born and raised in Somerville, MA, set to graduate in the spring of 2020.

Anything else you want to say?
I want to pass on to other girls what Hannah gave to me: if you have an interest in STEM and want to pursue it further, follow that passion. We need more women in math and science fields! As a female mechanical engineering student entering my final year, I can tell you it is not easy, but it is gratifying and a very possible achievement. I would love for any young women reading this who are considering a STEM major to reach out to me with any questions!
gilligancor@umass.edu
Alumnus Ekundayo Shittu, currently a professor of Engineering Management and Systems Engineering at George Washington University, has been awarded a five-year, $500,000, Faculty Early Career Development (CAREER) program grant from the National Science Foundation. His CAREER project is titled “Adaptive Investments into Resilient Electricity Infrastructure Systems.”

Shittu got his Ph.D. in Industrial Engineering & Operations Research in 2008 under the direction of Professor Erin Baker. His thesis was “Environmental Policy and Investment Decisions under Uncertainty.” Shittu was a recipient of the Isenberg Award in 2005, a one-year fellowship awarded to students who demonstrate academic merit and a commitment to the integration of science, engineering, and management. Upon submitting an Isenberg Scholar report to his professor Mike Malone, Malone asked him: “Dayo, do you want to be exceptional at what you do or be lucky?” Shittu recalls replying that he wanted to be exceptionally good. Malone smiled and said, “Dayo, you need doses of both.” Reflecting on his CAREER Award win, Shittu says, “My CAREER award is indeed a combination of both.”

After attaining his BS at the University of Ilorin in his native Nigeria, Shittu completed his Masters Degree in Industrial Engineering at the American University of Cairo. It was in Cairo that Shittu learned about Erin Baker’s research on the interplay of accessibility to rural energy and affordability in Africa. Shittu's interest in using research and engineering to address sustainability related issues led him to Professor Baker's UMass homepage. He then sent her an email introducing himself, and that email led to five years of fruitful work with Baker. Says Shittu: “Working with Professor Baker gave me a thorough grounding in discerning the value of mathematical modeling of energy systems and extracting hidden information from energy data to make informed decisions even when the conditions surrounding the elements of decision making are fuzzy or uncertain. Professor Baker equipped me with the skills that have made me independent and grow in my career. I am profoundly grateful.”

Shittu’s CAREER project will develop a decision support system to help government policymakers craft the incentives to advance public-private enterprise capital formation and investments into electricity infrastructure systems and provide strategies for self-organized power restoration in the advent of a disruption.

The project is inspired by the self-healing properties in biological systems such as morphogenesis (gene formation and adaptation to environmental changes) and wound healing (functional changes in cells due to regeneration).

“In five years, it is my aspiration to have contributed to theories and methodologies that would incentivize public-private capital formation and enterprise for resilience enhancement of the electricity infrastructure systems,” says Shittu.
2019 Annual Student-Staff-Faculty Picnic

Department graduate students, staff and faculty attended the popular annual spring picnic in Hadley. Everyone enjoyed a meal with cuisines from around the world, as well as baseball, soccer and volleyball games.

STAFF TECHNICIAN AL RAKOUSKAS RETIRES AFTER 32 YEARS

The department celebrated technician Al Rakouskas’ 32 years of amazing service with a retirement party in June. Retired faculty member Larry Murch said: “Larry Ambs and I were on the search committee that hired Al way back when. One of the best things we did for the University. He has proved to be a great asset to the department and our many students.” Many present and past faculty members and staff attended the party, including retired department head Corrado Poli. Said Rakouskas: “I just wanted to thank you all for the really heartfelt celebration of my time here at UMASS and for the generous gifts and even more generous spirit that you presented. It was especially gratifying to be able to share the celebration with members from both of my families. It will always be one of the fondest of many memories over the past 32 years.”
Giving

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