Once an aspiring test pilot, Casey Brown ’16 pivots to building ocean-exploring drones.
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A SEA CHANGE

Once an aspiring test pilot, Casey Brown ’16 pivots to building ocean-exploring drones.

BY KRISTEN O’REILLY | PHOTOGRAPHY BY JIM GENSHIPER

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38 SENSE OF PLACE

Researchers, uses immediate feedback to improve learning outcomes.

ASSItments, a free educational platform developed by WPI

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A POPULAR FEATURE NEEDS YOUR HELP

You might think that in a world awash with social media, where we share personal and professional news immediately with very little effort, the Class Notes section of a magazine like the WPI Journal might be considered anachronistic. Yet industry reader surveys have indicated time and again that Class Notes is one of the most popular features of any university magazine, especially at small- to medium-sized institutions.

A look at Google Analytics shows a trend reflected in the digital WPI Journal. The Class Notes section receives the most page views of any feature—by far. Sometimes twice as many views as the nearest most popular page (at least a $1 million file for use in an account specifically set up for this purpose: classnotes@wpi.edu. And as a bonus, include a photo, too (at least a 1MB file). The Class Notes section of a magazine like the WPI Journal can share personal and professional news immediately with very little effort, the Class Notes section receives the most page views of any feature—by far. Sometimes twice as many views as the nearest.

Despite this popularity, we’ve been running light on this type of content lately. So, dear reader, here’s a plea to send in your news to keep your fellow alumni updated on what’s happening in your life. It doesn’t have to be a major milestone (although job changes and weddings are always good fodder). Perhaps you ran into a classmate and shared a fun memory, or you published a long-awaited book, or met a personal milestone.

Sometimes we’re alerted when WPI alumni are featured in traditional news outlets because we monitor their alma mater, and that information is converted into a note. But there’s plenty of news we miss—yes, I know erratum who’s been featured somewhere lately who’d send a link to the story and we’ll check it out. They may even be considered for a larger profile in an upcoming issue.

Some schools use class agents to collect and write the news of their classmates, and the results can take up a huge chunk of each issue. Although that’s not the WPI tradition, you can help keep your fellow alumni informed by sending a quick email to wpijournal@wpi.edu. And as a bonus, include a photo, too (at least a 1MB file). The Class Notes section of a magazine like the WPI Journal can share personal and professional news immediately with very little effort, the Class Notes section receives the most page views of any feature—by far. Sometimes twice as many views as the nearest most popular page (at least a $1 million file for use in an account specifically set up for this purpose: classnotes@wpi.edu.

Wishing you health and happiness this summer.

Kristen O’Reilly
Editor

“WPI’s investment in additional financial aid for students has grown by over $20 million, to a $122 million annual aid budget, an important step in increasing affordability and decreasing student debt. We also continue to raise the bar for teaching and learning as we infuse value creation and innovation into who we are and what we do at WPI.”

At press time, a month into my service as interim president, there is already much to reflect upon and still more to look forward to in the year ahead. As we navigate this presidential transition period, the WPI community continues to amaze and to inspire me.

From the celebration of Alumni Weekend to review and planning meetings with the university’s academic and administrative leadership team to day-to-day business across campus and around the world, I see clearly that we are well-positioned to continue our progress.

The many institutional strengths reflected in our strategic plan, Lead With Purpose, will ground us as we confidently enter into this new stage of our history. We continue to increase our efforts in diversifying our student population. WPI’s investment in additional financial aid for students has grown by over $20 million, to a $122 million annual aid budget, an important step in increasing affordability and decreasing student debt. We also continue to raise the bar for teaching and learning as we infuse value creation and innovation into who we are and what we do at WPI.

It is important to note that the distinctiveness of our work and the strengths of our foundation and approach to education were most recently recognized by the New England Commission of Higher Education in its report continuing WPI’s accreditation.

In my conversations these past weeks, I’ve been struck with how all our stakeholders are consistent in what they value and cherish about WPI. Of course our distinctive project-based learning is noted with pride, as well as how faculty address global challenges in their research—fittingly called “research with a purpose”—and involve the next generation of young scholars and changemakers in that mission.

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It is my great honor to be part of the WPI community in which there is respect for each other, where we work every day to be an inclusive community that’s committed to innovation that is making a difference in the world. We aspire not only to be good, but to be good for something bigger than ourselves. Let us continue to walk in this direction, together.

Cheers,
Wole

A QUESTION FROM A PROUD ALUMNUS

It is with sadness that I read of Todd Akin’s passing in the Journal. He was a friend and fellow classmate of mine in the management engineering degree program. I noted that you had titled his degree MG, which I believe was added several years after our graduation. Is this now the encompassing degree designation for all management-related programs?

Todd was proud of his WPI management engineering degree and if my recollection is correct was listed as such in his US Congress biography. Dave Emery EE was another from the Class of ’70.

I am proud of my WPI management engineering degree and as other students who undertook the same course and found it a springboard to many different careers.

The recent changes in the Journal are excellent and show a great deal of craftsmanship.

Kindest regards,

Greg Backstrom ’70
Editor’s Note: MG is legacy coding for management engineering majors. The registrar, and therefore our alumni database, now uses MGE for that major.

LETTERS
HOW COOKING OIL COULD BE USED TO PAINT YOUR HOUSE

In Chemical Engineering Professor Mike Timko’s lab, things aren’t always what they seem. Bamboo plants, sewage sludge, and yard and food waste are not only reused, they’re made into something else entirely: fuel to power cars, trucks, and generators, and energy to heat homes.

Now Timko and other researchers have discovered a new method to turn used cooking oil into chemicals that could be made into paint or, potentially, plastic products. The discovery could help lessen reliance on petroleum and find a renewable alternative.

The innovation comes from the use of ZSM-5, a different type of catalyst than had been used in past research. The WPI team started with palmitic acid, a saturated fat common in cooking oils such as olive, soybean, sunflower, and palm oils; in other natural products such as dairy and meat; and in many skincare products.

Researchers then added the catalyst and a small amount of water to the mixture. “When you combine nano-scale catalysts and water,” says Timko, “you get a sweet spot where you have a more rapid conversion and selectivity for these chemicals.”

They turned up the heat—bringing the mixture to 400 degrees Celsius—and used a pressure cooker to keep the water from escaping the mixture by turning it into steam. “The pressure cooker doesn’t let steam out,” says Timko, “it just keeps building up pressure. When you do that, the properties of water change.”

The interaction between the catalyst and the pressurized water promotes formation of industrial chemicals, known as one-ring aromatics. Other components, such as pigments, are then added to the mixture to make the paint. The next steps include evaluating the technology in a continuous process and then added to the mixture to make the paint. The next steps include evaluating the technology in a continuous process and incorporating oil that’s been used in the cooking process, rather than using a model compound.

Researchers from the University of Massachusetts, Syracuse University, Exxon Corporation, and the University of Bath (United Kingdom) contributed to the study, which was partially funded by a National Science Foundation grant to Syracuse University.

Sharon Gaudin and Lisa Eckelbecker

ROBOTS PROVIDE HELPING HANDS TO NURSES

Inspired by healthcare needs during the COVID-19 pandemic, Assistant Professor of Robotics Engineering Jane Li is leading a team of researchers on a project to develop advanced remote-controlled humanoid nursing robots that can help medical workers care for patients who are in quarantine or isolation.

The researchers, who expect to begin testing a new prototype this summer, are aiming to develop a user-friendly robot that can perform nursing-related tasks in settings where a high risk of contagion or infection threatens the health of nurses.

Although medical robots are used in major hospitals today, Li says, they are difficult to learn to use and difficult to operate, which often increases nurses’ workloads.

To solve this challenge, Li is continuing development of a Tele-Robotic Intelligent Nursing Assistant (TRINA), a mobile, humanoid robot that has arms equally strong and gentle to transport medications or infectious samples, help patients adjust their positions, and even lift and carry patients. TRINA was developed at Duke University in 2016; Li was a postdoctoral researcher on the project.

According to Li, TRINA could benefit patients as well as healthcare staff who are dealing with an aging American population and a persistent nursing shortage.

“I understand the heavy workloads and the stress that nurses encounter, and their fear of being exposed to infectious diseases as they care for patients,” says Li, who is principal investigator on the project and director of WPI’s Human-Inspired Robotics Lab.

“These TRINA robots can relieve physical and emotional stress on healthcare workers. We are hoping this will revolutionize patient care, a benefit that can extend to in-home care and clinics.”

The project is funded with a three-year grant of $731,329 from the National Science Foundation in conjunction with the Centers for Disease Control and Prevention’s National Institute for Occupational Safety and Health.

Li is working on another project with co-principal investigator Cagdas Onal, associate professor of robotics engineering and director of the WPI Soft Robotics Lab, to create haptic gloves—wearable devices that will enable the nurse operating the robot to feel what the robot senses and to better control the robot’s movements. The haptic gloves will enable nurses to direct the robot’s hand movements in real time.

Onal, whose research has focused on creating strong, but soft, robotics, says the haptic gloves are designed for high accuracy of mirrored movements, enabling the robot to replicate the nurse’s hand gestures in real time.

“It will enable the nurses to feel as though they are doing these tasks in person,” he says, “while avoiding being in potentially dangerous conditions.”

Sharon Gaudin and Lisa Eckelbecker
A group of researchers, led by Elke Rundensteiner, has developed a highly effective technique for analyzing voice recordings for signs that a speaker is depressed, an important advance that could alert physicians and other clinicians to people who need help.

Audio-assisted Bidirectional Encoder-Representations from Transformers (AudiBERT), the system developed by the researchers, leverages the words a speaker uses as well as the speaker’s tone, says Rundensteiner. William Smith Dean’s Professor of Computer Science and founding director of WPI’s Data Science Program.

“Clinicians can detect depression and other mental ailments based on the content and tone of interviews with patients,” Rundensteiner says. “With deep learning data science techniques, we have developed a digital technology that examines a speaker’s words and tone for signs of depression. If widely deployed, this tool could dramatically expand mental health screening at low costs.”

The researchers’ innovation was selected for presentation in November 2021 at the Association for Computing Machinery Conference on Information and Knowledge Management, where it received the Best Applied Research Award. The authors are Rundensteiner; Email Tor ‘21 (PhD), previously a graduate student in computer science with Rundensteiner and now WPI assistant director of academic research computing; and MC Tlachac, a PhD student in data science with Rundensteiner.

AudiBERT also addresses a critical research challenge: relatively few voice data sets exist that have been labeled for indicators of depression. This limits the amount of data available for training deep learning models, a type of machine learning that automatically analyzes raw digital data to produce a model that can make predictions. Generally, more data leads to better models.

“Voice recording technologies are everywhere, from our smartphones to digital home assistants, but privacy concerns about recordings mean that it’s difficult to find large voice data sets that have been labeled for signs of mental ailments,” Tlachac says. “We set out to innovate a depression-screening solution that could be trained, even using small data sets. In addition, we wanted to demonstrate that voice is an excellent modality for screening.”

**POWERFUL MICROSCOPE TACKLES SEMICONDUCTOR CYBERSECURITY**

WPI researchers led by Patameleon Ganji have installed on campus a powerful microscope that is the first of its kind in New England and a critical piece of equipment in the development of a research center focused on semiconductor cybersecurity.

Ganji, assistant professor in the Department of Electrical and Computer Engineering, and other WPI researchers will use the new photon emission laser fault injection microscope for research, teaching, and collaborations with academic and industry researchers as part of a three-year project. These microscopes use infrared light and high magnification lenses to examine semiconductors such as computer chips.

**LITHIUM-ION BATTERY UPCYCLES BETTER WIN PROJECT AWARD**

WPI’s commercialization of a lithium-ion battery upcycling process invented by researcher Yan Wang has been awarded the Better World Project Award from AIFM, the Association of University Technology Managers.

Sixty-five applicants from seven countries competed for the award, which recognizes technology transfer professionals who support a better world through the commercialization of academic research.

“Some U.S. semiconductor companies with global supply chains rely on foreign makers to produce electronic chips and boards that go into smartphones, computers, satellites, cars, self-driving cars, and more,” Ganji says. “It’s important to ensure the integrity of those devices as they move through supply chains. With this microscope, we can inspect electronic chips at the level of individual transistors, which enables research into how the industry can secure and safeguard semiconductors from malicious tampering, counterfeiting, and physical attacks.”

The microscope and project were funded by a $360,608 National Science Foundation grant.

WPI researchers who are collaborating on Ganji’s project are Assistant Professor Ulukhan Gules, Professor Patrick Schaumont, Professor Berk Sunar, and Assistant Professor Shalin Tajik, all of the Department of Electrical and Computer Engineering.

The microscope was installed at WPI’s Veerman Lab as the university develops a new research center focused on the security of semiconductors and hardware that are critical to key innovation industries. WPI has been awarded nearly $1 million by the state to acquire additional equipment for the center.

The team has reached out to potential research collaborators through annual industry-academic New England Hardware Security events co-organized by WPI. In addition, the researchers are developing a new WPI course for students who will be working with the microscope.

**SEMICONDUCTOR CYBERSECURITY**

WPI researchers led by Yan Wang have recognized more than a decade ago that lithium-ion batteries were powering everything from cell phones to electric vehicles, and that a better recycling process was needed to reduce waste from old batteries and recover materials for new batteries,” says Todd Keiller, director of the Office of Technology Commercialization. “His innovation, which was patented and led to the creation of a new clean-tech company, perfectly illustrates WPI’s emphasis on research and its application to address critical problems.”

The world’s reliance on lithium-ion batteries and the problem of discarded batteries are expected to grow substantially in the coming decades. Forecasts suggest that 4 million metric tons of lithium-ion batteries will be manufactured for electric vehicles over the 25-year period ending in 2040, and 21 million battery packs could be discarded.

The process invented by Wang, William Smith Dean’s Professor in WPI’s Department of Mechanical and Materials Engineering, shreds old lithium-ion batteries, treats them chemically, and recovers precursor and cathode materials for the manufacture of new batteries. WPI worked with Wang to protect his discoveries, filing the first patent application on his technologies in 2012. His discoveries are now at the core of a spin-off company that is planning to establish large battery recycling and processing centers.

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NEW ZETA PHI BETA CHAPTER
Fosters Community for a Lifetime

A college campus often offers an immediate family for students fortunate enough to make those kinds of close connections. Noelle Morgan ’22 knew a Zeta Phi Beta sorority chapter at WPI could offer that kind of transformative support system—so she started one. After nearly three years of coordination and work, the Zeta Phi Beta, Inc., WPI chapter launched with a showcase ceremony and an induction this spring. Motivated by a firsthand insight of the powerful bonds within Greek communities, Morgan navigated the complicated process of working with WPI and the national Zeta organization to establish the sorority at WPI. Despite having to do some of the tasks while students were working remotely during COVID, she persevered and everything fell into place right before her graduation.

Throughout her childhood, Morgan says she was intrigued by the strangers who greeted her parents like old friends based entirely on the letters they were wearing on their clothes. “They would run into strangers on the street, and it was like instant family,” she recalls. “I experienced how much of a community it can foster among strangers, let alone a community in a college. I wanted that at WPI.”

Morgan, who graduated in May with a BS in electrical and computer engineering, knew having that kind of security and support in college would benefit her. And starting the historically Black Greek letter organization at WPI would be an advantage to the university as a whole.

“This was to make sure there was a community for Black and Brown women on campus—to have a sister to look after you and support you,” she says. “This is what I wanted to create here. If something happens, you have someone you can contact and someone who can take care of you in ways that other people might not know how to do. I hope this encourages other Black and Brown women to choose WPI for their undergraduate degree because they too look for that when looking at colleges.”

When the sorority begins its first full academic year this fall, Morgan will participate as first president. Desir, who learned of the sorority and jumped at the chance to get involved, says the feelings of pride and excitement permeated the new chapter, other chapters of Zeta Phi Beta Sorority and the other organizations of the National Panhellenic Council.

“It was a Cinderella story,” says WPI Hall of Fame coach Jason Steele. “The foundation was laid years ago—there are a lot of seniors in that boat who worked very, very hard over a long period of time. The most important thing was that in the pursuit of believing they could do it, they actually started to really believe it.”

WPI and its athletes have also been recognized. Three WPI spring athletes won NCAA awards for highest GPA.

Women’s Varsity Eight Rowers Capture Second NCAA Championship in WPI History

The women’s varsity eight rowers elicited their names in WPI history by capturing the university’s first women’s NCAA championship. The boat of Melissa Bazakos- Chamberlain, Alexandra Helene, Megan Tapi, Caitlin Kean, Lilly Earley, Marin Cork, Emily Adams, Ashley Schuliger, and coxswain Logan Rinaldi dominated the NCAA Division III 2,000-meter championship race, leading from start to finish. They join Eric Meerbach ’87 (1986 NCAA Division III Men’s Golf) as the only NCAA champions in WPI history.

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LEAVING A MARK

PHOTO BY MATTHEW BURGOS

The Business School launched an executive PhD program specifically designed to give executives greater influence on the challenges and opportunities in their industries, combining their life experiences with rigorous academic research to effect change, particularly in support of social justice and diversity, equity, and inclusion initiatives.

“The Business School continually aspires to meet the needs of today’s highly dynamic world, in which social justice and diversity continue to emerge as critical factors in a company’s vision,” says Debora Jackson, dean of The Business School. “The Executive PhD program will ensure that leadership professionals have the critical skills necessary to make meaningful contributions in the ever-changing global business landscape.”

The program helps experienced executives advance their own careers, become thought leaders, and make scholarly contributions through which they can have a greater impact on their fields. The executives’ research can also benefit junior colleagues by giving them another tool to increase their occupational knowledge and help grow their careers. The first classes for the new PhD will be held in fall 2022 and students will be able to choose one of three concentrations—Entrepreneurship, Information Technology, or Operations Management.

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High up in the cramped projection booth that services Upper Perreault Hall in Fuller Labs lives an echo of the movie industry’s past: two vintage Norelco DP70 (AAII) film projectors built in the 1950s and donated to WPI by National Amusement Inc. in 1990. The fully functioning analog film projectors—one of only four sets still operating in the state—are lovingly maintained and run by members of Lens and Lights (LNL), the 60-year-old student-run group best known as the audio/visual experts on campus.

The students view their mission to operate and preserve the projectors—and the craft of the projectionist—with pride. Former Head Projectionist Kyle Mikolajczyk ’22 says he and his compatriots feel a deep responsibility for passing on the specialized knowledge they learned from previous generations of students so the WPI community can continue to experience movies in what they consider the optimal format.

“There is a lot of pride in learning a skill that only a few people still know how to do,” says Mikolajczyk, who joined LNL as a first-year student without any previous knowledge or experience. “We also share an appreciation for what we see as movie-viewing perfection.”

The projectors, which can show both 35mm and higher resolution 70mm films, always come in pairs. Only 40 minutes of film can fit onto one giant reel, so about a third of the way into an average two-hour movie, the projectionist must start the second machine at exactly the right time for the transition to go unnoticed by the viewing audience, a maneuver known as the changeover. Then, in the darkness of the projection booth, the first machine must be reloaded with the next reel to be started 40 minutes later.

“There’s a real art to it, and a little bit of stress, to get it right,” says Mikolajczyk. In club meetings, LNL members often stage practice races to see who can thread the machines the fastest. Since films are transported from distributors in smaller 20-minute reels, members also must master the ability to inspect and splice the celluloid strips together to form the larger reels before showtime, and then deconstruct them after the show so they can be returned to the distributor.

There’s a homemade operator’s manual and some YouTube videos students can reference in a pinch. But often a shoutout to a forum of LNL students, alumni, and other film projector aficionados will solve problems quickly.

A Guardian Angel

Because the equipment is old and obsolete, repairs can be costly and parts difficult to find. LNL keeps a third projector in storage that can be cannibalized for parts, and club members often do their own maintenance and minor repair work. But sometimes the students need professional help, such as when the lampshades and arc lamps had to be replaced recently—an expensive and dangerous task that requires skilled expertise.

Luckily, the group has a guardian angel of sorts—Chapin Cutler, an original LNL member who went on to found Boston Light & Sound (BL&S), a 40-year-old company known nationally as technical experts for the film industry.

Cutler, whose father was a graduate of the Class of 1937, started his educational journey at WPI in 1962, but found the lure of Worcester’s movie theaters to be irresistible. “I was all over the town as a projectionist—you had to be 21 to get a license and I was still a teenager, so I was learning all I could. I was far more interested in hanging around projection rooms than doing my homework.” He ended up transferring and received a degree from Emerson College, which fit his artistic passions better, as well as a second degree from Wentworth Institute of Technology. In 1977, he and Larry Shaw founded BL&S to perfect a way to show high-quality projections on on-location film dailies.

Although LNL will hire technicians from BL&S for major repairs, club members often attend these service calls so they can ask questions and learn more from the masters.

LNL also operates a digital projector, now the industry standard, out of the same projection booth. But purists say film’s contrast and resolution is far superior to modern digital technology. And in a world where most people watch movies in a home theater, it’s also a throwback to the spectacle of the movie theater days.

“When I started in the business in the 1960s, movies were run in palaces, or single screen theaters, and there was a sense of showmanship that went into the way that shows were presented,” says Cutler. “What LNL is doing, in its own way, is keeping that showmanship alive. It’s become one of my passions, and my company’s passion, to pass on those things that we have learned. To me, I’m keeping alive part of what those old Irish guys who came out of the silent film days taught me as an 18- to 20-year-old in those Worcester movie theaters.”

—Kristen O’Reilly
Balancing an elite sport while looking for a college is tough, but narrowing your parameters to include an engineering school and a niche sport like synchronized skating! Methodical investigating and planning are only the beginning—you then have to get into both places.

For Tessa Lytle ’23, both specialties had to be on the table. So when she found the academics she wanted at WPI and the competitive skating at the Lexington, Mass.-based Hayden-Synchro School, everything started to fall into place. After simultaneously applying to WPI and trying out for the Haydennes, an elite-level synchronized skating team that trains at the Skating Club of Boston in Norwood, Mass., Lytle was accepted by both. “I didn’t know I wanted to study engineering until my junior year of high school,” says Lytle, but she had been a national competitor in the sport of synchronized skating for years. Now she’s making the best of both opportunities.

Lytle says WPI’s project-based education appeals to the way she learns and how she prefers to work. At WPI, she’s in the BS/MS program to team both mechanical engineering degrees in four years, and she’s also on the executive board of several campus clubs and organizations including as president of the WPI chapter of Engineers Without Borders.

Always Skating
An Idaho native, Lytle didn’t connect with skating until her family moved to New York City and lived near the Bryant Park skating rink. “My mom bought us all skates, and from my window, I could see if there was a line and just head over,” she says.

Calling her early approach to skating a “skate fast and fail a lot” method, Lytle’s knees frequently sporting therapeutic ice after even a short time on the rink. At first, Lytle began with freestyle skating, which includes attention-getting jumps and spins. “Those are challenging mentally,” she says, “but I liked the skating skills it required.”

She was drawn to the grace of other skating styles, particularly the rhythms of skating with a large team moving as one. “I get the consistency of it, and there’s something very calming about it,” she says. Focused choreography and frequent practice ensure the skaters all move together for visual effect and safety, as one off-kilter move could impact everyone. “When you’re so close together, you can’t be worried about hitting each other,” she says.

As a competitive skater, Lytle maintains a precise training and performance schedule with the Haydennes around all of her courses and projects. Despite the high-intensity academic and skating workloads, Lytle says each provides excellent balance to the other. “Skiing can be a cause of stress, but it’s also a huge distraction,” she says. “When I am on the ice, I can’t think about school because there are 20 other people out there I don’t want to run into.”

Managing a Complicated Schedule
The balancing act that Lytle has managed to maintain has worked out for the most part, mostly because of her fierce determination to do it all. It’s a schedule that would make most people cover. After an hour drive to the Skating Club of Boston rink, Lytle hits the ice by 6:30 a.m. four days a week. After practice and required ballet and fitness training, she’s back on campus around noon. One day a week, practice is in the afternoon. In the early days, it took some complex maneuvering to successfully dovetail a course schedule and a training and competition schedule. “It was high pressure, but gave me an opportunity to do well,” she says.

Now, her higher level courses offer more flexibility and a level of learning she appreciates. “Mechanical engineering is so broad,” she says, “that if I were off in one direction, I am still within my field.”

In her Intro to Engineering Design course (ME2100), she worked with a five-person team to create, and eventually race, an autonomously driven radio-controlled car. Whether her team was designing the car’s components or working on sensor software—or anything in between—they overcame challenges to race the car. The thrill of success was real, she says. Her Interactive Qualifying Project related to climate change and national parks and she is eagerly anticipating her QIP, which will involve 3D-printed humanoids robotics.

Her advisor, mechanical engineering professor Pradeep Radhakrishnan, guides her focus so it is on professional understanding, not just a high letter grade (and he has even attended some of her competitions).

Remote Work and Resilience
When COVID caused many of Lytle’s foundation courses to go remote, she missed some important aspects of her education. “Taking fundamental engineering courses online didn’t give me the hands-on experience that’s expected of you. When I came back in person for my higher-level courses, I was missing some basic tooling and soldering skills that you were expected to already have. There was a clear gap in user knowledge—due to online courses and the pandemic,” she says. But with WPI’s open access to labs and a little help from a friend, Lytle caught up on the tools and processes she needed to know.

Even though some of the learning was intimidating, the individual mechanics lab work was freeing. “I could tear something apart, put it together, have it not work, and there was no one looking over my shoulder to see if,” she says, noting reassessing a bathroom scale was especially difficult.

Throughout the challenges of skating and academics, Lytle has found her groove. “I am a very high-achieving person,” she says, “and I’m very competitive. But I try to be more carefree and realize not everything is going to work out.” Lytle says she no longer feels she has to ace every single course or lead each student organization she’s in. “I’m figuring out what really matters,” she says.

Spontaneity, although hard to come by, offers perspective while her community offers support. “One night, I was in a meeting and we got out at 8 p.m.,” she says. “I had hours of work ahead of me, and I needed to get sleep on time. But one of my friends said, ‘Hey, let’s go get bubble tea.’ It threw her schedule out of whack, but she went—and her friends noticed. ‘They said to me, ‘Tessa, your time is so valuable, and we appreciate you coming out with us.’ I got home and I thought, ‘That was definitely worth it.’”

As Lytle considers her future—including skating and possibly WPI’s PhD program—she knows both passions will be part of her routine. “I am OK to throw some stuff out there and see where it lands,” she says. “I am OK with some stuff not working out. I am someone who does a little bit of everything. When it works out, I can focus on that thing. When something changes, I have a lot of other things I am interested in.” And those interests will guide her to a meaningful life after WPI. “I want to be the person to make things happen,” she says. “I don’t want to be the observer.”
LAUREN TURNER, PHD, JOINED WPI AS SENIOR VICE PRESIDENT OF TALENT & INCLUSION AND CHIEF DIVERSITY OFFICER IN JANUARY 2022.

What excites you about this role at WPI?
When I came to campus for my interview, I was excited by all the people I met. I love that WPI is a STEM school that cares deeply about making a positive difference in the world. WPI prepares graduates to be better civic contributors and better employees because they learn human skills, like how to work with people, how to communicate, and how to collaborate. It’s a values-based way of teaching STEM. I was also excited because I learned early on about WPI’s strategic plan and how it is bookended by two pillars based in equity: access and inclusiveness.

The fact that talent, inclusion, people, and culture are included in this position excited me as well. When we’re talking about DEI, we’re talking about representation, which should be reflective of the available labor force and available pool of prospective students from which we are drawing. When you bring people together, they need to have experiences where they can engage fully, build respectful relationships, truly feel a sense of belonging, and be successful.

Shortly after you started at WPI, President Laurie Leshin told you she was leaving. How are you supporting the presidential search process?
Laurie told me on my third day that she would be leaving WPI. But organizations change and leaders change—It’s what happens at every institution. I pretty quickly pivoted to, “What’s the plan for transition?” She asked me to work closely with Trustee David LaPre ’76, chair of the Presidential Search Committee, and it’s been a great experience so far. We’re working to facilitate a process that’s inclusive, and I’m confident we will attract a great pool of candidates from which to select WPI’s next leader. As we were creating a specifications document, we held dozens of listening sessions that included many WPI stakeholders—faculty, staff, students, parents, alumni, and trustees. I learned so much about WPI through these sessions, things that normally could have taken me years to learn. It’s been a lot of work, but it’s given me a great perspective.

Your PhD dissertation focused on diversity management practices. Why is this subject so important to you?
I earned my PhD late in my career, in 2018, and that work has informed my practice. But in a lot of respects, my practice informed my PhD work and dissertation. What I found in my research was that chief human resources officers who have higher levels of cultural intelligence are more likely to support the establishment of diversity and inclusion practices at their institutions. They also are more likely to engage in transformational leadership behaviors that influence other institutional decision makers around DEI. That’s really the essence of why I got into this business 40 years ago.

What might people be surprised to learn about you?
Sometimes people are surprised when I talk about how strongly I feel that every lever matters when it comes to DEI, and that we need to be thinking about DEI every single time we make a decision so we can create a better, stronger, more inclusive, and more engaged community.

On the personal side, I am the fifth of seven children and my family often struggled financially. My parents didn’t have the opportunity to go to college—in fact my dad didn’t finish high school—but they understood the value of education, so much so that when I married my husband at age 18, I made a commitment to them that I would go to college.

I began working at Mount Holyoke College in the 1980s as a receptionist in the Office of Personnel Services. I earned my undergraduate and master’s degrees as I moved up the career ladder of the human resources business. I moved to UMass Lowell in 2011 and pursued my doctoral degree while serving as senior associate vice chancellor for HR. I received my PhD in 2018, just six months before my dad passed away, but he was there to witness what for me (and him) was an important life accomplishment. My husband and I have been married for 42 years; we have two daughters, ages 35 and 33, one grandson, age 4, and another one on the way.
Since its inception in 2000, the Worcester Community Project Center (WCPC) has given students the opportunity to complete hundreds of projects, from creating a data collection tool for Habitat for Humanity and building an app for a directory of substance use and homelessness resources to developing adapted, custom-crafted weaving looms for refugee artisans from Bhutan and Nepal. Now, more than 20 years later, the center is tackling something new: giving students a global experience in a local context through the Local Latino Projects Program.

“I firmly believe that WPI students can have a global experience without ever stepping on a plane,” says Aarti Smith Madan, associate professor of Spanish and international studies. “This experience has the potential to change how they view not only [the local Latino] communities but also themselves and the United States.”

The idea for the Local Latino Projects Program came about in 2020, after WPI’s Latin American & Caribbean Studies group earned a six-figure grant from the U.S. Department of Education to build out its undergraduate curriculum, which included a focus on deepening inroads into Worcester’s Latino community. Madan used her past role as chair of the Community Impact Committee of the United Way Women’s Initiative to connect with local Latino-facing organizations to assess their needs and interest in working with WPI students, simultaneously giving students the chance to meet academic project requirements, whether through project work or in pursuit of a minor in Latin American & Caribbean Studies. Madan shared her findings of interested organizations with WPI stakeholders and quickly connected with WCPC Director Laura Roberts. Rather than build an entirely new project center, they agreed to house the first two projects (collaborations with the Latino Education Institute and El Buen Samaritano) under the WCPC umbrella.

In addition to Madan’s hopes that the project work will help students “come to appreciate Worcester as a global city of immigrants,” Roberts adds, “I hope they gain a sense of agency and responsibility to use their time and talents to benefit the local community and that they will go on to be more community and civically engaged in their lives beyond WPI.”

If the experiences of students who worked with El Buen Samaritano—a nonprofit food pantry that has also provided clothing, housing support, translation services, immigration assistance, and other services since 1991—are anything to go by, they’re doing exactly that. Chris Cook, Janie Leung, Olivia Rockrohr, and Caleb Talley, all members of the Class of 2023, worked together to design a digital system to improve the organization’s inventory system to minimize redundancy and better record and analyze data so they could expand their services.

All four students cited the desire to get to know the Worcester community better as their primary reason for completing a project at WCPC—Rodríguez, however, turns it up a bit. “The whole experience made me feel more like I was part of the Worcester community instead of a student just attending WPI.”

The team members immersed themselves in working with El Buen Samaritano, completing their project work as well as assisting with the organization’s weekly food pickup and distribution. It made for an engaging, multifaceted experience, and one where even the smallest interactions had the potential to become the most memorable.

Cook, for instance, recalls that his favorite memory of working with El Buen Samaritano came from one of those pickup and distribution trips. “One day, when driving back from the Worcester County Food Bank, I had a conversation in Spanish with one of the workers about life,” he says, explaining that his work through the WCPC allowed him to improve his confidence in speaking Spanish, something he plans to continue to utilize after graduation. “It was just a really nice experience.”

—Allison Racicot
Metallurgist Elwood Haynes Changed the Way We Travel

The oldest member of the WPI Class of 1881, Elwood Haynes was noted by his classmates for his serious demeanor and for always being in a hurry. He was consistently frustrated by the rusty blades of cutting tools and, while a student, he began to experiment with new alloys. In the 1881 yearbook’s Class Memories, his classmates noted that he was a “manufacturer of tungsten blades.”

Haynes championed the use of natural gas to heat homes and businesses, and in 1886 he was named superintendent of Portland Natural Gas and Oil. Tasked with overseeing the construction of a 10-mile pipeline, he conceived of a mechanical-powered buggy that could traverse the rough and sandy roads better than a horse could.

His early automotive designs included furnace- and electric-powered engines to no success. At the 1893 World’s Fair, he saw a demonstration of a gasoline-powered engine and ordered one for his experimental design. He first drove his experimental car, The Pioneer, on July 4, 1894; it was the second gasoline-powered car driven in the United States and the first designed exclusively to operate under mechanical power. Haynes continued to experiment with round-roofed alloys for his automobiles and found that adding aluminum to his crankcases helped deaden engine-noise vibrations.

By the time of his death in 1925, he was recognized as an influential metallurgist, automotive pioneer, and renowned inventor. The Haynes Car Company was the first viable automobile manufacturer in the United States; Haynes was named a member of the 75th class of the Automotive Hall of Fame in 2015.

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The creation of steel, a cobalt-chromium alloy, is still used on spacecraft for its ability to withstand high temperatures. A noted philanthropist, Haynes was also passionately opposed to white supremacy groups, which were growing in influence during his lifetime.

—University Archivist Arthur Carlson, assistant director of George C. Gordon Library
Sarah Strauss

PROFESSOR OF INTEGRATIVE AND GLOBAL STUDIES, THE GLOBAL SCHOOL

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This comes from Fribourg, Switzerland, where I spent a sabbatical year studying climate modeling. The chocolate from Villars is wonderful and reminded me of the town where I first studied abroad as a sophomore—Blois, France.

**POSITIONING YOGA**
This book comes from my PhD dissertation work, one of the founding texts for the field of modern yoga studies.

**SNAPSHOT FAculty**

**TSCHAGGÄTTÄ**
This mask is part of a costume tradition from the Valais region of Switzerland, where I have done fieldwork. Figures wearing such masks chase away the evil spirits of winter just before Lent.

**WYOMING COAL**
Less energy content than a similar piece of West Virginia coal, but also less sulfur. There are always tradeoffs. I taught at the University of Wyoming for 24 years.

**GAMESHA**
One of my favorites! Remover of obstacles, he is the Hindu god of beginnings and of wisdom, who brings good luck to new ventures. Here, he’s lounging with a laptop.

**CHICKEN**
The domestic chicken has been suggested as the “type fossil” for the Anthropocene epoch. Humans have now impacted this planet from the bottom of the sea to the top of Everest.

**HAFLINGER HORSE**
I’ve ridden horses since I was 6 years old, but sold my Haflinger, Jax, several years ago. Thinking about getting an Icelandic one next!

**BOOKMARK**
Anthropology is an “interdisciplinary” field, and anything that has to do with humans—across space and through time—is fair game for study.

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A PART OF THE WPI FAMILY FOREVER

President Laurie Leshin oversaw her final Commencement exercises on May 14, the first time graduates were able to gather as a whole class for in-person ceremonies since May 2019. “I leave, as you do, with so many lessons and so much hope for the future of this great university and beyond,” said Leshin, now the first female director of NASA’s Jet Propulsion Lab. Then she asked the class to do her a favor: “Would it be okay if I consider myself a member of the Class of 2022?” It was a request they accepted wholeheartedly. “You and I will be part of the WPI family forever, and it is this family that makes WPI so special.”
A SEA CHANGE

Once an aspiring test pilot, Casey Brown ’16 pivots to building ocean-exploring drones.

BY KRISTEN O’REILLY
PHOTOGRAPHY BY JIM GENSHEIMER

PHOTO COURTESY SAILDRONE
The Saildrone manufacturing facility is abuzz with activity on a balmy late-March day. Its huge open doors letting in the breeze from nearby San Francisco Bay. Mechanical engineer Casey Brown ’16 is giving a tour of the gigantic, historic airplane hangar at the former Naval Air Station Alameda on the banks of Seaplane Lagoon. Where 80 years ago workers assembled aircraft for the U.S. war effort, now more than 150 Saildrone employees are building uncrewed surface vehicles (USVs) designed for long-range data collection and surveillance missions in the world’s vast oceans.

Brown’s path to a job in the maritime industry was not a straight one, nor one he even imagined as a student at WPI. He prepared for the life of a future aviator by majoring in aerospace engineering and building a solid resume of internships and flying experiences. Professor Fred Looft introduced him to the Greater Boston Soaring Club, a group of glider pilots who fly out of the Sterling Airport, just 15 minutes from campus, and Brown learned to fly the club’s tow planes under the tutelage of veteran pilot Ritts Howard. “It was a classic old-school airport without the security gates and chain link fences found at most small airports these days. It was the perfect place to complement the classroom theory with the practice of actual flight in both powered and unpowered aircraft,” he says. “Being trusted by the club to tow gliders felt like a big deal, and the promise of a career in the field of aviation made all the challenges of schoolwork feel worth it.”

After his sophomore year, Brown landed a gem of a summer internship, “a total dream-come-true moment,” at Scaled Composites, an innovative aircraft manufacturer in the Mojave Desert. There he met actual test pilots and got a taste for what such a career might entail—both the good and the bad. “Out in the middle of the desert, it’s pretty barren,” says Brown, who grew up surfing and enjoying coastal life in New Hampshire and Maine. “But by trusting my intuition and being willing to try something different, it ended up working out.”

He caught the flying bug at age 14, taking lessons at an airport near his home in Eliot, Maine. Although he needed the height from several boat seat cushions to see out the windshield of a virtual Piper J-3 Cub—a 1940s-era plane with no electrical system or radio—it was “by far the most fun thing to fly,” he says. He soloed at 16 and received his pilot’s license at 17, right before starting at WPI. He prepared for the life of a future aviator by majoring in aerospace engineering and building a solid resume of internships and flying experiences. Professor Fred Looft introduced him to the Greater Boston Soaring Club, a group of glider pilots who fly out of the Sterling Airport, just 15 minutes from campus, and Brown learned to fly the club’s tow planes under the tutelage of veteran pilot Ritts Howard.

“The classic old-school airport without the security gates and chain link fences found at most small airports these days. It was the perfect place to complement the classroom theory with the practice of actual flight in both powered and unpowered aircraft,” he says. “Being trusted by the club to tow gliders felt like a big deal, and the promise of a career in the field of aviation made all the challenges of schoolwork feel worth it.”

After his sophomore year, Brown landed a gem of a summer internship, “a total dream-come-true moment,” at Scaled Composites, an innovative aircraft manufacturer in the Mojave Desert. There he met actual test pilots and got a taste for what such a career might entail—both the good and the bad. “Out in the middle of the desert, it’s pretty barren,” says Brown, who grew up surfing and enjoying coastal life in New Hampshire and Maine. “You really have to commit to the aviation lifestyle and work your way up the ladder for that to be worth it.”

“Two sets of 23-ft. Explorer drone fleets—the smallest of Saildrone’s three USV models—are lined up like soldiers on elevated racks that expose their sleek keels. The bright orange hulls resemble oversized sea kayaks, but instead of space for human paddlers, high-tech sensors and other electronic equipment are stored under solar panel-covered hatches. The bulb and keel stabilize a rotating, rigid sail—essentially an airplane wing mounted vertically—that captures wind and solar power for a carbonless, virtually limitless propulsion system. A T-shaped tail mechanism pierces the sail halfway up, the secret sauce for the USV’s remote, autonomous navigation. CEO Richard Jenkins founded Saildrone to explore ocean frontiers using technology adapted from his successful 10-year quest to set the land-speed record for a wind-powered vehicle. The company’s sailing drones can, among other duties, autonomously map the ocean floor to a depth of 23,000 feet, sail through hurricanes to return data that could improve forecasting, test water quality in the Arctic Ocean, document fish migration patterns, collect carbon data while sailing the Gulf Stream, and serve as the eyes and ears of maritime law enforcement and safety officials.

Passing the small reception area, the 28-year-old Brown notes with nostalgia that this was his first shared office when he started helping design and build Saildrone’s early USVs five years ago when the company had only 20 employees. “I don’t get my hands dirty as much now, but I’m still learning new things and that keeps the future exciting,” he says with the air of a seasoned veteran.

FLYING DREAMS
Brown’s path to a job in the maritime industry was not a straight one, nor one he even imagined as a student at WPI. But he credits his well-rounded education with giving him the confidence and flexibility to pivot in an entirely different direction when he realized his dream of becoming a test pilot or flight test engineer wasn’t going to, well, fly. “That’s probably the most valuable takeaway from WPI. I left college with a diverse skillset that allowed me to try something new without starting all over again,” says Brown. “It was stressful and uncomfortable, and I felt lost and unsure about where I was headed. But by trusting my intuition and being willing to try something different, it ended up working out.”

AN IMPACTFUL GROUP PROJECT
When it came time for his Interactive Qualifying Project (IQP), he secured a competitive spot at the Zurich Project Center, where he bonded with Professor Jerry Schaufeld over their shared flying background. Brown’s project team at NTB Interstaatliche Hochschule fur Technik (Interstate University of Technology) built a manual for constructing and operating
simple heat pump fruit dryers that were sent to Burkina Faso and other African countries to help farmers preserve their fruit and get it to market. He loved everything about the experience: the people he worked with, the humanitarian nature of the project, the ability to travel over Europe on weekends, and—surprisingly—the lack of flying. “My IQP taught me the importance of traveling and being exposed to different cultures and different ways of living. It felt so healthy to get some distance from New England and my aerospace studies and get a taste of how much else there is out there to explore,” he says.

The following summer he returned for a second internship at Scaldrone, but as he worked toward securing his instrument rating (the next step before a commercial pilot’s license), he began to realize that flying was starting to feel less like a romantic dream and more like an expensive hobby.

“When you’re working on your instrument rating, you’re just staring at gauges and fiddling with controls and making sure you can fly safely with no visibility. It was an intimidating challenge, but more stressful than fun,” he says. “It wasn’t like flying along the coastline on a beautiful summer day in New England. This was like work. The long and uncertain ladder to a test pilot slot didn’t look so appealing anymore.”

In the fall, after finishing his senior project, he decided to work with Scaldrone full time. The company’s entry in a design-build-fly competition was unsuccessful, and he wound up in the shop—“It gave me a perfect space to build models, experiment with remote-controlled aircraft, and get used to working with parts,” says Casey. “It was a lot of full days being on the shop floor getting my hands dirty, going back to check the CAD and seeing my designs through to completion.”

Under the direction of a more experienced engineer, he learned a variety of manufacturing methods, such as manual machining and laying up fiberglass in molds, as well as constructing infrastructure for the shop and designing and installing parts for the drones. “I’d get to design in CAD from a notebook sketch, walk out of our little office, cut all the steel on a horizontal bandsaw, lay it out on the floor, and then weld it up. It was a lot of full days being on the shop floor getting my hands dirty, going back to the CAD and seeing my designs through to completion,” he says. “It felt like a bigger version of what I’d always done with my dad in our home shop.”

As an early hire, Brown wore many hats in order to get ahead. “We had no full-time team, no deployment team, like we do now,” he says. “I would help load the drones into shipping containers and then I’d fly out with a small team to meet them where they reached places like Australia or Alaska. We’d work with the local port to unload, assemble, and launch them for deployment. We have designated fit-out and operations teams now that we’ve grown so much, so I’m glad I was here early enough to get a taste of the whole process.”

The newest Saildrone USV is the Voyager, a 13-foot model designed to accommodate larger and more powerful instrument payloads for deep-water seafloor mapping equipment. “There was a lot of development work with big ships and heavy infrastructure. With the demand for our new, more complex vessels growing, we may need to outsource parts of the fabrication work to bigger shipyards as we scale up,” he says. “I would love to be part of that interface. Working on bigger projects would be exciting.”

**NEXT CHALLENGES**

As he hit his fifty-year anniversary, Brown became eligible for a three-month sabbatical, a common perk in modern start-ups. He may, in fact, return to Europe for the first time since his IQP—and he’d planned to visit his contacts at NTB (now OIS) Institut Fractale für Technik that he kept in touch with over the years. After further travels in Africa and Central America, he’d return to the Alameda area rejuvenated and ready for the next challenge.

“I love Alameda, love the family history, love the maritime arena I kind of accidentally found myself in. It feels good to be gaining experience as a more senior engineer,” he says. “There’s still so much to learn about tackling a design problem in the most efficient way.”

He’s also eager to further explore his passion for surfing, both traditional and kitboarding. He’s built several surfboards—one as a pandemic project—and he’s excited to tap the knowledge of some of the former surfboard builders that have been recruited to Saildrone as the company scales up production.

“One of the coolest things about working for a company that’s ocean-focused and environmentally conscious is it seems to attract a great blend of people that have shared interests relating to the work,” Brown says. “A few of these people happen to be high-level surfboard shapers who are happy to share their board design knowledge and tricks for building them. I never thought that I’d become good friends with local surfers and shapers through an engineering job, but it turns out we both want to learn from each other’s backgrounds. It’s given me a growing appreciation for how widely applicable engineering skills are.”

Whether it was fate or happenstance, Brown appreciates his good fortune at finding his current place in the world. “After being mostly uninterested in boats and sailing growing up, I now find myself working in a boatbuilding facility surrounded by sailors, working on the Naval Air Station where my dad was based when he was my age, often kitboarding the same beach where he used to windsurf, which is also where my mom and dad first met,” he says. “If someone told me that’s what I was going to be doing after graduating from WPI, I would have believed them.”
Managing the Strain

Jennifer Headman ’01 uncovers the secret power of microbes, and how they just might save the world.

By Scott Whitney
Photography by Greg Latza
In the early months of the pandemic, millions of Americans found a welcome distraction in the wonderful world of yeast. If Instagram was to be believed, every kitchen across the country boasted a frothing sourdough starter just right for fresh bread and fluffy pancakes. We fed the starter meticulously, we shared tips and tricks over Zoom, we marveled at a world of microbiotics we had discovered. But for Jennifer Headman O’I, it was just another day at the office.

For more than 20 years, she has researched groundbreaking applications for bacteria, yeasts, and enzymes, including environmental clean-up and the development of biofuels. Along the way, she has grown a reputation as a microbiologist with a message: Fermentation can produce far more than delicious baked goods—it might just save the world.

Something Rotten in Denmark

As a high school science student, Headman recalls her earliest introduction to fermentation as closer to alchemy than microbiology. Thanks to a food science class, she discovered what would become a lifelong fascination with fermentation—rates, yields, and how to optimize them—was an exciting experience for her.

“I was looking for an area of research that would make a difference, and biofuels research fell right into my lap.”

We found that certain bacteria could survive in the presence of really high levels of metal. In some cases, they could actually pull metals and other contaminants out of the environment,” she explains. “These contaminated sites weren’t barren wastelands; there were living things present in the soil that we could amplify to help clean things up.” Through the course of that project, she discovered a field of research that would become foundational to all her future work: microbiology that made the world a better place.

Following her graduation from WPI, Headman began her PhD studies at the University of Wisconsin-Madison, and soon after headed to the Technical University of Denmark on a Fulbright scholarship, where she joined a Danish team of scientists focused on fermentation research. The team had access to large-scale bioreactors, allowing Headman to take engineered yeast strains from the bench to production. In retrospect, she credits her time in Denmark with introducing her to the niche field of fermentation microbiology. “Being in a community of people who thought constantly about fermentation—rates, yields, and how to optimize them—was an exciting experience for me,” she recalls. “The new equipment I had access to was necessary to get into those conversations, but I was impacted more by the mindset of the people I was working with.”

She later returned to the University of Wisconsin, where she researched the potential for microbial organisms to clean up explosives and ammunition depots. But sourcing raw materials in the wake of 9/11 proved prohibitive and she soon found herself looking for a new focus for her research. Her search led her to UW-Madison professor Thomas Jeffries—and the beginning of her life’s work.

At the time, Jeffries was working with Scheffersomyces (Pichia) stipitis and Pitharospora paspalodurae, specialized yeast strains found in the stomachs of beetles. With the help of these strains, wood-boring beetles are able to digest a diet rich in xylose, a sugar found in the otherwise inedible portions of grasses, corn, and other plants. He theorized that these yeasts could also be useful in extracting ethanol biofuel from portions of plants that would otherwise be considered waste. Headman threw herself headlong into this line of research, uncovering new ways to put yeasts and enzymes to work in making meaningful change. “I was looking for an area of research that would make a difference,” she recalls, “and biofuels research fell right into my lap.”

Every Part of the Buffalo

As gas prices soar, ethanol blends promise a low-cost, low-carbon alternative to traditional fuels. In the summer of 2022 alone, the Environmental Protection Agency authorized the continued sale of fuels with an E15 blend, representing 15 percent ethanol. But biofuels are not without controversy and many environmental activists argue that ethanol blends are not the panacea they are often purported to be. While corn ethanol may prove prohibitively expensive for most Americans found a welcome distraction in the wonderful world of yeast. If Instagram was to be believed, every kitchen across the country boasted a frothing sourdough starter just right for fresh bread and fluffy pancakes. We fed the starter meticulously, we shared tips and tricks over Zoom, we marveled at a world of microbiotics we had discovered. But for Jennifer Headman O’I, it was just another day at the office.

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All products of the corn plant, including the husks—yields increase and the need to cultivate more acres will decrease. All of this spells greater efficiency and a lower carbon intensity. And while the long-term, this innovation could be a key component in reducing dependence on non-renewable fuel sources. "Unlike fossil fuels, we have a nearly limitless source with bioethanol," says Headman. "Our work at POET is focused on getting as much from clean and renewable sources as possible. If we feel that a product or process is going to hurt the planet or a community, we're just not going to do it."

"Our work at POET is focused on getting as much from clean and renewable sources as possible. If we feel that a product or process is going to hurt the planet or a community, we're just not going to do it."

"Every day, we're trying to find yeast and enzymes that improve our yields and make the whole process more economical," explains. "For 30 years, we've focused on improving the manufacturing process once the corn gets to the plant—and we'll continue to do so. But now, we're also helping farmers lower the carbon intensity on the front end."

"Everything, we're trying to find yeast and enzymes that improve our yields and make the whole process more economical."

"Every day, we're trying to find yeast and enzymes that improve our yields and make the whole process more economical."

"When it comes to yeast strains that can boost production, Lewis points to Headman's past research with biotechnologies as her secret weapon. "We're looking for needles in haystacks with these strains," he says. "Jen's been in the industry for a while, so she is helping us get to those needles faster than the landfills she's seen before."

Both Headman and Lewis agree that traditional engineering can get the industry only so far in its search for maximum efficiency. "We have a better ability to improve with biology at this point," even beyond traditional engineering," says Lewis. "And much of that biotech work revolves around fermentation research, which is Jen's passion."

As Headman and the POET team identify yeast and enzymes capable of consuming elements of a corn plant (or other plants) that previously would have been considered waste—including the straws, leaves, and husks—yields increase and the need to cultivate more acres will decrease. All of this spells greater efficiency and a lower carbon intensity. And while the long-term, this innovation could be a key component in reducing dependence on non-renewable fuel sources. "Unlike fossil fuels, we have a nearly limitless source with bioethanol," says Headman. "Our work at POET is focused on getting as much from clean and renewable sources as possible. If we feel that a product or process is going to hurt the planet or a community, we're just not going to do it."

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"My job is to support my coworkers' enthusiasm around a new product, but if it fails 2 percent of the knowledge facilitator—who is also paid to kick the proverbial tires."

"My job is to support my coworkers' enthusiasm around a new product, but if it fails 2 percent of the"
ASSISTments, a free educational platform developed by WPI researchers, uses immediate feedback to improve learning outcomes.
philanthropic organizations, more support than nearly any other
lifeline to teachers whose students have grappled with the chal-
lgendes of remote learning during the COVID-19 pandemic, and
formed in 2019 to scale up and expand the platform.

From a journal on K-12 education. “That’s what principals read,” he
says, “and made the computer do some of her
conducted one-on-one tutoring sessions with
students. “I just watched what she did,” he
days, “and the made the computer do some of her
moves.” Heffernan released the program,
alled Ms. Lindquist, on the Web for free, and
quickly became the most widely used intel-
ligent tutoring system then available.

These scenarios may not seem revolutionary, but they repre-
se a strong sign of future improvement in the world of e-
learning where students can receive immediate and constructive
feedback on their work. "I’m proud of that," Heffernan says. "I’ve made
significant contributions to the field of education through my work with
ASSISTments.

Heffernan’s 28 peer-reviewed journal publica-
ts and Major Qualifying Projects. In addition, data
sets from ASSISTments are made available to other
researchers through E-TRIALS (Ed-Tech Research In-
frastructure to Advance Learning Science), which
Heffernan created. It has produced at least another
50 published studies.

“I’m proud of that,” Heffernan says. “I’ve made
WPI known as one of the leaders of open science.
And we recently received $2 million from the U.S.
Department of Education (DOE) just to make our platform have
e better capabilities to do this type of research.

Heffernan and his team are also in the running for the $1 million Digital
Learning Challenge hosted by the X-Prize Foundation. Sponsored by the
DOE, the challenge seeks to accelerate innovation where the
winner is the organization that can best identify effective
learning tools and processes that improve
learning outcomes.

Or, at least, “that’s clearly
detrimental.”
The study took 43 public schools, with 2,850 seventh graders, and paired them according to a variety of demographic factors. In half the schools, students did their homework in the traditional fashion. In the other half, they used ASSISTments and teachers received daily reports on their work. As reported in the journal AERA Open, when measured by scores on standardized testing, students who used ASSISTments realized a 75 percent improvement in learning over what would have been expected in a typical year. The effect was greatest for students in the bottom half of their classes; their learning improved 100 percent.

The study yielded significant benefits. For one, the DOE included the study in its What Works Clearinghouse, giving the highest possible rating: “Meets WWC Standards Without Reservations.” It noted that the study “provides the highest degree of confidence that the intervention caused the observed effect.” For another, the Office of Science and Technology Policy asked Heffernan and the authors to present the study results at the White House.

The DOE funds have also allowed the Heffernans to pursue a personally important goal: conducting research aimed at showing that ASSISTments helps close the achievement gap in math. While the SRI study in Maine showed that the greatest gains in learning were realized by lower performing students, there were not enough underrepresented students in the study population to test how their performance changed.

“IMPORTANT GOAL: CONDUCTING RESEARCH AIMED AT SHOWING THAT ASSISTMENTS HELPS CLOSE THE ACHIEVEMENT GAP IN MATH.”

For example, it helped gain the attention of the Schmidt Futures Foundation and from public charities, including the Gates Foundation. Technology Policy asked Heffernan and the authors to present the study results at the White House.

The study population to test how their performance changed. A similar study in North Carolina aimed at answering that question ended before it could be completed when school closures during the pandemic preempted a required post-test. Schools are currently being recruited for a new nationwide study that may finally show what the Heffernans have long believed: when teachers use their daily ASSISTments reports to continually refine their teaching in response to what students are and are not learning, the whole class benefits. But students who must need a helping hand benefit the most.

The rapid expansion of ASSISTments was aided by the fact that the team had already entered the content of the most commonly used free middle school math curriculums into the platform and integrated it with Google Classroom and Canvas, the two most widely used K–12 educational delivery systems.

“IT IS NOW EASY FOR SOMEONE TO ADOPT ASSISTMENTS;” Heffernan says. “I’m a seventh-grade teacher and just taught module 5, and I ask, ‘Can I assign module 6?’ Here are the exact problems. Just hit the button to assign them.”

In future work, Heffernan, using cutting-edge AI, psychology, education theory, and sheer determination, will continue to seek to make ASSISTments even easier to use, more effective, and smarter (although he says he steers clear of using the label “intelligent tutor,” which some educators associate with overhyped and ineffective products). “I like to tell teachers I get grants to make slightly less-dumb educational software,” he says.

Many of his current projects focus on crowdsourcing. Already, he is encouraging teachers to submit hints, explanations, scaffolding items, and best practices to benefit other teachers. “I want to build an ecosystem where teachers are writing content because they want to help their own kids,” he says. “We can then test that content at scale and see what works.”

As with Wikipedia and Stack Overflow, a resource for programmers, this altruistic output, through testing and iteration, will find its way out into the world to make a difference in the lives of students and teachers. “That’s what it has always been all about for Cristina and me,” Heffernan says. “Figuring out how to properly motivate children and cause better learning.”
HAVE YOU INCLUDED WPI
in a will or trust? As a life income gift? As a beneficiary of life insurance, IRA, or other retirement account? Membership is about giving you recognition now for your plans to support WPI in the future. To join, visit plannedgiving.wpi.edu.

FOR MORE INFORMATION CONTACT
Lynne Feraco, Assistant Vice President of Gift Planning
774-219-7326 | lferaco@wpi.edu

“We’re all custodians of what’s happening at the university today, and the university can’t do those things without the support of the community and its alumni.”

LARRY HERSHOFF,
SON OF LEN HERSHOFF ‘43

Len Hershoff ‘43 was a fierce supporter of WPI, having established a charitable gift annuity and a charitable remainder trust with the university. His son, Larry Hershoff, a member of the Alden Society since 2019, is now continuing his father’s philanthropic legacy at WPI by establishing a charitable gift annuity and adding to the Len ‘43 and Mary Hershoff Endowed Scholarship Fund.

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Dear Alumni,

As our students get ready to return to campus, I find myself thinking back on the past year, my inaugural year as Alumni Association President. Although WPI joined the world in facing truly extraordinary challenges, I am glad to see the heart and soul of this great institute has not been diminished.

Whether on campus or virtually, our students held fast to the university’s founding tenets of theory and practice. Facing unprecedented challenges, they persevered toward WPI’s third tower: impact. Both locally and worldwide, WPI students have made a positive difference. Here’s a small sampling: Justin Amevor ‘20, MS ‘22, who launched a food truck business to fight food insecurity in the Worcester community; Mia Buccowich ‘22, Brian Fay ‘22, and Andy Strauss ‘23, who developed a robotic hand prosthetic for a college student in Texas; and Raymond Magambo ‘21, who started a transportation ticketing company in his home country of Tanzania.

Our faculty followed suit as they continued to push the boundaries of science and research: Architectural Engineering Professor Nima Rahbar and Richard T. Whitcomb Professor of Chemistry and Biochemistry Suzanne Scarlata are developing self-healing concrete; Biology and Biotechnology Professor Pam Weathers is researching a medicinal herb to fight COVID-19; Robotics Engineering Professor Greg Fischer is working to develop machines that carefully guide the hands of surgeons; and Biomedical Engineering Assistant Professor Catherine Whittington is researching pancreatic cancer. They all stand as examples of the WPI community who are working to make the world a better, safer, more humane place—even in the most trying of times.

We alumni have played our collective role as well. Since last October’s launch of Beyond These Towers: The Campaign for WPI, generous philanthropic donors have helped the university achieve more than $200 million in campaign commitments toward a $350 million philanthropic goal. Overall, we are more than 70 percent of the way toward the campaign’s $500 million combined philanthropic and research goal.

Thank YOU for giving your time, your talent, and your treasure to the WPI campus and community. 

wpi.edu/+give
Celebrating WPI's Donors and Their Impact

More than 100 donors and key volunteers gathered at Unity Hall for a Celebration of Philanthropy on April 7. The group included alumni, trustees, parents, friends, faculty, and staff—those who had made leadership gifts to Beyond These Towers: The Campaign for WPI and those who have benefited from the over $200 million generously contributed to the university thus far toward the $350 million philanthropic goal.

Providing guests with a close-up look at the stunning new building, the evening also featured 16 expo booths hosted by students, faculty, and administrators demonstrating the campaign’s positive impact on student projects and faculty research that have the potential to change lives for the better. Guests also heard from President Laurie Leshin, WPI Trustee and National Campaign Chair George Oliver ’82, PhD candidate Jack Grubbs ’19, and Board Chair Jack Mollen.

“We have an incredible community of students, faculty, and alumni doing great things around the world,” said Oliver, “and I couldn’t be more excited about playing a part in advancing their efforts to make the world a better place.” He and his wife, Karen (Zalewski) Oliver ’82, are longtime WPI advocates who have generously supported Beyond These Towers.

A highlight of the evening was Mollen’s announcement that the Board of Trustees approved the renaming of the Project Center building as the Laurie A. Leshin Global Project Center (see photo, page 10).

ALUMNI WEEKEND 2022

Alumni Weekend is our favorite time of year, but Alumni Weekend 2022 was extra special. Our alumni family returned to our home on The Hill to revisit favorite campus spots, reunite with friends and classmates, and relive the traditions and memories that made our WPI experience special. It was a perfect time for reminiscing, exploring, and learning about new research on campus.

ALUMNI AWARDS

CONGRATULATIONS TO THE 2022 RECIPIENTS!

Recognized for their remarkable professional achievements and service to the university, these alumni bring pride to the entire WPI community. They were celebrated by their classmates, families, and friends during Alumni Weekend, May 19–22.

ROBERT H. GODDARD ALUMNI AWARD
FOR OUTSTANDING PROFESSIONAL ACHIEVEMENT

KEN BALKUS ’82 • NEAL CAPPELLINO ’87 • PAUL GANYOR ’87 • ANTONY KOBLISH ’87
RANDALL PARTRIDGE ’72 • JONATHAN PERRY ’87 • ROBERTA (NELSON) SHEA ’77

ICHABOD WASHBURN YOUNG ALUMNI AWARD
FOR PROFESSIONAL ACHIEVEMENT

JULIE (BLISS) MULLEN ’12 • JODY (KENNISTON) STARUK ’02

HERBERT F. TAYLOR ALUMNI AWARD
FOR DISTINGUISHED SERVICE TO WPI

MIKE ABRAMS ’77 • KAREN OLIVER ’82

JOHN BOYNTON YOUNG ALUMNI AWARD
FOR SERVICE TO WPI

KATHRYN (BYORKMAN) GAUTHIER ’12 • DAN SULLIVAN ’12
Opening a restaurant in arguably one of the most popular areas of the city is a result of years of work, connections, and even a few cold calls. But McAuley’s initial interest in pursuing a plant-based lifestyle came—for lack of better terms—out of left field.

After graduating from WPI in 2012 with a degree in management engineering and a focus on mechanical engineering, the only concrete aspect of McAuley’s plan was that he didn’t have one. “I can’t say I really had a vision at all,” he says with a laugh, adding that his love and passion at the time was football; he was a quarterback for the Engineers. “I figured I would end up in some area of engineering, but I didn’t really have a plan much beyond that.”

After opening the first PlantPub location in Kendall Square in 2012, McAuley’s path of experimentation led to a full-fledged lifestyle change. “It led me down this path of experimentation, and I just eliminated foods from my diet that didn’t make me feel as good as that smoothie did,” he explains. Six months later, that path of experimentation led to a full-fledged lifestyle change. McAuley started a podcast, wrote a book, and gave a TED Talk that’s been viewed over a million times. After graduating from WPI in 2012 with a degree in management engineering and a focus on mechanical engineering, the only concrete aspect of McAuley’s plan was that he didn’t have one. “I can’t say I really had a vision at all,” he says with a laugh, adding that his love and passion at the time was football; he was a quarterback for the Engineers. “I figured I would end up in some area of engineering, but I didn’t really have a plan much beyond that.”

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After reaching out through cold calls and coffee meetups, McAuley partnered with entrepreneur and investor in plant-based foods Sebastiano Cossia Castiglioni and renowned chef Mary Dumont to use their shared love of plant-based foods. “Everything meaningful I’ve done in my life has been a result of me going into the unknown and hoping for the best,” he says. “You always leave with something to learn, and everything I’m proud of has been accomplished by going beyond what’s comfortable and embracing the uncertainty of life.”

“McAuley sees it as an opportunity. “We like to describe ourselves as a bridge,” he says, adding that he and his team work hard to create food and an atmosphere rooted in approachability. “We know there’s going to be an extra layer of scrutiny, but we’re an approachable way for people to experiment a little bit, to show that you don’t have to sacrifice any of the flavor or taste that you love.”

While McAuley’s path isn’t typical of an engineer’s, it is one where he followed his passion through firsthand learning, which is what WPI is all about. “The best thing about WPI is that it teaches you practicality,” he says. “You’re solving problems, and what I’ve learned in business is that it’s just constant problem solving. Most things you don’t have answers to, but you need that engineering mindset to be able to reverse-engineer something, find a solution, and keep things moving.”

When Stiller stopped by PlantPub back in April, it wasn’t just a cool photo opportunity; it was also the chance for McAuley to meet an actor who starred in The Secret Life of Walter Mitty. A movie McAuley counts as one of his favorites because it “demonstrates the power of stepping out into the unknown and embracing the uncertainty of life.”

If anyone knows anything about that, it’s McAuley. “Everything meaningful I’ve done in my life has been a result of me going into the unknown and hoping for the best,” he says. “You always leave with something to learn, and everything I’m most proud of has been accomplished by going beyond what’s comfortable and embracing that challenge.”
Alexandra Sanz-Guerrero understands the importance of teamwork when confronted with problems. At the Naval Undersea Warfare Center (NUWC) in Newport, R.I., she’s the lead systems engineer on a team that designed an autonomous drone that can be launched and recovered from a submarine—a U.S. Navy weapons system with a mouthful of a name: the Large Displacement Unmanned Underwater Vehicle (LDUUV) Snakehead project.

“In order to achieve success, it takes a lot of collaboration between engineers and scientists across multiple government organizations and disciplines,” she says. “As a team lead, I need to understand all engineering disciplines to come up with solutions to various problems.”

Sanz-Guerrero credits WPI’s project-based learning with developing the team-building and critical-thinking skills she uses every day in her career. In particular, she says her Major Qualifying Project experience in China gave her an early appreciation of why other points of view are essential. She and another WPI student worked with two students at Shanghai Jiao Tong University to develop a strobe light for fire alarms at Tyco Electronics. They ended up recommending a change to increase the efficiency of the fire alarm bulb.

“Working with two students from another culture was enlightening and brought a new perspective on how to solve the problem,” she says. “Having diverse points of view was a clash in the beginning, but as we worked through the problem together and worked as a team, we were able to come up with an innovative and unexpected solution. To this day, I make sure I have others around me to help bounce ideas around until we come up with an effective solution together.”

Sanz-Guerrero was a member of the women’s swim team from her sophomore year until graduating with her master’s degree in the five-year BS/MS mechanical engineering program. The swim team served as her campus family, making the grueling hours of training bearable. She also has many fond memories of working on projects in the library.

“The library was a very collaborative space where I would work with my swim teammates or my roommates,” she says. “Most of the time we weren’t even in the same class, but we’d be working together, supporting one another, and helping each other out where we could. It made doing homework and projects much more enjoyable.”

She describes her current LDUUV ‘Snakehead project as “a modular, reconfigurable, multi-mission vehicle deployed from a submarine.” The lithium-ion battery-powered Snakehead guides, controls, propels, and maneuvers the drone, which can be launched and recovered underwater.

Her successes at NUWC, as well as her work as a mentor to other women engineers, recently earned her the Career Communications Group Women of Color magazine STEM Outstanding Achievement Award as a Technology Rising Star. The award recognizes women who have demonstrated exceptional achievements in STEM in their workplace and in their communities.

“To me, it means my hard work and achievements have been recognized within my organization,” Sanz-Guerrero says of the award. “It makes me feel like my efforts are acknowledged and supported by my workplace. I also hope that it provides motivation to other women as they work through their careers.”

She says she’s proud that the award announcement noted her mentoring skills.

“I find that proper mentoring and training provides new hires with confidence in their product and strengthens their abilities. They’re able to take what they’ve been taught and utilize it much quicker than having to learn from scratch,” she says.

“I still have a long way to go in my career, and none of it has panned out as I expected; but I wouldn’t have done it any other way. What I do know is that I will continue to take leadership roles within NUWC and pass my knowledge and lessons learned to others to help enhance their careers.”

—Kristen O’Reilly

Alexandra Sanz-Guerrero ’12, MS ’13, Solves Problems with Teamwork
There are as many reasons for giving as there are people who give. James Mayer has two reasons for his recent gift to establish the Louise F. Mayer Endowed Scholarship, and they’re both quite personal. The first is to honor his mother for being such a strong role model in his life; the second is to offer gratitude to his alma mater for setting him on the path to a long and rewarding career. Mayer, the eldest of five siblings, understood from a young age how fervently his mother persevered in the face of adversity. She lived through the Great Depression, served as a nurse in World War II, and raised five children on her own; Louise F. Mayer is, by all accounts, an exceptional person. Faced with all the challenges a young, widowed mother of five might come up against, Louise ardently supported her children and strongly encouraged each of them to earn a college degree so they might enjoy enhanced opportunities in life. He says of his mother, “I didn’t realize at the time how hard that must have been for her—probably because she never made it seem difficult.”

A Hopkinton, Mass., native with an interest in engineering, Mayer found WPI to be a natural choice. But his WPI journey took a rather circuitous route. “My first two years in the dorm and with Lambda Chi Alpha fraternity were fun. I made a lot of good friends but did not devote enough time to studies. I realized it was best to withdraw for a while.” After four years working construction jobs in Boston, Mayer returned to WPI and earned his BS in civil engineering. Attributing a fair amount of his university success to faculty at WPI, Mayer says, “With the help of several great professors—including Carl Koontz, Frank DeFalco, and Robert D’Andrea—I had a very successful academic experience, and I am extremely grateful for their genuine interest in helping me.”

Early in his career, Mayer started an environmental services and engineering company with four business partners. The company, which served the electric power industry in the Northeast, was sold to TRC Companies, Inc. in 2003. Mayer stayed on as president of the power sector, which is now made up of more than 3,000 people. He recently transitioned to executive vice president, leading the field services team and the development of new business practices.

“I gained the very obvious benefits of a first-rate engineering education, which is a great foundation for many careers. My WPI experience showed me the importance of collaboration, communication skills, and the willingness to help others. I credit these skills and values learned at WPI with much of my career and personal success. My career has been focused on building, leading, and developing engineering teams. I am a professional engineer, thanks to WPI, but I haven’t done much engineering lately. I am lucky that WPI prepared me to do so much more.”

The Louise F. Mayer Endowed Scholarship is specifically for students from single-parent households, with a preference for students from single-mother households. “I decided to give something back to WPI as a small token of my appreciation for the education I earned there, and it seemed like a nice gesture to my mother, who made it all possible for me,” he says. “I hope this gift will enable others who may have circumstances like mine to benefit from some financial assistance to attend WPI. My hope is this scholarship in honor of my mother will make a real difference in the lives of its recipients.”

—Sira Naras Frongillo

ENABLING ACCESS TO A WPI EDUCATION FOR TODAY’S STUDENTS

With Endowed Scholarship, James Mayer ’77 Honors His Mother and His Alma Mater
The legacy of WPI’s first female students will live on in perpetuity through the newly established Lesley Small Zorabedian ’72 and Jayne Rossetti ’72 Endowed Scholarship. The financial need-based scholarship was funded by an anonymous member of the Class of 1972 to honor and celebrate the great accomplishments of Zorabedian and Rossetti.

According to the donor, “These two very smart and very accomplished women have earned and deserve respect, recognition, and admiration. Leslie and Jayne were true pioneers at WPI. Nothing was easy for them. Nothing was designed for them, not even the living conditions. Yet, they put on a brave face every day and accomplished something every day.”

This year marks the 50th anniversary of the first woman undergraduate to earn a bachelor’s degree from WPI. In 1968, the Board of Trustees voted to admit women undergraduates to the university, breaking WPI’s century-old tradition of an all-male student body. Mathematics majors Zorabedian and Rossetti were the first women to enroll in the university in fall 1968. The following year, 24 women were admitted to the university.

Reflecting on her time at WPI, Zorabedian says, “I was happy to be able to enroll at one of the top engineering schools in the country. Many doors have been opened to me and many opportunities have been made available because of that degree. Even in my work at a law firm, I have drawn greatly on my WPI education.”

Rossetti shares Zorabedian’s sentiment. “WPI taught me how to think,” she says. “I now approach problems with an open mind. I bring no preconceived thoughts into a problem. I have used this approach in all facets of my life.”

Reflecting on those early years at WPI, she says, “Lesley and I were both naïve, small-town girls, each a class valedictorian. When I got to Worcester Tech, it felt as if I was infringing on 100 years of deep-seated male traditions. But I wasn’t alone. Lesley and I were joined at the hip, taking the same classes, and eventually choosing the same major. It was a great relief when the women from the Class of 1973 arrived; not only did we then have dorm space, we were no longer the objects of curiosity.”

It is the donor’s hope that Zorabedian and Rossetti will serve as role models for WPI students. “They were always recognized; they must have felt they were constantly under the microscope,” the donor says. “There must have been times when they really wished for some privacy. However, they figured out how to do things, and they persevered.”

“It was a very humbling experience to learn a member of the Class of 1972 endowed a scholarship in our honor,” says Rossetti. “I am in awe that our classmate thought enough of us to honor us in this truly meaningful and impactful manner.”

When asked about women in STEM at WPI, biomedical engineer Dana Maloy ’22 says, “It feels especially rewarding to be a woman in STEM today. And as more and more women enter the STEM fields, we are changing the long-held status quo and giving voice to the world’s many talented women engineers. It can be a challenge and feel daunting at times, but I know my peers and I will continue to work toward change and try to make a difference every day.”

Contemplating the gravity of Zorabedian’s and Rossetti’s impact on women in STEM today, chemical engineering major Olivia Gedgaudas ’22 offers a note of gratitude to WPI’s first undergraduate women. “Thank you for your bravery and perseverance in paving a path for women in STEM. Because of you, WPI has made leaps and bounds toward gender equity with WPI’s first woman president and its current student body [of which almost 40 percent are women],” she says. “We proudly stand on your shoulders.”

—Sira Naras Frongillo
1964
T. B. Puttaswamy resides in Greenville, S.C., with his wife, Shashi, and their daughter, Samantha. After retiring from ABB Global Engineering in the Netherlands, he has volunteered as an AARP Tax-Aide for over 10 years and serves on his subdivision’s HOA Architectural Committee. He welcomes correspondence from WPI alumni of ’63, ’64, and ’65: swamysha@yahoo.com.

1967
Charlie Sisitsky was sworn in as mayor of Framingham on Jan. 1, 2022. He has 40 years of public administration leadership experience and an extensive record of public service. He served as an elected member of the town’s Board of Selectmen from 1998 to 2018 where he served multiple terms as chairman and also led the Utility Abatement Committee, and the Traffic and Roadway Safety Committee. After Framingham became a city, Charlie was elected city councilor from District One, and served as chairman of the Planning & Zoning subcommittee of the city council.

1972
Lesley Small Zorabedian was honored with a Presidential Medal at the 2022 Commencement ceremony for her trailblazing efforts to help shape the university. She was one of the first women to be enrolled at WPI as an undergraduate in 1968 and became the first woman to receive an undergraduate degree from WPI.

1978
Mark Cioffi is the program analyst for the New Hampshire Prescription Drug Monitoring Program. He was reappointed to two of the governor’s drug and alcohol prevention and treatment task forces (the Opioid Task Force and the Data and Evaluation Task Force). He says, “Everyone likely knows someone adversely affected. We have made progress decreasing the number of opioid prescriptions, their day’s supply, and strength. However, we now see the statistics indicating increasing utilization of stimulants and amphetamines, especially in the 30–59 age group. This is a national trend that we will now focus on, without sacrificing gains made...”
against opioid abuse. As everyone knows, the COVID pandemic sent several projects into a holding pattern. We are back to moving forward.

Louis Colette is among the first Peace Corps volunteers to return to overseas service since the agency’s unprecedented global evacuation in March 2020. “The Peace Corps is the best organization for foreign volunteer service. My brother was a Peace Corps volunteer. I am motivated to help,” said Louis. He will serve as a health volunteer in Peru, working in cooperation with local community and partner organizations on sustainable development projects.

1979
Norman Guimette writes, “I completed my seventh Boston Marathon with a time of 3:21:54—I placed 15th in my age group. My years running for WPI have inspired me to stay active in my sport. Coach Norcross was instrumental in my development as a runner.”

1983
William “Bill” Fitzgerald was recently named chair of the WPI Board of Trustees. A trustee since 2013, Fitzgerald recently retired from GE Aviation, where he served as vice president and general manager of the Commercial Engines Operation. He was responsible for all commercial jet engine products and global support, including the GE9X product line, the fastest-selling jet engine in GE’s history. In his most recent service on the WPI Board of Trustees, he chaired the Task Force on Diversity, Equity, and Inclusion, which focused on evaluating the Board’s practices and purposes in recruiting and developing members who can authentically represent the current and future WPI community. Those efforts are informing the work of the Board’s Nominations & Governance Committee, which he began chairing this year. Fitzgerald is also vice chair of the March of Dimes National Board of Trustees.

1988
Jan Husby has been promoted to chief information officer of PRA Group. In this role he will drive information technology and business applications at a strategic level across PRA’s global platform.

1990
Michael Fillien has been named chief operating officer at Conformis. He previously served as executive vice president, Global Operations at Tecomet.

1993
Jim Gerren has been appointed Clark County (Nev.) building official and director of the Building Department. Having worked in the Building Department since 2004, he has served as assistant director since 2019. He is a licensed professional engineer in fire protection engineering in Nevada.

1997
Ben Adr. John Manger (MS PFE) was named commander of the First Coast Guard District at a May 13 ceremony at Faneuil Hall in Boston.

2002
Davetta Fox was featured in a Worcester Telegram & Gazette article that discussed his new business relationship with former WPI golf coach, Tim Bishop. According to the article, Fox, a former member of the WPI golf team, is the general manager and director of golf at Northern Spy Golf Club in Townsend. He recently hired Bishop as head pro at this private club. Fox has worked at Northern Spy for a majority of his career and, according to Bishop, was known as an excellent golfer during his time at WPI.

2003
Maureen “Moe” Young was featured in a May 20 Worcester Telegram & Gazette article about her custom homemade “Moomalows.” According to the story, she sells her hand-crafted marshmallows at pop-up locations, as well as at local retail stores and the Worcester Public Market. She has created more than 40 flavors, including cotton candy, mocha chip, cannoli, strawberry, watermelon, almond, and vanilla, as well as cocktail flavors like cosmo, margarita, hurricane, and mojito. Moe participated in EforAll Greater Worcester, a 12-week entrepreneurship training program, and won an award at the 2022 Winter Accelerator Final Presentation for her business pitch.
James Fitchon was named to the 2022 Minuteman Hall of Fame, which honors alumni and former teachers, staff, or coaches who have gone above and beyond to exemplify the spirit of Minuteman High School in Lexington, Mass. James, who was named a Distinguished Alumnus, is the vice president of finance and operations at Verdon, a company that develops technology to reduce carbon emissions. He is an attorney and professional engineer with experience in finance, law, and engineering at start-up corporations.

2007
On Feb. 15, Vanessa Castro welcomed her daughter, Apollonia Mae Rybka, Class of 2044.

2008
Christopher Roy (MS), general manager of Shrewsbury Electric & Cable Operations (SECO), was named to the 2022 Power 50 list in Worcester Business Journal. According to the story, “Roy is creating symmetrical broadband speeds at the gigabit level or higher, which will be key in attracting new businesses, particularly tech companies, relying on the highest level of internet connectivity.”

2012
Julie Elise McEwan is the co-founder of Aclarity, a company that commercializes novel electrochemical water treatment systems for the complete, on-site destruction of contaminants like PFAS in wastewater. Aclarity has been nominated for Imagine H2O’s Urban Water Challenge Audience Choice Award. Other WPI alumni in the business include José Alvarez ’15 and Elisabeth Christ ’21.

2014
Hunter Putke and Maria Grandoni ’15 were married on March 19, 2022, in Madison, Wis.

Qingyun Zhu (MS, PhD) received the Outstanding Faculty Award at the University of Alabama in Huntsville.

2021
Jenna Hirshfeld is an associate project manager in the Fall mouth, Mass., office of RLC Engineering Project Management Organization.

2022
Tony Eid accepted a position with GE Aviation as a member of its Operations Management Leadership Program (OMLP). Over the next two years, he will take over three different roles in this full-time position.

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In fact, the giant statue of a minotaur that games, working for such companies as Epic Games, Activision, and

Director Marc Smith to produce an augmented reality-enhanced

male theater community. In 1998, Dean partnered

in the drama/theater program, he continued to play a leadership role

University in 1990 and returning to WPI as a professor in 1993. In

professor of IMGD, who died March 7, 2022. He graduated from WPI

The WPI community noted with profound sorrow and a great sense

IN MEMORIAM

Dean O’Donnell ’86, the Heart of IMGD

The WPI community noted with profound sorrow and a great sense of loss the passing of Professor Dean O’Donnell, full teaching professor of IMGD, who died March 7, 2022. He graduated from WPI with a BS in Physics in 1986 before earning his MFA from Brandeis University in 1990 and returning to WPI as a professor in 1993. In 2004, he was a founding faculty member of IMGD.

Dean was pivotal to the culture of IMGD, both in never forgetting the fun and possibilities of the medium but also in the professional outreach and mentorship he provided. He drew from theater pedagogy to introduce master classes to bring game professionals to WPI for intensive courses. He worked with students to design and implement our Pax East booth to highlight student work at a major industry event. For students wanting to work with industry partners, he negotiated MQE sponsorships with such giants as Disney and TmmCnt. During Showfest—an end-of-year event that Dean created for students to come together, eat barbeque, and play each other’s games— he set up an interview couch, invited outside game developers and designers, and gave the students opportunities to be professionally interviewed about their newly created and released media, all streamed on Twitch. In 2018, Dean started the IMGD animal escape room.

He loved his dog, and all things Disney and Star Wars. He found joy from being with friends, playing games, and telling jokes. He was the heart of WPI’s IMGD program since its inception.

John Bjork ’44 ME, MS, LAMBDA CHI ALPHA, Shrewsbury, Mass.

Robert Forreman ’46 ME, ALPHAEIATAOMEGA, Hudson, Ohio

Malcolm White ’46 CHE, MS, PHI SIGMA KAPPA, Ashton, Conn.

Eric Peterson ’51 ME, ALPHAEIATAOMEGA, Mansfield, Ohio

David Hozack ’53 EE, MS, Cedar Rapids, Iowa

Ivan Davidson ’53 SE, SIGMA ALPHA EPSILON, Rock Hill, S.C.

Gene Kacinus ’53 SE, SIGMA PHI EPSILON, South Portland, Maine


Richard Ferguson ’57 EE, MS, PHI SIGMA KAPPA, Cincinnati, Ohio

Robert Gottlieb ’57 CE, PHI KAPPA THETA, Lake Shore, Min.

Lawrence Ferguson ’58 EE, ALPHAEIATAOMEGA, Holmdel, N.J.

Norman Stotz ’58 ME, PHI SIGMA KAPPA, West Melbourne, Fla.

State University of New York at New Paltz.

John Gola ’59 SIGMA PHI EPSILON, Yarmouth Port, Mass.

Stuart Macomber ’60 ME, WPI Tau Omega, Newton Center, Mass.

Kenneth Wheeler ’60, MS NS, Shirley, Mass.

John Kappel ’61 ME, IRA, La.


William Holmes ’61 SIG, PHI GAMMA DELTA, South Dennis, Mass.

Richard Housser ’62 CE, Heirloom, N.Y.

Thomas Quinn ’62 CE, Tau Kappa Epsilon, Schenectady, N.Y.

Bijilkent Dove ’63 MS, CE, Martinez, Ga.

Curt Feoman ’63 EE, PHI KAPPA THETA, Hampden, Maine

David Nordin ’63 ME, TAU KAPPA EPSILON, Shelton, Conn.

John Lewis ’65 CHE, THETA CHI, Rose Valley, Penn.

Rein Oliver ’66 ME, PHI SIGMA KAPPA, Middle Village, N.Y.

Charles Jaworski ’66 ME, NS, Ramble, R.I.


Athanasios Kostoulakis ’67 EE, SIGMA ALPHA EPSILON, Athens, Greece

William Clark ’69 MSPh, PhD PMI, Pittsford, N.Y.

Bruce Tuttle ’70 ME, ALPHACHI RHG, Flint, Mich.

Lawrence B. Cohen ’70 CE, Bordon, Mass.

Francis Gardner ’70 ME, McKees Rocks, Penn.

James Hannaou ’70 ME, PHI KAPPA THETA, West Barnstable, Mass.

James Schweng ’70 MA, Elenburg, Wash.

David Aquilini ’71, SIGMA PI, West Melbourne, Fla.

John McIiouni ’72 SIG, Dennis, Mass.

Daniel Robbins ’73 CE, Belgrade Lakes, Maine

Daniel Palmer ’74 MS, Kansas City, Mo.

Paula Stall ’75 CHE, MS, Hubbardston, Mass.

Andrew Tabuk ’76 SE, Weston, Mass.

Gary Krumpoili ’78 EE, PhD EEW, Bedford, N.H.

Douglas Thomas ’78 EE, Whiteville, Mass.

Thomas Hoel ’78 SIGMA PI, Wilton, Conn.

Barbara McCandl ’81 MS, NS, Ware, Mass.

David Soderberg ’81 SIGMA PI, Duxbury, Mass.

Douglas Frohri ’83 LS, Wellsboro, Maine

Steven Doyl ’85 CS, Schenectady, N.Y.

Dean O’Donnell ’86 PH, Easton, Penn.

Shelby Gough ’87 SIGMA PI, Woodstock, Conn.


Steven Dulin ’88 ME, Shrewsbury, Mass.

Brett Haggard ’88 BBT, Northport, Maine

Andrew Gagnon ’89 BBT, PHI SIGMA KAPPA, Salt Lake City, Utah

Kevin Munn ’89 ME, Lynnfield, Mass.

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Beyond These Towers is a community committed to creating a supportive environment that centers on mental health and well-being at WPI.

The Center for Well-Being at WPI, led by Paula Fitzpatrick and focused on evidence-based practices for promoting well-being and managing life’s challenges, is critical to providing our community members with the tools and support they need to thrive at WPI and in life. Your gifts now will provide resources for programs that will change students’ lives for the better while positively impacting our WPI parents and families, faculty, and staff. We need champions to help us get there. Be a champion.
FRESH OFF ITS NCAA DIVISION III CHAMPIONSHIP, THE WOMEN'S CREW TEAM ENDED ITS HISTORY-MAKING SEASON BY BECOMING THE FIRST WPI BOAT TO QUALIFY FOR ROUND 2 OF THE WOMEN'S HENLEY REGATTA IN LONDON. READ MORE ON PAGE 9.