MIE Professors and Judges at the Senior Capstone Design Competition
Greetings Alumni, students, faculty and friends:

Like everywhere else in the world, our Department's day to day existence was upended mid-semester by the global pandemic. But we were truly fortunate that our Associate Head, Professor Muriel, knew a US lockdown was imminent. So when the campus was abruptly shut down in mid-March, Professor Muriel was ready. Within a matter of days, she coordinated our lightning-fast transition to remote learning, overseeing scores of classes, faculty and students scrambling to acclimate to a new reality. And it wasn't only Professor Muriel who rose to the occasion of this unprecedented situation. Professors Sup and Huber came up with a new design of protective plastic face shields for health care workers, and Professor Rothstein is part of a team in clinical trials for their "breathalyzer" COVID test. We are so proud of all their hard work and ingenuity.

Despite the challenging times, our department continues to excel: The College of Engineering awarded the 2020 Outstanding Senior Faculty Award to Professor Rothstein and the 2020 Outstanding Teaching Award to Professor Marquard. Doctoral students Bridget Benner and Jacob Davis won coveted NSF graduate fellowships, while senior Madeline Scott won a university-wide Rising Researcher Award. Assistant Professor Du won the 2020 NSF CAREER Award to develop pioneering upgrades in the roll-to-roll soft lithography process, and Assistant Professor Srimathveeravalli won a prestigious DOD grant to study bladder cancer. Last but not least, Professor Lackner and his co-PI’s Professors Zakeri and Baker have been awarded a $2.7 million grant from the NSF Research Traineeship (NRT) program for their work on enhancing resiliency and increasing equity in the transition to a sustainable energy future.

This year was a busy one for promotions in our department. Professors Gopalappa and Lee have been granted tenure and promoted to Associate Professor, and Professors Lackner, Marquard, Modarres-Sadeghi and Ramasubramaniam have all been promoted to Full Professor. Finally, I am honored to have been awarded the Ronnie & Eugene M. Isenberg Distinguished Professorship, and I am excited to work with the Berthiaume Center for Entrepreneurship at the Isenberg School of Management in establishing a vibrant ecosystem to support innovation in the College.

Please read more about our department’s research, awards and resilience in these pages. We thank all of you for your interest in the Mechanical and Industrial Engineering Department at UMass Amherst and welcome your feedback.

Sincerely,

Sundar Krishnamurty
Professor and Department Head
Mechanical & Industrial Engineering

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MIE Professor Part of a Team Entering Clinical Trials for a Covid Breathalyzer Test

It was a lightning bolt moment for MIE Professor Jonathan Rothstein. Several weeks after the pandemic caused the UMass campus to close, Rothstein was talking to a friend from graduate school, now a professor at UCLA. “Commiserating about how helpless we felt, we started thinking, what can we do? There’s got to be something we can do,” says Rothstein. Inspired by his friend’s research on a new technology of fog harvesting, they came up with the idea of using that same technology to collect viruses in human breath.

The idea quickly snowballed into a full-fledged research project, and their team grew to include a virologist and immunologist. Dubbing their newly-founded company “Marvel Diagnostics”, the team partnered with the University of California health system, using the UCLA Hospital. With funding from NSF’s Rapid Response Research and the NIH’s Rapid Acceleration of Diagnostics (Radx) program, they aimed to develop a non-invasive, breathalyzer test for COVID-19 that “can overcome the bottleneck that currently hampers the testing for COVID-19 around the world”.

As Rothstein explains: “We are using continuous dropwise condensation to collect samples from exhaled breath without the need for invasive nasal swabs. The NSF grant was the first step towards fully understanding the science. And just last week we were notified that we received NIH funds earmarked with the goal of commercializing our technology and rolling it out in the fall. We are really excited about this work and the technology we developed. We believe it can make a big impact on the fight against COVID-19.”

Since some evidence points to a higher virus load in the breath than in the nasal passages, their breathalyzer prototype will have more diagnostic capability than the currently employed nasal swabs. “Not only can we tell whether you are sick,” says Rothstein, “we can tell if you are contagious.” The prototype will start clinical trials in a few weeks. For it to reach the public, it will need to duplicate the standard nasal swab tests with a 90% accuracy. “Best case scenario, says Rothstein, “this is a stand alone or home system that could read results in fifteen minutes.”

Rothstein, winner of the College of Engineering’s 2020 Outstanding Senior Faculty Award, specializes in experimental fluid dynamics. Rothstein says he’s relished this latest undertaking: “To tell you the truth, it has been a lot of fun to get back in the lab again. As a faculty member, you don’t get a lot of opportunities to do your own hands-on experimentation. With this work, I have been using all the research tools and techniques I have honed over the years to develop something that might really change people’s lives for the better.”
MIE Professor’s Research Tackles Coronary Heart Disease and Cerebral Aneurysms

Coronary heart disease and cerebral aneurysms remain major causes of death in the United States. Professor Juan Jiménez’ work lies at the cutting-edge intersection of biology, medicine and engineering. His laboratory studies how blood flows inside the body and how a specific blood flow pattern will cause a cell protection from disease, while a different flow pattern will promote the onset of disease.

Five percent of adults are affected by brain aneurysms; in fact, one ruptures every 18 minutes, and 40% of them are fatal. “Aneurysms,” explains Jiménez, “are small balloon-like structures that develop in the brain. Rupture of an aneurysm can cause a potentially fatal hemorrhagic stroke. Presently, it is unknown if patterns of blood flow in the brain can cause the development of an aneurysm. We are interested in this question and how biomedical implantable devices like stents can be modified to promote successful treatment of aneurysms.”

Jiménez and his research team have contributed to the scientific knowledge that specific fluid flow patterns inside the body affect disease development, both in blood vessels and in the lymphatic system. Eventually, they hope to identify if blood flow patterns can cause the onset of aneurysms. Identification of these patterns could serve as a diagnostic tool before an aneurysm develops.

A Professor of Mechanical Engineering and an adjunct faculty member in Biomedical Engineering, Jiménez was a recipient of both a prestigious NIH K25 Mentored Quantitative Research Career Development Award and a 2019 NSF-CAREER award. In 2016 he won a BMES Innovation and Career Development Award.

“I am extremely surprised to be doing the type of interdisciplinary work I do,” says Jiménez. “I trained as a mechanical engineer working on fluid flow around submarines, and now study the interface between fluids and disease inside the human body at the frontier of medicine and biomedical engineering. I never imagined I would be doing this kind of research; being flexible and curious led me to where I am.”

Curiosity is also one of the attributes Jiménez appreciates in his students. He enjoys watching his students become passionate about a topic as they learn. One of his most memorable teaching experiences is an annual field trip to the Catheterization Laboratory in a local hospital, where stents are inserted into the blood vessels of patients with coronary heart disease. After watching this, his students fully appreciate how much engineering plays a role in medicine. “Students walk out very passionate about their career,” says Jiménez. “They expand their horizons regarding engineering and what they can achieve with their degree.”

Professor Jiménez received his BS from Michigan State University in 1999, followed by his MS and PhD from Princeton University in 2002 and 2007, respectively. He joined the Department of Mechanical and Industrial Engineering in 2016 after a postdoctoral fellowship at the University of Pennsylvania. Professor Jiménez is from San Juan, Puerto Rico, and enjoys hiking and the outdoors.
Sundar Krishnamurty Named Isenberg Distinguished Professor in Engineering

MIE Department Head Sundar Krishnamurty has been named the second Ronnie & Eugene Isenberg Distinguished Professor in Engineering. The Isenberg professorship was created in 2003 at UMass Amherst to enhance interdisciplinary teaching and research among the fields of management, engineering, and science.

Krishnamurty follows in the footsteps of former College of Engineering Dean and current UMass Vice Chancellor for Research and Engagement Michael Malone, who stepped down last year as the first Isenberg Professor.

As Krishnamurty explains about his appointment to this esteemed position, “I am honored to have this unique opportunity to establish a vibrant ecosystem to support innovation and entrepreneurship in the college. I look forward to working closely with the Berthiaume Center for Entrepreneurship at the Isenberg School of Management to advance ‘I&E’ across the campus to benefit our students, faculty, and the region.”

Erin Baker Elected to the American Society for Engineering Education’s Engineering Research Council Executive Board

The American Society for Engineering Education (ASEE) has elected MIE Professor and COE associate dean Erin Baker, as one of the three newly elected members of the Engineering Research Council (ERC) Executive Board.

Baker is associate dean for Research and Graduate Affairs and the director of Faculty Diversity for the College of Engineering. She has also served as the Armstrong Professional Development Professor in the College of Engineering and is a long-standing Professor of Industrial Engineering and Operations Research in the MIE department.

Jonathan Rothstein Wins 2020 College of Engineering Outstanding Faculty Award

The College of Engineering has selected MIE Professor Jonathan P. Rothstein to receive the College’s Outstanding Senior Faculty award for 2020.

According to MIE Department Head Sundar Krishnamurty, Professor Rothstein has made “immense contributions to the profession through his scholarly research, dedication to teaching and mentoring, outstanding leadership skills, and exemplary service.”
Ana Muriel Steers the Department and College to Lightning Fast Transition to Remote Learning

When campus abruptly shut down in mid-March, MIE staff, faculty and students were largely taken by surprise. But luckily for MIE, Professor Ana Muriel had been following her native Spain’s COVID spread and subsequent lockdown, and guessed the virus would have a similar impact in the USA. “I knew we were probably only a few days or weeks behind Italy and Spain, and we had to act quickly to face this new reality,” says Muriel. Three days before campus closed, she began pushing the department head and the upper administration to purchase the instructional technology necessary for the faculty to be able to effectively teach remote courses. After campus shut down on Friday, March 13th, Muriel worked all weekend alongside Associate Dean Russ Tessier and Communications Manager Sarah Harvey to put together a college-wide plan to go online. Within a matter of days, she coordinated over fifty classes in MIE alone to switch over to remote learning.”

On March 13, the very day campus closed, Muriel and Tessier met with the College IT department to review the online technologies. “The hardest aspect,” recalls Muriel, “was making sure everyone had the most appropriate technology they needed to be effective. MIE quickly bought a number of tablets. We allocated departmental Surface tablets and document cameras after doing a quick explanation of options and survey of the faculty.” In the end, she found it surprisingly easy to motivate the faculty to try the new technologies and make it work. Says Muriel: “I am very proud of what the faculty accomplished in such a short time.”

MIE Engineers Lead Face Shield Design Team

As the nation combats the spread of the coronavirus, a team of MIE researchers at UMass Amherst has developed a design, informed by clinical feedback, for protective plastic face shields for health care workers and other front-line responders. The design can be made in seconds, is flat for easy storage, and is light weight for shipping. Face shield team leaders, MIE Professors Frank Sup and Meghan Huber, say a variety of engineering, nursing and other researchers teamed up to meet the need. A Southbridge, Massachusetts company, K+K Thermoforming, produced the first order of 80,000 shields placed by the Face Shield COVID-19 Response Team at Umass Amherst. The company will continue production based on demand.

Woodrow Winchester Records Two Exceptional Achievements

Woodrow W Winchester III, MIE senior lecturer and director of engineering management, has registered a couple of notable achievements recently. First, he was invited to be a fellow in the second cohort of the National Science Foundation-funded Aspire Alliance’s Institutional Change Network IAspire Leadership Academy. Then, Fast Company published an enlightening article written by Winchester addressing racial bias in the design of emerging technologies.
Jenna Marquard Wins 2020 College of Engineering Outstanding Teaching Award

MIE Professor Jenna Marquard is the 2020 winner of the UMass College of Engineering Outstanding Teaching Award. According to MIE Department Head Sundar Krishnamurty, “Professor Marquard is without a doubt one of the best teachers in the department, the college, and the university, as evidenced by four student-voted Professor of the Year awards and two student-voted Advisor of the Year awards, two competitive campus-wide teaching fellowships (the Lilly Teaching Fellowship and the Team-Based Learning Fellowship), and multiple University of Massachusetts Amherst Distinguished Teaching Award Nominations.”

Xian Du Obtains NSF CAREER Grant to Develop Pioneering Upgrades in the Roll-to-roll Soft Lithography Process

MIE Assistant Professor Xian Du is the principal investigator (PI) on a five-year, $571,655 grant from the National Science Foundation’s (NSF) prestigious Faculty Early Career Development (CAREER) Program. Du’s research, as he explains, “enriches the knowledge base for soft lithography modeling, real-time sensing, deep learning, and design and control of the roll-to-roll print process and contributes to advancements in intelligent manufacturing” for such products as flexible electronics and wearables.

Yanfei Xu Chosen as a UMass Amherst ADVANCE Faculty Fellow for 2020-21

Assistant Professor Yanfei Xu of the Mechanical and Industrial Engineering Department has been selected to serve as one of the UMass Amherst NSF-funded ADVANCE Faculty Fellows for 2020-2021. Xu and other ADVANCE Faculty Fellows will focus on inclusion and tackle COVID-19 challenges. “I am very enthusiastic about being an 2020-2021 ADVANCE Faculty Fellow at UMass Amherst,” says Xu. “The ADVANCE Faculty Program is characterized by diversity, equity, inclusion, collaboration, and unwavering commitment to excellence. As female engineer, I am committed to creating an inclusive education environment for all underrepresented groups and to increasing diversity in STEM.”
Mitigating microscale residual stresses in 3D-printed stainless steel

MIE Assistant Professor Wen Chen has been awarded a three-year, $345,470 grant from the National Science Foundation's (NSF) Division of Materials Research to investigate microscale residual stresses in additively manufactured stainless steel. Chen says that additive manufacturing, also called 3D printing, could be a key technology for the manufacture of stainless-steel engineering components in automotive, aerospace, defense, biomedical, and other industries if certain “disruptive” aspects can be alleviated.

Lee Heads UMass Amherst Portion of New NSF Project to Develop Groundbreaking High-performance Materials

MIE Associate Professor Jae-Hwang Lee is the principal investigator for UMass Amherst on a three-year, $700,000 project, funded by the National Science Foundation (NSF), to develop pioneering high-performance materials required by many of the world's most significant industries. As Lee explains about the NSF project, “The rate-dependent and temperature-dependent mechanical responses of porous micro- and nano-composites will provide the core knowledge of high-performance, lightweight materials and protective coatings, which are required by automotive, aerospace, and defense industries.”

Srimathveeravalli Receives DoD Support to Treat Bladder Cancer by Activating and Redeploying the Patient’s Own Wound-healing Cells

MIE Assistant Professor Govind Srimathveeravalli has received a $603,550 grant from the Department of Defense (DoD) to study how to redeploy macrophages to effect sustained and robust anti-tumor response in patients with bladder cancer. “The idea is to use macrophages, which are typically cells involved in housekeeping and wound healing, as a new avenue to immunotherapy of early stage and localized cancers,” says Srimathveeravalli. Srimathveeravalli says that his DoD supported research is especially relevant to active-duty service members and veterans who are at high risk for developing bladder cancer due to unique environmental exposure to toxins and heavy metals, as well as other work-associated risk factors.

MIE Professors Lackner, Zakeri and Baker Awarded $2.7 million NSF Grant for Resiliency and Equity in Sustainable Energy

Professor Matt Lackner and his co-PI’s Golbon Zakeri and Erin Baker have been awarded a $2.7 million grant from the NSF Research Traineeship (NRT) program for their work on enhancing resiliency and increasing equity in the transition to a sustainable energy future. “These grants provide a really exciting opportunity to bring together UMass faculty and graduate students from across the campus to solve key challenges in the energy transition,” says Lackner, professor of Mechanical Engineering and associate director of the UMass Wind Energy Center. “We will create technological and policy solutions to reimagine the electricity sector in a way that is both equitable in its impacts on society and resilient to uncertainty in future climate trends and energy demands.”
Two MIE Students Receive Esteemed Fellowships from the NSF Graduate Research Program

MIE graduate students Bridget Benner and Jacob Davis have been awarded prestigious fellowships from the National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP).

The advisors for the two NSF fellowship recipients are MIE Professors Yahya Modarres-Sadeghi (Benner) and Krish Thiagarajan Sharman (Davis).

“Bridget has all the necessary qualifications for a successful career as a Ph.D. student, and a future in academia, with a very strong background and successful research experience,” said Modarres-Sadeghi. “Not only is Bridget an exceptional student, but also a passionate mentor. She has recruited some undergraduate students to the lab already and has worked with them on their independent study projects.”

As Sharman said about his advisee, “Jake is academically very bright and motivated, and his success in the NSF GRFP competition attests to these attributes. Along with focusing on academic rigor, Jake is also active in professional service. He has volunteered for a number of conferences on campus and in the Boston area, hosts our group’s seminar program, and is an integral part of the team that is designing our wave-current laboratory.”

MIE’s Master of Science in Engineering Management Program Ranked Fourth Best Among All Such Online Programs in U.S.

The Master of Science in Engineering Management (MSEM) program in the MIE Department was recently ranked the fourth best online master’s engineering management degree in the country by the 2020 Best Value Colleges rankings Guide to Online Schools for 121 programs, as published by Optimal. Department Head Sundar Krishnamurty responded to the superior ranking obtained by the MSEM program by saying that “Our curriculum uniquely integrates engineering skillsets with management knowledge at an affordable cost to best address our global challenges.”
MIE Senior Research Fellow Anna Goldstein Comments in Vox About U.S. Programs That Will Help Resolve the Climate Crisis

Anna Goldstein, a senior research fellow in the Mechanical and Industrial Engineering Department, commented in an article by David Roberts on Vox based on the theme that getting to net-zero carbon emissions will require rapid, radical innovation.

From an engineering perspective, according to the Vox article, the central question is whether the tools available are up to the task required of them. As the Vox story explained, “The International Energy Agency has recently set out to answer that question, under the rubric of its Energy Technology Perspectives program, which this month issued its latest Clean Energy Innovation report.”

Roberts noted that “The task [of meeting net-zero goals] may appear particularly challenging from the perspective of dysfunctional U.S. politics; there are at least a few successes to cite.”

As an example of one successful effort in this area, Goldstein pointed to & ARPA-E, the advanced energy research agency created under President Obama. Goldstein explained that “There was an idea for innovation policy, it got put into practice, and now we’re seeing results from it, and people on both sides of the aisle are saying, ‘This is great, let’s scale it up even further.’ That’s promising.”

Goldstein, who directs the new Energy Transition Initiative at UMass Amherst, also noted good examples of long-term thinking and planning exhibited by the U.S. Mid-Century Strategy for Deep Decarbonization and the Quadrennial Energy Review.

MIE Doctoral Candidate Yalda Ebadi Wins Helene M. Overly Memorial/Ann Hershfang Memorial Scholarship

Doctoral student Yalda Ebadi has won the prestigious 2020 Women’s Transportation Seminar (WTS) Boston Helene M. Overly Memorial/Ann Hershfang Memorial Scholarship. The scholarship is awarded to women who are currently enrolled in a transportation-related graduate program and plan to pursue a career in a transportation-related field.

Ebadi is an industrial engineer with several years of experience and a versatile, bilingual professional skilled in transportation, human factors, data analysis, and project management. She obtained her M.S. in Industrial Engineering from the University of Tehran in 2016 and her B.S. in Industrial Engineering from Azad University – Tehran North Branch in 2008.

As a graduate research assistant in the MIE department, Ebadi’s present primary research was based on human factors and safety. Some of Ebadi’s research projects have involved the “Impact of Automated Systems on Drivers with Attention Deficit Hyperactivity Disorder,” the “Impact of Cognitive Distractions on Drivers’ Hazard Anticipation Behavior in Complex Scenarios,” “A Simulator-based Assessment of the Effect of Cognitive Distraction on Drivers’ Hazard Anticipation Behavior in the Presence of Bicyclist Hazards,” and others.

Among her honors, Ebadi has won the Outstanding Paper Award from the Transportation Research Board at a 2019 Simulation of Vehicle and Operator Performance Committee Meeting, two Best Poster Presentations at Safer-Sim symposiums in 2018, a Graduate Fellowship Award from the UMass MIE department in 2017, and a Graduate School STEM Faculty-student Award from UMass Amherst in 2017. She was also the top graduating student with high honors at Azad University.
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? My research focuses on experimental investigation of flow-induced dynamic instabilities of wind turbine blades. This research will influence the wind energy industry by making it possible to design and build larger and lighter wind turbine blades, while taking into account their possible flow-induced instabilities and therefore avoiding catastrophic failures. No doubt, wind turbines will continue to increase in size in the next 5-10 years and I hope to see vertical-axis wind turbines become a serious contender with horizontal-axis wind turbines for far offshore applications. With this in mind, I hope to contribute a theoretical predictive model for flow-induced instabilities of wind turbine blades that can be used by the wind energy industry to avoid catastrophic failures.

How did your graduate work evolve from your undergrad experience in ME? I knew going back to school for engineering that I wanted to work on renewable energy related projects. I was initially interested in wave and tidal devices for energy production, but jumped at the chance to take part in the wind energy REU at UMass Amherst while I was still a student at Bunker Hill Community College. My project in the FSI Lab that summer was experimental work on the response of a flexibly-mounted, scaled airfoil (that could be used as a cross section of a vertical axis wind turbine blade) placed at varying fixed angles of attack and subjected to increasing flow velocities. Going into the REU I didn't even know how to code so there was a steep learning curve for me, but I loved it and fully invested myself into my research that summer.

How did you get interested in Mechanical Engineering? After graduating college with a business degree in 2009 I struggled to find meaningful and fulfilling work. I gave it some thought and came to the conclusion that I desired a role that benefits the environment, is hands-on, allows me to make key decisions, is intellectually stimulating and empowers women. Renewable energy systems were of particular interest to me and that led me to seek a degree in mechanical engineering.

What is your hometown and year of graduation (BS, MS)? My hometown is Orlando, FL. I received a BSBA in Marketing from Xavier University in May 2009, an AS in Engineering from Bunker Hill Community College in December 2016 and a BS in Mechanical Engineering from UMass Amherst in September 2018.

What are any awards you may have won? Mechanical Engineering Student of the Year (voted by the ME faculty, May 2018), Edwin V. Sisson Doctoral Fellowship (September 2018), Kenneth A. Lloyd Fellowship (September 2020), MIE Three Minute Thesis Competition winner (February 2020), National Science Foundation Graduate Research Fellowship (May, 2020)
You’ve been a UMass Amherst student for how many years? What do you love most about UMass? How did you decide to do a PhD?
I attended UMass for my undergrad, so I have been here for just about five years now. My strongest love of UMass is a tough one, but it just may be the food. I’ve spent countless hours hanging around the dining halls with friends, creating memories which I will cherish for a long time to come. And yes, I have a favorite dining hall. It will always be Frank!

My desire to do a PhD began around my sophomore year. Prior to coming to UMass, I had never really been exposed to any PhD engineers or scientists. One of my earliest mentors was Professor Stephen Nonnenmann, whom I met while taking his Introduction to Materials Science course. He took me on as an undergraduate researcher, launching the academic journey that has led me to where I am today.

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?
I am a researcher in Professor Krish Sharman’s Offshore Resources and Renewable Energy group. Our work spans much of the ocean technologies space, including everything from marine renewable energy and offshore wind turbines to aquaculture systems. My current research is focused on the development of an oscillating surge wave energy converter. It is essentially a paddle that flaps back and forth in the ocean to extract energy from the waves. The project involves an exciting combination of simulation and experimentation, and we also get to have a lot of fun designing and building the scale model of the device ourselves.

This whole branch of science and engineering centered around the ocean is a really exciting place to be. Our oceans have such a strong connection with our climate and offer so many solutions in the way of energy, food security, and much more. We have a lot to learn about our oceans, and there’s a ton of work to be done to ensure the systems we put in the water are safe, reliable, and benign to the surrounding ecosystems.

How did your graduate work evolve from your undergrad experience?
My graduate work at the intersection of mechanical and ocean engineering stems almost entirely from a technical elective I took my senior year titled Dynamics of Waves. The course was instructed by my current advisor, Professor Sharman. Never underestimate the effect one course or mentor can have on the trajectory of your entire career!

What is your hometown and year of graduation (BS, MS)?
Southwick, MA. I anticipate graduating with my MS in the spring of 2021 before continuing to my PhD studies.

What are any awards you may have won?
I am honored to be a recipient of a 2020 National Science Foundation Graduate Research Fellowship and a 2019 College of Engineering’s Dean Fellowship.
MIE Senior Scott Honored by Rising Researcher Program

Recent MIE graduate Madeline Scott was one of the eight “Rising Researchers” from across the UMass campus who were honored in the spring semester for excelling “in research, scholarship and creative activity.”

As Research Next says about its eight new Rising Researcher recipients, “A revolutionary spirit runs through our veins at UMass Amherst. It inspires us to think in new ways and to challenge convention. This semester we celebrate eight students with the Rising Researcher award in recognition of their unconventional and inspiring approaches.”

Scott has been working in MIE Professor Robert Hyers’ lab on two research projects that broaden understanding of new and existing materials and processes for advanced manufacturing.

As Scott says, “These projects have helped me in my confidence and ownership of the science and engineering I learned in my coursework. I look forward to continuing to apply the things I have learned in the lab as I go on to pursue my goal of becoming an astronaut.”

MIE Students Participated in Regional Conference of the American Society of Mechanical Engineers

Before the COVID-19 epidemic closed down large events in New England, 10 seniors from the Mechanical and Industrial Engineering (MIE) Department participated in the regional conference of the American Society of Mechanical Engineers in Hartford, Connecticut (ASME EFx® Hartford). As ASME wrote, the conference was “designed to bring the excitement, community, innovation, and vibrant experience of an ASME E-Fests flagship event to local colleges and universities.”

The participating MIE students were Maya Jayanth, John Ditmore, Jack Dateo, Ian Goodine, Ethan Walko, Tom Gable, Joshua Mayer, Justin Mayer, Wahkeef Waheed, and Wyatt Warner (from the UMass Unmanned Aerial Vehicles team, or UAV Team).
Why did you choose UMASS? When searching for colleges I prioritized a school with a strong engineering program that incorporates my interests in sustainability. In looking at the research in the Mechanical Engineering Department, I saw there was a huge array of projects exploring wind turbines, so I decided to apply and eventually commit to UMass.

What advice do you have for incoming Mechanical Engineering students? Engineering is really, really cool; but it is also really, really challenging. To get to the fun parts like breaking things in class, working in the machine shop, or designing and making things, you have to be willing to get through the hard parts, like working in ELab until very late because time management is hard or spending a Friday night studying when all your non-engineering/STEM friends are not. Luckily, there are a few ways to make the hard parts just a little bit easier. First, make friends with engineers. Study groups are great for both getting work done and reviewing complicated concepts; also, sitting in ELab is way better when you have friends sitting next to you. Second, use the resources provided by the College of Engineering and the University - go to SI sessions (they are super helpful), get to know professors during their office hours (they are shockingly nice outside of class), ask the TAs for help, or go chat with a peer advisor. There are so many resources for you and your tuition is paying for them, so take the time and show up. Lastly, do things that are not engineering. Seriously. Go get outside or something. The UMass community has so much to offer, it is worth it to branch out.

What are your favorite experiences here at Umass so far? When thinking about all the best experiences I have had at UMass, I find that they all circle back to one thing: finding small communities. Outing Club and Bouldering Club have taught me where all the cool views, ponds, and rocks are in western MA and have supplied me with a great group of friends to go explore them. The MIE community has helped me through an incredibly challenging major as I found friends willing to explain a concept until I understand (thanks Nick) and professors helping me with their classes but also giving life-advice.

What else are you involved in either on campus or off? Within the College of Engineering, I work in the Office of Student Affairs as a Peer Advisor and a teaching assistant, and I am the treasurer for the Society of Women Engineers. Outside of engineering, I teach power yoga and acrobatic partner yoga for UMass Campus Recreation. I am also a hiking leader for the UMass Outing Club (UMOC). I like to climb and white water raft with the rest of my (abundant) free time.

Why did you decide to major in engineering? I love watching things break, but I also like trying to fix things and figure out how they work. I enjoy doing math problems because they are methodical (unpopular opinion, I know). Engineering allows me to challenge myself academically while supporting my interests, such as breaking things (and also sustainability). Engineering will allow me to make meaningful changes in fields I am passionate about, and as such, there is no other major I would rather pursue.

What is your hometown, and year of graduation? I grew up in New York City on the Upper West Side and went to school in Harlem. I will be graduating in Spring 2021.
Why did you choose UMass?
I originally did not plan to study in the United States, but at the culmination of High School I decided to take the SAT. I applied to several schools my uncle recommended since it was my first time in the American educational system; UMass was one of them. At first, I chose UMass because I got the most aid and affordability from it. Looking back after two years, I would not have had it any other way. The friends and memories I have made and the heights of scholarship I have attained… it seems like destiny.

What advice do you have for incoming Mechanical Engineering students?
This year is a tough one for matriculation or graduation at any level of education. Incoming students will need a lot of discipline and focus especially with remote classes. This past semester, I fell a little behind when we started our classes online. I planned to watch my lecture videos later than the official lecture time and found myself playing catchup till the end of the semester. Honestly, endeavor to attend your online classes at the scheduled time even if you have the leeway of recorded lectures. Also, hit the ground running this semester.

What are your future plans?
After I complete my Mechanical engineering degree, I intend to pursue a Masters in Biomechanical engineering. I hope to contribute my skills and knowledge to the general welfare of the global community.

Why did you decide to major in engineering?
Other than my affinity for math and the sciences, I find it fulfilling to take on a career where I can witness the impact of my handywork. My Dad and Grandpa also inspired a lot of interest for engineering in me since they are also engineers.

What are your favorite experiences here at UMass so far?
My favorite experiences at UMass so far have been in my social and communal life. I really enjoyed my first-year dorm, Gorman, in central. The second floor living space was clutch for me because of the ping pong table. It was the main attraction and I got to know a lot of people in my first week. As the year went on, I came to know everyone on my floor and some from the other floors. Many of us are still friends today. I also cherish my community in Cru, InterVarsity and other Christian groups on campus. I have really grown and matured thanks to my friends who hold me accountable to myself and my beliefs and I am glad to have the same impact on them too.

What else are you involved in either on or off campus?
I am a member of the National Society of Black Engineers, the UMass Chapter of Engineers Without Borders and UMass Formula SAE. I am also in UMass Gospel Choir and in the Mechatronics and Robotics Research Laboratory.

What is your hometown, and year of Graduation?
I am an international student from a city called Enugu in Nigeria. I will graduate in the spring of 2022.
Alumni and Industry Advisory Board member Julia Saulino was honored this spring with the Providence Business News (PBN) “40 Under 40” award for her work as founder and president of the Financial Lift for Young Adults with Cancer (FLY) Foundation. The FLY Foundation provides cost-of-living assistance to young adults (ages 19-39) in Massachusetts and Rhode Island who are going through cancer treatment.

Saulino, currently the Six Sigma Director for Raytheon Missiles & Defense Naval Power business, started her foundation after her own experience as a cancer patient at the age of 29. As Saulino is quick to point out, young adults make up less than 10% of all cancer patients, but are least likely to survive, and have less financial resources to bear the burden of cancer. To date, FLY has helped over 342 individuals, who without that help might face financial ruin.

Saulino notes that the COVID-19 pandemic presents additional challenges for cancer patients; due to the immunocompromised state many patients are in, more are required to avoid the workplace (or even require their partners avoid the workplace), introducing additional income-related financial pressure.

For Saulino, the FLY Foundation is an extension of her gratitude and desire to give back: “My life experiences have infused me with a huge amount of gratitude and perspective,” she says. “I felt compelled to pay it forward and am appreciative that we’ve had the support to help so many people.”

The COVID pandemic has also offered Saulino new perspectives on life and work balance. Says Saulino: “I currently work exclusively from home. Most of my work days are spent on Zoom meetings and teleconferences. While the interpersonal connections made through handshakes and workshops are hard to achieve remotely, there is an efficiency gain I have tried to celebrate. My family experiences more quality time together as a family of four on a daily basis due to the simplicity of scheduling and reduction in commuting and business travel. I anticipate that post-COVID my colleagues and I will be more judicious about when business travel is truly necessary, enabling improved balance for many families.”

Saulino still has great memories of the lifelong friends she made at UMass, and the passion for efficiency that inspired her engineering studies: “Industrial Engineering provided me with a great base of tools that I’ve carried into a number of different roles in industry including Operations, Quality, Supply Chain and now Six Sigma.” As an MIE Industry Advisory Board member, Saulino is excited to mentor young engineering students with that same passion, while advising the department on its program objectives and promoting its industry engagement.
Academic Advisor Dorothy Adams Retires After 21 Years

This June Professor Ian Grosse organized a surprise, “socially distant” retirement party for MIE’s beloved academic advisor of 21 years, Dorothy Adams. Faculty and staff lined a bike path of Turner Falls, wearing masks and holding signs that read “Time to Par-tee” and “We will miss you!” Adams’ family arranged for her to take a walk at just the right moment to see her assembled colleagues and friends waving her on and wishing her well. Chief Undergraduate Advisor Bernd Schliemann said in a toast to Adams: “you have done an amazing job caring for our MIE students. It has not only made a positive difference in their lives, but it has helped faculty better manage their roles with students. Your positive attitude, friendly smile, and calm persistence has gone a long way towards making MIE better for all of us.” Department Head Sundar Krishnamurty noted that “it is not an exaggeration to say that (Adams) has been the face of the department to all our students—undergraduates and graduates. Dorothy is their problem-solver.” Adams has advised MIE undergraduate and graduate students for over two decades, during a time when the department has grown exponentially. In a book of well wishes from colleagues assembled by Bernd Schliemann and gifted to Adams, Administrative office Sharon Como wrote: “I’m one of the few staff members that can say they’ve known Dorothy since she was first hired in MIE. During that time, she always puts the students first, knows the answers to my questions, and gives great advice on how to deal with unusual situations when they come up. She has helped make our student’s journey a more manageable and rewarding experience. The students were lucky to have her on side, the department has been lucky to have her in MIE, and I’ve been lucky to have her as a friend.”
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