IT'S GOOD TO BE KING

PAUL LIBERMAN '05
BUILDS A GAMING EMPIRE
WITH AN ENGINEERING MINDSET
IT’S GOOD TO BE KING
Paul Liberman ’05 builds a gaming empire with an engineering mindset.

BY SCOTT WHITNEY / PHOTOGRAPHY BY SCOTT ERB

PITCH PERFECT
Gabriela Hoops ’19 operates at the crucial intersection between sports and tech.

BY AMY CRAWFORD

A DRY HEAT
Jamal Yagobi’s dual areas of expertise have him in demand everywhere from outer space to the manufacturing floor.

BY LAURIE REBECCA THacker / PHOTOGRAPHY BY MATTHEW BURGOS
A photo caught my eye as I was flipping through a batch taken at a campus event by our staff photographer, Matt Burgos. The image, out of place among the usual event photos, showed a closeup of a backpack covered in a bevy of colorful pins. As I studied the assortment, I realized they were revealing clues about the owner’s life. Pins from Japan, Holland, and Poland reflected some travel experience. Multiple Puerto Rican pins indicated a stronger-than-average affinity for the U.S. territory. Others expressed pride in WPI, the city of Worcester, and the Worcester Art Museum. According to WizardingWorld.com, the Hufflepuff pin indicated the owner was the most trustworthy and hardworking of students.

My curiosity piqued, I checked with Matt to see if he knew the owner of the backpack so I might follow up for more details, but he’d snapped the photo on a whim and hadn’t asked for a name. A few social media posts later, Jeelia Valez Diaz ‘24 revealed herself as the owner, and she was happy to tell me what each pin represented. See page 24 for the photo and her interesting life story.

The exercise made me think about how people passively reveal their life stories to the outside world—by what they wear on their body, stick on the cover of their laptop, tattoo on their skin, or pin on their backpack. Even a bumper sticker or a branded sweatshirt is an invitation to engage. Joelis tells me she welcomes conversations about her pins, each of which means something special to her.

So I pose a question to you, dear readers. How do you express your story to the outside world? And if WPI was an important part of your life story—from knowledge you gained, experiences you had, or the friends you made—do you show off that WPI pride in any particular way? If so, send me a photo and I’ll include it in my next column.

A Familiar Request
The virtual mailbox has been empty of letters to the editor lately. I’m trying not to take it personally. We’re all busy, but I’d welcome reader feedback on the stories within. Send an email to wpijournal@wpi.edu and become part of the conversation.

You may also comment on the digital versions of the story. QR codes at the end of each feature will lead you to the digital site and the comment section at the bottom of the story. The Fall 2023 cover story on pioneering-fighter-pilot-turned-STEM-teacher Stacey Cotton Bonasso ‘90 did receive several encouraging comments from readers, including one from Dave Andrade ‘82, who wrote: “This is so inspiring. You were always so great to us young cadets and as a daughter dad, you made—do you show off that WPI pride in any particular way? If so, send me a photo and I’ll include it in my next column.

Keep those comments coming.

—Kris O’Bally, Editor

A LIVING SPIRIT OF INNOVATION

Dear WPI Community,

The winter on campus feels peaceful, yet vibrant. In front of Boynton Hall, where my office is located, I can see the famous Magnetic Lab. Constructed in 1887—without any metal to permit studies in electromagnetism—the building was used for research in electrical engineering, then the rocket lab of Robert Goddard.

Research at WPI traces back to the beginnings of the university. Today, that tradition not only continues, but is accelerating. Our faculty—which includes 25 Fulbright scholars and more than 40 CAREER Award recipients—collaborate across disciplines to drive discoveries and create solutions. From creating hydrogen fuels for aircraft, developing transparent wound dressing, and building autonomous vehicles for off-road environments, to making 3D-printed robots for search and rescue operations and uncovering structure details of SARS-CoV-2 virus, leading-edge research is underway at WPI.

This year WPI will celebrate 50 years of our first off-campus project center, established in Washington, D.C. Exceptional students of the highest caliber are drawn to WPI for the unique opportunity to work on real-world problems in real-world settings. Through their research at global project centers, students have designed solutions to make greenhouses more energy efficient in Armenia and monitored local air pollution levels in Greece. Closer to home, our students have studied ways to break down PFAS, also known as forever chemicals, in water systems. They have used their WPI-honed skills to probe issues that impact entire populations, such as how medical triage sometimes fails during disasters. Along this process, our students learn to be critical thinkers, problem solvers, value creators, and team players.

The spirit of innovation is not just a concept at WPI; it is a living, breathing force that permeates every corner of our campus.

Sincerely,
Grace

“The spirit of innovation is not just a concept at WPI; it is a living, breathing force that permeates every corner of our campus.”

Letters to the editor may be altered for length, clarity, and accuracy. Opinions expressed do not necessarily reflect the views of WPI. Send your letters to wpijournal@wpi.edu.
A SOLUTION TO THE ALARMING DECLINE IN VITAL POLLINATORS: ROBOTIC BEES

One-third of the food we eat comes from plants that need to be pollinated, but more than half of North American native bee species are in decline due to pesticide use, habitat loss, climate change, and intensive farming practices. Nitin Sanket, an assistant professor in the Department of Robotics Engineering, is studying an out-of-the-box solution to this alarming trend: the use of robotic bees. “A lot of conservationists are working to preserve bees, and that’s a good thing,” says Sanket. “But the climate is changing pretty drastically, so we need alternatives as well, including looking at other ways to pollinate things.” Sanket and his graduate students are developing an autonomous flying robot with potential funding from a variety of sources, including military and environmental organizations. The current prototype is a small, 3D-printed black plastic cube that’s outfitted with four 2.5-inch propellers, a powerful camera, and a rechargeable lithium battery.

The existing model is 4.7 inches across—about the size of a hummingbird—but at 200 grams weighs about 100 times more than one of those feathered pollinators. It can quietly hover through the air while darting to avoid obstacles and turning to navigate narrow spaces, flying for a total of 5 to 7 minutes, depending on the type of battery it has and the type of movements it makes.

Sanket’s long-term goal is to create a device that’s small enough and contains enough power to fly independently in a swarm for many hours. The programming will be sufficiently sophisticated and nuanced so that the bot can successfully collect and transfer pollen from a variety of plants—bonus points if they can fly a model that runs completely on solar power and fully biodegrades into the soil when its parts wear out.

Sanket cautions that he’s still many years away from a fully functional and environmentally friendly robotic bee, but he’s optimistic. “A large part because engineers and researchers at other institutions are working on details that will help advance his project. Researchers at MIT, Harvard, and the University of Washington are tackling the mechanical challenges necessary to build a bee-sized robotic body. Meanwhile, in partnership with Travis Atkinson and Corina Fournier at the University of Maryland, Sanket’s team is perfecting the robot’s ability to smoothly and autonomously navigate around objects. In other words, they are building the robot bee’s brain.

But, notes Sanket, “You cannot use the same logic as you would for a human brain. And, obviously, we cannot probe into what bees are thinking. So we’re speculating.” That speculation builds on existing entomological research into insect movement and behavior. Understanding how bees usually respond in specific situations helps Sanket and his team identify the many individual functions they need to program into the device’s cognition and autonomy. Each of the two doctoral students and eight master’s students working with Sanket is tackling a different detail of the device. Specifically, they are working to improve the robotic bee’s agility, speed, flight longevity, and environmental friendliness, including researching ways to pollinate things. “But the climate is changing pretty drastically, so we need alternatives as well, including looking at other ways to pollinate things.”

The National Institutes of Health has awarded $1.1 million to a team led by WPI researcher Utkuhan Guler to develop a first-of-its-kind wearable sensor for premature infants that will address racial bias in healthcare by monitoring oxygen levels in infants. The project will create a convenient, affordable, noninvasive sensor about the size of a bandage that will enable infants at risk of lung disease to leave hospitals sooner and be accurately monitored at home. “Some tools widely used at home to monitor oxygenation, however, do not accurately measure oxygen levels in infants with pigmented skin tones. There is a great need for new technology that mitigates the impact of racial bias in measurements and provides important information to the clinicians who are treating these infants.”

Guler will collaborate on the research with co-investigators Dr. Lawrence Rhein, associate professor and chair of the Department of Pediatrics at UMass Chan Medical School, and Rige Unluturk, assistant professor of electrical engineering and biomedical engineering at Michigan State University. The researchers will develop a wireless patch with a miniaturized low-power electronic sensor that will use light to measure blood oxygen levels two different ways: A transcutaneous blood gas monitor will sense oxygen gases diffusing through the skin, and a pulse oximeter will measure reflected or refracted light to determine oxygen saturation in hemoglobin, a protein found in red blood cells. The sensor will transmit data to a small communications hub that could be placed on an infant’s crib or carrier.

A bias-mitigation algorithm to correct for inaccurate measurements in people of color will run on the hub. The researchers will integrate hardware and software into a system that will be pilot tested on adults and infants in a clinical setting.

—Lisa Eckelbecker
A new Interdisciplinary Research Center (WIRC), a collaboration between universities and industry. Supported by a three-year, $450,000 grant from NSF TAPS WPI, WIRC will build upon its longstanding expertise in fire protection and work with San Jose State University to study new fire detection methods, robotics solutions to enhance first responder safety, and fire suppression systems for wildfires.

Over the past 22 years, wildfires in the United States have caused damages exceeding $100 billion, and as climate change continues to intensify, wildfire frequency and severity, research is essential to protect lives, property, and ecosystems—and to help communities adapt to these changing conditions.

“The solutions to our current wildfire issues are going to require creative thinking across multiple sectors and disciplines,” says Kendra McCaughan, program officer at the National Science Foundation and chair of the NSF Wildfire Initiative Working Group. “This is exactly the approach taken by WIRC, and the new site at WPI adds some really exciting capacity. We are looking forward to the innovations this industry-university partnership will be able to achieve.”

“In a rapidly changing environment, where past experience can get you only so far, research really shows its value as the best way to understand, predict, and adapt to the major challenges faced by our societies,” says Albert Simonet, WPI fire protection engineering professor and department head. “Many of these issues are interdisciplinary, so we need strong collaborations from a variety of experts. Not only do we have some of the world’s leading fire protection expertise, but WPI’s state-of-the-art Fire Protection Lab provides rare access to equipment to conduct some of the world’s leading fire protection research. It’s fascinating to study how it has infiltrated our lives.”

“Paying Attention,” an undergraduate-led effort to look at how social media affects our own sense of mental health and well-being. One team is investigating the immediate impact of body positivity posts on Instagram on the body image, self-esteem, and mood of consumers. Graduate researcher Roshni Harish said the study produced unexpected results. The group found that body positivity posts on social media improved users’ appreciation of their own bodies, but didn’t have much of an impact on their overall self-esteem.

Hall-Phillips says there are real-life implications of social media that we are just now starting to understand. “It’s trendy, but social media has also changed the way we, as humans, consume anything. It’s a definitive news source for all things pop culture, but it’s also real life—it has become part of everything from politics to health care. It’s fascinating to study how it has infiltrated our lives.”

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Steve Foskett
Inch by inch, row by row, WPI’s Green Team is helping the campus community grow. A new greenhouse at 19 Schussler Road, located next to the Collegiate Religious Center (CRC), is the first visible piece of its plans to cultivate a vibrant community garden for WPI students, faculty, and staff.

“We want this to be not only a garden, but a community space where people can come and spend time and learn from each other,” says Gabriel Espinosa, Green Team’s president and a senior mechanical engineering major.

About 100 people stopped by during an open house in September to see the progress of the CRC’s first greenhouse, as well as pouring the foundation and other site preparation steps.

“Facilities has been with us on pretty much every step of this. But we also wanted to make sure we weren’t putting more work on them by leaving out conversations.”

Noting that Worcester’s industrial past means much of the city is likely to be a brownfield, Agostini adds, “While WPI may be in a privileged part of the city, we hope the community garden gets people thinking about environmental justice.”

Kalin Cummings, ODIME’s associate director for religious and spiritual life, is happy that the community garden is housed at the CRC. “As the university’s primary interfaith space, the CRC is a natural place to put community efforts into action,” says Cummings.

Construction of an accessible walkway and patio at the CRC, which is part of ODIME, was already underway when Green Team got the official launch of the community garden. Many of those tasks specified in WPI’s sustainability plan. More than a year in the making, the garden required Green Team leaders to develop relationships across campus—in particular with the Facilities Office, the Office of Diversity, Inclusion, and Multicultural Education (ODIME); and Dining Services.

“Inclusion, and Multicultural Education (ODIME); and Dining Services.

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In total, launching the community garden cost just over $6,000 and was paid for entirely by the Student Government Association. That covered the purchase of the greenhouse structure itself, seeds and gardening tools, as well as paying the foundation and other site preparation steps.

Green Team members built the six raised beds, which are filled with soil and compost donated by the Grantham’s Horticulture Club.

Anyone who volunteers at the community garden will be able to take home part of the harvest. Anything unclaimed after each harvest will be donated to Doughcht’s campus food pantry.

—Mia Lumsden

AWARDS, HONORS, AND RECOGNITIONS

Bailey-Hyotholt Honored by AIChE
Assistant Professor Christina Bailey-Hyotholt, chemical engineering, was selected for the prestigious AIChE 35 Under 35 Award. One of six awardees in the bioengineering category, she was recognized for her impactful work on developing new biomaterials and drug delivery vehicles influencing fundamental understanding and treatment strategies for reproductive health complications. AIChE says the award honors “35 chemical engineering professionals under the age of 35 who have made great contributions to the field, as well as to AIChE. These award winners embody what it is to be an accomplished chemical engineer.”

Sabuncu Named Engineering Unleased Fellow
Assistant Professor of Teaching Alмет (Can) Sabuncu, mechanical engineering, has been named a 2023 Engineering Unleased Fellow. This prestigious designation recognizes his outstanding leadership in undergraduate engineering education and his significant contributions to the greater Engineering Unleased community. The program is supported by the Kern Entrepreneurial Engineering Network, a partnership of more than 55 colleges and universities across the country.

Heinricher Named Interim Provost
President Grace Wang has named Professor Art Heinricher as WPI’s interim senior vice president and provost. In the announcement, Wang wrote, “Art’s reputation as a collaborative, empathetic, and respected leader precedes him. Serving as a professor of mathematical sciences since 1992, dean of undergraduate studies for 14 years, and interim provost last year, he is highly committed to the success of our students, the excellence of our academic programs, and WPI’s mission. Art is knowledgeable about WPI’s academic operation, and genuinely supports our faculty and staff. I am confident that he will bring our faculty, staff, and students together and help accelerate the momentum to advance our academic enterprise.”

Cummings Honored by WPI Seuser Award
Professor Elizabeth Stewart, assistant professor of chemical engineering, received a $200,000 National Science Foundation Engineering Research Initiation grant, a prestigous early-career award aimed at supporting new researchers as part of the NSF’s efforts to build engineering research capacity across the nation. Stewart will engineer an innovative microfluidic model to look specifically at how bacteria build biofilms on catheters inserted into blood vessels. This research aims to unravel how blood vessels and blood flow change the design and strength of these biofilms.

Rundemester Wins Test-of-Time Award
Elke Rundensteiner, the William Smith Dean’s Professor in Computer Science and founding head of the Data Science Program, recently received the Infosys 20-Year Test-of-Time Award from the Institute of Electrical and Electronics Engineers (IEEE) for her pioneering work on data visualization and visual analytics in 2003. This award honors articles published at previous IEEE VIS (Visual Identification System) conferences, in this case in 2003, that have withstood the test of time by remaining useful 20 years later and that have had significant impact and influence on future advances within and beyond the visualization community, according to the award’s organizers. Award selection is based on measures such as the numbers of citations, the quality and influence of its ideas, and other criteria. Rundensteiner and her team, which included the late computer science professor Matthew Ward and former PhD students Jing Yang and Wei Peng, were honored for their work on interactive, hierarchical dimension ordering, spacing, and filtering for the exploration of high-dimensional datasets.

Sue Summerton

ART HEINRICHER
It’s been over a year since young roboticists from around the world were introduced to the small open-source device that could revolutionize robotics engineering and help democratize global STEM access. And what a year it’s been.

During the 2022 FIRST Global Challenge in Geneva, Switzerland, WPI and DEKA Research & Development Corp. distributed nearly 200 beta versions of the Experiential Robotics Platform (XRP), a kit that makes it possible for novice engineers to build and program a simple, powerful, and affordable robot. The small but mighty device even caught the eye of music superstar will.i.am, a staunch STEM supporter who attended the event. “We started with the idea that we would create this prototype for an open-source engineering education platform,” says DEKA chief development officer David Rogers, who worked hand in hand with WPI’s Brad Miller to debut the original XRP in 2022. Miller is a senior fellow with longtime experience collaborating with DEKA and FIRST Robotics through WPI’s Robotics Resource Center. “In Geneva we got a lot of validation that this kind of product was something people were excited about.”

The excitement surrounding XRP followed WPI folks back to the United States and the project ready took off. WPI and DEKA developed new partnerships with Raspberry Pi and ST Microelectronics to supply the microcontroller and the inertial measurement unit (IMU) chips, respectively, as well as with SparkFun Electronics to manufacture the electronics. And with DigiKey distributing finished devices to secondary schools, community colleges, and universities across the country, educators have begun integrating the XRP into STEM courses.

Officials from both DEKA, based in Manchester, N.H., and WPI are starting educational endeavors in their own backyards. Thanks to a state grant, high school students at an engineering-focused charter school in Manchester are pioneering what Rogers calls a “community manufacturing concept.” The principal at Spark Academy gave him his office so that teacher Dan Larcheille ‘95 could set up two dozen 3D printers, which students are using to manufacture XPRPs that get shipped around the globe, all while getting valuable hands-on experience. At the same time, FIRST New Hampshire is working with leading STEM educators from across the state to establish teacher training and professional development workshops centered around XRP. The external relations team at WPI is also exploring pilot programs with Worcester Public Schools. “The XRP is leveling the playing field for STEM education, and I’m proud that WPI is one of the founding partners of this project,” says President Grace Wang.

Makers outside the classroom are getting in on the action, too. Nearly 2,500 units have sold to hobbyists, educators, and suppliers since the commercial units went on the market in August, according to Dave Orentselli, WPI’s executive director of corporate partnerships, who is managing the university’s role in this project. “We started with the idea that we would create this prototype for an open-source engineering education platform,” says DEKA chief development officer David Rogers, who worked hand in hand with WPI’s Brad Miller to debut the original XRP in 2022. Miller is a senior fellow with longtime experience collaborating with DEKA and FIRST Robotics through WPI’s Robotics Resource Center. “In Geneva we got a lot of validation that this kind of product was something people were excited about.”

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See how WPI students put theory into practice through projects.

THE PROJECTS:

Can data from the NFL Combine predict in-game performance?

THE STUDENTS: Matthew Dzwil '23, Mia Hopman '23, and Katie Houskeeper '23

THE ADVISORS: Associate Professor of Data Science and Computer Science Yanhua Li and Assistant Professor Kenny Ching of The Business School

THE BACKGROUND:
In a first-ever collaboration between WPI and the National Football League, the students recently completed a Major Qualifying Project that analyzed whether data collected during the league’s main scouting event could accurately predict how wide receivers performed during real games. The students worked with the NFL central office in New York City to determine whether player-movement metrics from the 2022 NFL Scouting Combine could accurately predict in-game performance.

THE METHODOLOGY:
The team examined positional data gathered at tenth-of-a-second intervals by a radio frequency identification tracking device located on the players’ shoulder pads. Working with NFL Data Scientist Tom Bliss and Senior Director of Football Data and Analytics Michael Lopez, the MQP team successfully developed a systematic approach to preprocessing data that uses specific thresholds to identify and segment drills.

THE OUTCOME:
“We manipulated data that provided valuable insights on NFL player combine movements and how those movements compared to in-game movements; plus, we provided recommendations to the NFL on how data collection could be improved in future years,” says Houskeeper. “The students did exceptionally well presenting the project to their NFL sponsors,” says Executive Director of Corporate Partnerships Dave Ortendahl. “They expertly answered questions from the field of professionals, which included Clark Ewen ’20, who is currently a football data and innovation analyst with the New York Giants.”

The project provided the students with invaluable insight into the challenges of working with highly variable, real-world data. The knowledge and skills they acquired through this project have positively impacted their lives already: Houskeeper earned her MS in business analytics and is currently a business analyst with DraftKings; Dzwil earned his MS in data science and is currently a software engineer with Juniper Networks; and Hopman is studying for her MS in data science while working as a data scientist at Hologic.
Playing in the inaugural United States Golf Association’s (USGA) Adaptive Open, being a top-ranked adaptive golfer in the United States, securing a clothing sponsorship from Nike Golf—there’s no question Doug Shirakura ‘24 has a lot to be proud of.

One of his favorite moments, however, didn’t come from the golf course, but from the social media app formerly known as Twitter, specifically from the account of professional golfer Max Homa.

“He’s known for being a big comedian on there,” Shirakura says, explaining that Homa’s online presence features a mix of golf commentary and the playful roasting of golf swings. After the inaugural U.S. Adaptive Open (which he simply refers to as “The Inaugural”), a reporter posted a video of Shirakura practicing his swing. The video eventually made its way to Homa’s feed, and instead of engaging in his typical banter, Homa was impressed, retweeting the video to his 600,000+ followers with the comment, “This is one of the greatest moves I’ve ever seen.”

“It was the coolest thing ever,” he recalls with a laugh. “My dad printed out a screenshot of it and has it framed up in the house.”

A Family Affair

Shirakura was born with amniotic band syndrome, a condition where his body’s development in the womb was hindered by amniotic bands, making his hands and right foot unable to fully form. When he was very young, his parents made the difficult decision to proceed with an amputation below the knee so that Shirakura could grow up learning how to use a prosthetic, allowing him to be more active in his youth.

His parents introduced him to golf at the age of seven. As he grew older, he regularly played after school with his dad, and then moved on to tournament golf and golf camps before starting to seek out tournaments specifically for amputees. The first search result was the Eastern Amputee Golf Association (EAGA) and its executive director, Bob Buck.

“I emailed him and asked if I could come play, and he was thrilled,” Shirakura recalls. “He said, ‘Absolutely,’ told me to bring my whole family and that they could play, too. I’m 15, 14 years old, and the average age of golfers there was like 40. Bob was so nice to me. He was so generous and open, talking with me and introducing me to the other players. I still see those people pretty often. It’s like an extended family.”

An Inaugural Opportunity

That experience opened up an entirely new world of golf for Shirakura, who dove even deeper into the adaptive golf scene without hesitation. As he gained and perfected new skills, he was chosen to compete in the USGA’s inaugural U.S. Adaptive Open in 2022 at North Carolina’s Pinehurst No. 6.

“It was amazing,” he says of the opportunity, where he ended up placing ninth. “This is the first major event they’ve put on for adaptive golf on this international level stage. It’s an experience most people will never have, and to be able to compete in it was just really special.”

Shirakura has gone on to compete in tournaments in Canada, England, and beyond. They’re all incredible opportunities—and even more incredible memories—but for him, the part that he most looks forward to is simple. “Everyone’s stories are amazing,” he says.

“There isn’t a single story you’ll hear from any of these adaptive players where you won’t be amazed by what they’ve overcome to get to where they are now. That’s what I love.”

One story, in particular, is especially close to Shirakura’s heart: that of his friend, Brian, an adaptive golfer himself who acted as his caddy at The Inaugural. Just a few short months later, Brian was in an accident that left him left his left arm paralyzed. The accident reintroduced him to the adaptive golf community, this time for entirely different reasons as he continues on his road to recovery.

“To see him reach out to players when he needs help, to find players he relates to and is motivated by, to get better because of golf, it’s so amazing,” Shirakura says. “It doesn’t come without its hard ships, but he’s done an incredible job of being motivated by golf rather than put down by it.”

He adds, Carlos Brown, one of the top golf coaches in the United States and an amputee himself, has been an important influence in his life. “He’s really believed in me over the past five years and I owe him a lot.”

Crimson and Green

Initially having chosen WPI due to its strong academics, especially in engineering, Shirakura has made a name for himself not only as a member of a handful of student clubs, but as a golfer and golf fan, which has shown him WPI’s supportive community time and again.

“I really wouldn’t trade any of the experiences I’ve had—not only with my friends and other students, but with faculty and staff—for the world,” he says, adding that he had a tee time scheduled with Dean of Engineering John McNell, who has competed in the U.S. Senior Amateur Golf Championship.

While Shirakura hasn’t had as much time to practice, play, or compete in upcoming tournaments due to schoolwork, he’s on track to graduate in 2024 with a degree in aerospace engineering, which has shown him WPI’s supportive community time and again.

“WPI has a lot to be proud of. There isn’t a single story you’ll hear from any of these adaptive players where you won’t be amazed by what they’ve overcome to get to where they are now. That’s what I love,” Shirakura concludes. “You know, I genuinely believe sports gives people a feeling of purpose,” he says. “Whether it’s joining amputee soccer or becoming a rock climber or powerlifter, to believe in yourself, that you can be as good as anyone else regardless of your disability. So go as high and as hard as you can.”

—Allison Racicot
PURVI SHAH
ASSOCIATE PROFESSOR OF MARKETING

MIRROR
For me, this mirror is more than just a tool to check my appearance. It is one of self-awareness, self-reflection, self-improvement, and self-discovery. I believe a mirror reveals the truth about our self-image and an unfiltered version of ourselves.

LEGO DUCK
LEGO’s core brand value is systematic creativity—creativity that combines logic and reasoning with playfulness and imagination. I apply this brand value in my teaching. I use this LEGO duck as an active learning team exercise in my class to drive in the concepts of systematic creativity, teamwork, and understanding and implementing customer specifications.

DUMBBELL
This dumbbell represents strength, health, and well-being to me. I keep it in the office so that I can do strength training while taking short breaks from work.

OWL
An owl is known as a symbol of knowledge and wisdom, as well as foresight. My teaching philosophy involves helping my students gain theoretical knowledge and then developing wisdom to apply it in real-world contexts. The owl reminds me to foresee future trends in business education, which helps me excel in my role as chair of The Business School’s Graduate Policy and Curriculum Committee.

QUALITATIVE RESEARCH BOOK
Numbers and statistics are important—and so is a rich, in-depth understanding of the story underlying those numbers. I fell in love with this aspect of qualitative research methodology. I not only use it in my research studies but also teach it to master’s and doctoral students at WPI.

VOLKSWAGEN BEETLE
This toy car symbolizes my research interest. The Beetle lived a life of 81 years, from 1938 to 2019, and then was discontinued by Volkswagen. I have a 12-year stream of research that explains why and how brands/products are deleted from their portfolios, how the decision impacts various stakeholders, and how dead brands/products are brought back to life through brand resurrection movements.

FAMILY PHOTO
This is a photo of me with my life partner (Akshay) and my daughter (Akshvi). I truly believe that life originates with family and the love shared in a family never ceases to exist. Akshay and Akshvi make my life beautiful and joyful!

DUMBELL
This dumbbell represents strength, health, and well-being to me. I keep it in the office so that I can do strength training while taking short breaks from work.

PHOTO BY JAMES CASEY

FACULTY SNAPSHOT
Get to know faculty through items they have in their offices.
GLOBAL IMPACT

As our nation’s capital, Washington, D.C., is home to many “firsts,” which is why it’s only fitting that it was chosen as the location for WPI’s first project center back in 1974.

“The authors of the WPI Plan wanted to get students off campus to complete full-time projects in one term, and in 1974, Washington was at the center of a political upheaval,” says Kent Rissmiller, associate dean of The Global School, who advised projects in the city in 1993 before becoming director of the center in 2012. Due to the ongoing Vietnam War and the impending Watergate investigation, he adds, “I think we all knew that history was in the making.”

That spark of history combined with the efforts of folks like Bill Grogan ’46, Jim DeMetry ’58, and former dean of undergraduate studies Frank Lutz, who made cold calls to D.C.-area alumni, searching for potential project sponsors, led to the creation of WPI’s first global project center. In those 50 years, students who’ve traveled to the nation’s capital for three interactive Qualifying Projects have worked with sponsors like the U.S. Coast Guard and other agencies, all while working on a project that would benefit my entire country,” says Rissmiller. “The project opportunities here in the U.S. provide wonderful ways for our students to contribute to our sponsors. I hope we can continue to do this important work. The agencies are ready to engage our students—and the projects are meaningful.”

As the project center celebrates its 50th anniversary, current and former students talk about what it means to them and how it has impacted their lives.

“I think the WPI Plan was the catalyst for what was to come,” says Ryan Malakunas ’24, a mechanical engineering student who completed a project on the best practices for preventing and responding to lithium-ion battery fires at sea. Because trained firefighting professionals can’t respond quickly to the fire, he explains, he and his group consulted firefighters, fire prevention specialists, and representatives from independent testing agencies before presenting 29 recommendations to their sponsor, including preventative policy changes, response training, and containment methods.

“It truly felt like I was working a real job,” says Malakunas. “I gained experience in communication and coordination by working with multiple departments of the Coast Guard and other agencies, all while working on a project that would benefit my entire country.”

His groupmate, Joe Peregrim ’24, agrees. “Completing this project for the Coast Guard was an amazing opportunity,” says Malakunas, “and I met some great people, too. I never thought I would have the chance to work with the Coast Guard to investigate best practices for handling stormwater runoff in Dumbarton Oaks Park—only to find that the team was investigating methods to improve the processing of energy. They’ve completed projects focused on everything from developing ways for our students to contribute to our sponsors. I hope we can continue to do this important work. The agencies are ready to engage our students—and the projects are meaningful.”

—Allison Racicot

$2.5 MILLION GRANT TO HELP LOW-INCOME COMPUTER SCIENCE STUDENTS GRADUATE

WPI has been awarded a $2.5 million grant from the National Science Foundation to boost the enrollment, retention, and graduation of computer science students from low-income backgrounds by providing scholarships, mentorship, and programs that will empower the students to complete their degrees in four years.

The Path to Achieving Success and Sense of Belonging in Computer Science (PASS-CSRJ) project will create a program for academically talented incoming first-year students who are eligible for federal Pell Grants, a form of financial aid for students from low-income backgrounds.

“WPI has a very good four-year graduation rate, as does the computer science department, but many students at my college are less likely to complete their degrees in four years,” says Rodica Noamta, professor of teaching in the Department of Computer Science and principal investigator on the grant. “In keeping with WPI’s mission to transform lives through degrees that can drive social mobility, our goal is to develop options and supportive environment so that students can excel academically and go on to careers in computer science.”

The PASS-CSRJ program will launch in 2024 with eight to 10 first-year undergraduates selected from Pell-eligible students who have been admitted to WPI and plan to major in computer science. Students in the program will be awarded scholarships of up to $15,000 a year for up to four years.

A second group of students will be selected for scholarships and programs in 2025, followed by a third group in 2026. In total, researchers expect to award scholarships and offer supporting programs to about 28 students.

Before the start of the academic year, new students also will be invited to participate in a summer “mini bridge” session on campus that will include math, physics, and computer programming bootcamps. The session will include workshops to help students navigate college life and take advantage of exciting campus resources. Students will have access to faculty mentors and opportunities to form small cohorts that will study undergraduate courses together to build community, support structures, and a sense of belonging.

The six-year project is funded by a grant from the NSF’s S-STEM program, which aims to build America’s workforce by supporting academically talented, low-income students who are pursuing degrees in STEM.

Co-PI on the project are Debra Bouchard, assistant dean of undergraduate studies, and Crystal Brown, assistant professor in the Department of Social Science and Policy Studies. The leadership team also includes Kathy Chen, executive director of the WPI STEM Education Center, and Hermine Vedogbeton, visiting assistant professor at the College of the Holy Cross and assistant research professor at WPI.

—Lisa Eckeb Becker
PHOTO BY MATTHEW BURGOS

Assistant Professor of Biomedical Engineering Solomon Mensah, on introducing high school students from underrepresented communities to the biomedical device industry and encouraging them to consider careers in STEM.

How did you get involved with developing medical devices for emerging economies?
I have always had the passion to give back to the community from where I came (Ghana). My hope is to use my engineering and entrepreneurial expertise to develop life-saving technologies that are easy to use and maintain, and that can be manufactured and purchased at a low cost. While at Northeastern studying for my PhD, I co-founded Therapeutic Innovations, a company dedicated to developing medical interventions for emerging economies without compromising on quality. I had toured neonatal wards in public hospitals in Ghana and saw no bCPAPs, a non-invasive ventilation strategy for newborns with infant respiratory distress syndrome, and no robust clinical protocols to effectively use the few devices they did have. I interviewed medical professionals across the country and conducted market research within many hospitals. The data collected formed the bedrock of what would eventually become Therapeutic Innovations, with a low-cost, easy-to-use bCPAP (called Airbaby) and a clinical capacity-building infrastructure template as the initial products.

Why is it important to offer a summer program to expose high school students to the medical device field?
I received the opportunity to engage in medical devices and innovation at a later stage of my academic career, which resulted in a drastic shift in my interest and research focus. I wondered how impactful it would have been if I had this exposure at an earlier stage of my academic career. Our goal is to reach out to high school students in groups underrepresented in the industry to encourage them to consider a STEM education. In 2023, Dirk Albrecht, associate professor in the Department of Biomedical Engineering, and I received funding from the Massachusetts Life Sciences Center (MLSC) to create a seven-week summer program for high school students to learn about the medical device industry. Last summer we enrolled seven students—all nominated by their high school science teachers—in this pilot program. Two WPI students, Abigail Holmes and Jack Rothenberg, served as teaching assistants.

What did you learn from the Summer 2023 pilot program?
We learned that students are really in need of programs that would expose them to real-life problems at an early stage of their careers. We also learned that they responded best to Abigail and Jack because they could relate to teachers who are closer to their age. Some subject presentations were not as engaging as we would have liked, so we’re partnering with Worcester Public Schools high school science teachers to tap into their expertise for the 2024 summer program. In a survey we conducted at the end of the pilot program, five of the seven students said they were definitely considering STEM careers, so that’s a great first result.

How are you creating a curriculum to get all high school students, especially those from underrepresented communities, interested in the medical device field to improve global health?
Coming from an underrepresented community myself, I understand the dynamics involved in knowledge transfer from an experiential standpoint. My goal is to leverage these personal experiences to develop a student-centered program that draws from individual student experiences and cultures to help drive innovation. The goal is to start in the Worcester Public Schools, and then approach other cities across the state that might be interested in adopting the curriculum as well.

What’s the next step in advancing your vision?
Thanks to MLSC and the BME Department, we hope to continue the existing collaboration and to secure further funding for program implementation. Our goal is to enroll 20 students in this summer’s program, using what we learn to continue to improve the school-year curriculum so we can reach even more students in diverse communities and expose them to this exciting industry.
It’s not often you hear the fun and buoyant sound of Super Mario Bros. theme music in a library. But the recognizable soundtrack to the retro video game and the exclamations from excited game enthusiasts permeated the ground floor of George C. Gordon Library last October.

On this evening, the entrance to WPI’s Archives and Special Collections was filled with dozens of students, faculty, and staff. They herded in groups around four television sets to play classic video games like Pong, Mario Kart, and Zelda and watch others test their skills on game consoles dating back four decades, all items preserved in WPI’s collection.

The busy scene was the kickoff event for the newest exhibit of Archives and Special Collections, “Video Game Console Wars, 1976-2001, Featuring WPI’s Interactive Media Archive & Interactive Media and Game Development Department.” The exhibit, located in the library’s Gladwin Gallery, features a display of consoles including a 1970s Atari 2600, the Nintendo Entertainment System from 1985, and a 1995 Sony PlayStation. The exhibit also includes vintage video game and interactive media projects led by students and faculty. Among the projects highlighted are Frogger and providing access to unique resources.”

The collection on display was built through collaborations between Archives and Special Collections and IMGD program faculty and staff. One of the program’s founding professors, the late Dean O’Donnell, was a driving force in gathering and preserving the historical items.

Arthur Carlson, university archivist and assistant director for the library, says the exhibit reflects a core mission of Archives and Special Collections, “to support WPI’s unique educational model. One of the ways we do that is by documenting both the history and development of academic courses and providing access to unique resources.”

Carlson says the archive of video games and interactive media is rare among colleges and universities. The collection places WPI with the likes of The Strong National Museum of Play and the Smithsonian, which developed a video game archive in 2016.

The exhibit will be on display until August 2024. It’s one in a series of displays at the Gladwin Gallery that showcase WPI history and culture. Exhibit organizers expect other events throughout the academic year, including more opportunities for students to play the vintage consoles.

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Jon Cain

A GAME PLAN FOR SUCCESS

Looking back at the first two decades of IMGD

The newly proposed degree required existing courses in computer science, philosophy, art, music, and creative writing while also proposing new classes in game design, storytelling, and the history of video game development. Courses were designed on WPI’s project-based learning principle. The faculty also envisioned the program would be a lure for underrepresented students in computer science, as the two tracks, artistic and technical, would offer wider appeal to prospective students interested in computer science and technology.

Within 10 years, the IMGD program earned global recognition. As it looks toward its 20th anniversary in 2024, it has solidified itself as one of WPI’s most distinctive and successful fields of study. The department continues to grow and develop, with its newest faculty proposed a bold new program at WPI, one that would change the trajectory of the department in ways they could not even imagine.

Professor Michael Gennert, then head of the department, was one of the new program’s architects. He saw the proposed Interactive Media and Game Development (IMGD) program as a natural extension of the Computer Science program were declining, despite the continued integration of technology into new aspects of everyday life.

At the time, the video game industry reflected society’s growing fascination with electronic entertainment, accounting for a global market share of $27 billion in 2003, with projections of double-digit growth. Seeing opportunity, an enterprising group of computer science faculty proposed a bold new program at WPI, one that would change the trajectory of the department in ways they could not even imagine.

When faculty members, including the late Dean O’Donnell and Mark Claypool, unofficially surveyed students about this plan, the responses were overwhelmingly positive and enthusiastic. The newly formed WPI Game Development Club, which was less than three years old but had more than 60 active members, was the fastest growing student group on campus, and supplied many of its early students.

As WPI entered the 21st century, the Computer Science Department was beset with a serious problem. Despite a four-decade-long history of success and innovations, interest and enrollment in the Computer Science program were declining, despite the continued integration of technology into new aspects of everyday life.

The move to a new program would be a challenge. The IMGD faculty would need to create new courses, secure new resources, and develop new partnerships. They would need to convince students and parents that this was the right path for their future.

The IMGD program has carried out its goal of serving as a model program producing WPI’s first master of fine arts graduate in 2023. The program would be a lure for underrepresented students in computer science, as the two tracks, artistic and technical, would offer wider appeal to prospective students interested in computer science and technology.

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“IT’S NOT QUITE COMPUTER SCIENCE, BUT IT INVI

EVEN COMPUTER SCIENCE, AND IT’S NOT QUALITIES HUMANITIES AND ARTS, BUT IT SURELY INVOLVES HUMANITIES AND ARTS,” he said at the time. “WE WANT SOMETHING THAT WILL HAVE AN IMPACT.”

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Joelis Valez Diaz ’24 carries clues to her life story in the assortment of pins attached to her backpack. Several reflect her heritage: A native of Puerto Rico, she moved to the U.S. mainland after Hurricane Maria devastated the island. She was born in her grandparents’ house, where “without having much, we had everything: family, friends, neighbors, and a profound sense of community. I am extremely happy to say that I found the same community spirit here at WPI.”

Other pins remind her of the countries she visited while completing her Interactive Qualifying Project in Thailand; her art, which was recently displayed in Gordon Library; her emotional support guinea pig, Newton; and the Disney movie Tomorrowland with its message about perseverance.

A chemical engineering major, Diaz is part of the WPI Teacher Preparation Program and hopes to become a research professor “to work on improving the quality of life and our environment, and helping students visualize themselves as agents of change through education.” A pin from the Louis Stokes Alliance for Minority Participation program shows her devotion to achieving equity and helping underrepresented populations.

Many of the WPI pins come from her role as a Student Philanthropy Ambassador for University Advancement. Her love of the city of Worcester is also evident.

“WPI showed me that it is beautiful to show who we are, and the importance of being vulnerable,” she says. “If you see me around campus and want to chat about any of these pins, feel free to reach out!”
Paul Liberman ’05
Builds a Gaming Empire
with an Engineering Mindset

BY SCOTT WHITNEY | PHOTOGRAPHY BY SCOTT ERB
Call it an occupational hazard or the cost of success, but Liberman is hard-pressed to escape the ubiquity of DraftKings, the online gaming colossus he co-founded in 2012. Little more than a decade after launching the company from his apartment, Liberman and his partners Jason Robins and Matthew Kalish stand at the helm of an international firm, that allowed him to dig into customers’ user experiences when navigating the company’s website. This new role brought him back to the methodical approach to problem solving he’d learned as an undergraduate, letting questions that arose organically guide his work. “How do people navigate the website? How do I measure that? How do I leverage data to make the experience better?” he recalls. Liberman’s experience at VistaPrint provided a critical eureka moment. “Whether you’re facing an engineering problem or a business problem, you’re using data, a hypothesis, and logic. The same approach applies, just in a different framework. It’s a mindset, and, as I realized, that’s my passion,” he says. Although he had been trained in the technical aspects of electrical engineering, it was the methodical approach to problem solving—the engineering mindset—that was his greatest superpower. This epiphany freed him to think beyond the boundaries of electrical engineering to the broader world of entrepreneurship. In fact, with a proven approach to problem solving that transcends disciplines or industries, the sky was the limit. And in a few short years, that’s exactly where he and several like-minded friends would be headed.

Liberman soon moved to a new position at VistaPrint, an eCommerce giant, that allowed him to dig into customers’ user experiences when navigating the company’s website. This new role brought him back to the methodical approach to problem solving he’d learned as an undergraduate, letting questions that arose organically guide his work. “How do people navigate the website? How do I measure that? How do I leverage data to make the experience better?” he recalls. Liberman’s experience at VistaPrint provided a critical eureka moment. “Whether you’re facing an engineering problem or a business problem, you’re using data, a hypothesis, and logic. The same approach applies, just in a different framework. It’s a mindset, and, as I realized, that’s my passion,” he says. Although he had been trained in the technical aspects of electrical engineering, it was the methodical approach to problem solving—the engineering mindset—that was his greatest superpower. This epiphany freed him to think beyond the boundaries of electrical engineering to the broader world of entrepreneurship. In fact, with a proven approach to problem solving that transcends disciplines or industries, the sky was the limit. And in a few short years, that’s exactly where he and several like-minded friends would be headed.

Liberman’s interests proved to be invaluable. “A lot of my time was spent optimizing existing work, or doing mechanical stuff, like soldering,” he recalls. “And I realized that I preferred the problem-solving aspect of engineering: tinkering, building, and constantly working on new projects.

For his Major Qualifying Project, Liberman and his teammates collaborated with Bose Corporation to develop an automotive voice-recognition program that allowed a driver to cue up specific music tracks using voice command. In 2004, programs like Siri were still years away and the basic challenges of voice commands had yet to be resolved. Without the benefit of plug-and-play algorithms, the MQP team members needed to train their program to decode each user’s voice and then retrieve the correct track. To make the project even more challenging, the team chose a Christina Aguilera song with an especially hard-to-pronounce title as their test subject.

The son of an engineer, Liberman also showed an early proclivity for electronics and networking. His interest in robotics in high school soon blossomed into a love for engineering, leading him to follow in his brother’s footsteps as an undergraduate student at WPI. In fact, it was on the WPI campus that he discovered his passion: technical problem solving with a focus on user experience. With his MQP project, Liberman learned the importance of human-computer interaction and the need to design products with the end user in mind.

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When remembering this difficult phase in DraftKings’ history, Liberman remains as analytical as ever; for him, these hiccups simply provided more invaluable data. “My mentality is that a failure is just another problem to be solved,” he explains. “The reason we’re here today—as a public entity, a regulated company, and even the gaming industry as a whole—came from what we learned in 2015. You can look at those experiences as failures, but we became a much better company because of it.”

HERE COMES SUCCESS

In the summer of 2021, a study from Cheddar & Kejriwal Gaming revealed that DraftKings had taken the national lead in online gaming, commanding a 31 percent share of overall gaming revenue. In just 11 years, Liberman and his two co-founders had turned their modest idea into an international juggernaut. As impressive as its growth has been, DraftKings’ meteoric rise has also posed personal and professional challenges for Liberman. Among them is the high visibility that comes with reaching the top of the proverbial mountain. “The scale changes. When something goes wrong, it’s on the front page of ESPN, or there’s 50,000 tweets about it,” says Liberman. He adds with a chuckle, “If there’s a bad news story, I’ll say to my friends, I know you guys all saw that article, because you all sent it to me within 30 seconds.”

Not that he’s complaining—in fact, most of the pressures attendant to his success aren’t related to him at all. “The pressure is a lot higher because your employers rely on you,” he notes. “But that’s also the best part of the job. I love going into the office on Sunday when football starts and seeing all the amazing people here, focused on making this organization a better place.”

As he moved from one side of the business to the other in DraftKings’ early days, Liberman consistently applied the analytical approach to problem solving he’d learned as an engineer to business challenges. “I have filled a variety of roles at DraftKings, but in each one I asked, ‘How can we make this department revolve around data? How can we bring it back to basic problem solving?’”

In 2015, DraftKings faced its first major headwinds as an emerging industry leader. Questions arose nationally about the legality of fantasy sports, with some arguing that it constituted gambling. DraftKings’ early days, Liberman consistently applied the analytical approach to problem solving he’d learned as an engineer to business challenges. “I have filled a variety of roles at DraftKings, but in each one I asked, ‘How can we make this department revolve around data? How can we bring it back to basic problem solving?’”

In 2015, DraftKings faced its first major headwinds as an emerging industry leader. Questions arose nationally about the legality of fantasy sports, with some arguing that it constituted gambling. For Liberman, intuition needs to be paired with data for success—both are critical; good data leads to his success aren’t related to him at all. “The pressure is a lot higher because your employers rely on you,” he notes. “But that’s also the best part of the job. I love going into the office on Sunday when football starts and seeing all the amazing people here, focused on making this organization a better place.”

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In 2015, DraftKings faced its first major headwinds as an emerging industry leader. Questions arose nationally about the legality of fantasy sports, with some arguing that it constituted gambling. Liberman sees another upside to having built an international team. “We have such a great team right now, which gives me leverage to focus on the next thing we do. How do we grow? How do we scale?” he says. “You never run out of problems, which is what keeps me motivated.”

In the face of failure and criticism, the successful person accepts the experience as inevitable and embraces the lessons it brings. “You’re always going to encounter people who tell you why you can’t do something. You’ve got to be persistent and aggressive in the face of that.”

According to Liberman, the key to harnessing one’s personal drive lies in your unique interests—not in becoming all things to all people. “When your passions align with what you’re good at, you’ll excel,” he says. “A lot of people want to get better at what they’re bad at, but I’m a big fan of emphasizing your strengths.”

Never wait for a career counselor or mentor to show you your life’s path. “No one cares more about you than you, so map out what you want to accomplish proactively,” says Liberman. He suggests writing down your long-term objective and putting it where you’ll see it every day. “Every time you read it, ask yourself, ‘Am I moving in that direction?’”

FOR THE LOVE OF SPORTS

With its wide reach across the globe, the DraftKings Sportsbook is one of the most popular betting platforms, with millions of users placing bets daily. For Liberman, the Sportsbook is a reflection of the company’s dedication to providing fans with a seamless and enjoyable betting experience. “We are all about the fans,” he says. “That’s why we do what we do.”

The company has also taken steps to ensure the safety and security of its users. DraftKings has implemented strict regulations and policies to prevent any form of insider trading or illegal activities. “We take our responsibilities to our users very seriously,” says Liberman. “We are committed to maintaining the trust of our customers and ensuring a fair and transparent betting environment.”

While Liberman is proud of the company’s achievements, he is also mindful of the challenges that lie ahead. “We have come a long way,” he says. “But we’re not done yet. There’s always room for improvement, and we’re always looking for ways to innovate and stay ahead of the curve.”

As DraftKings continues to grow and expand, Liberman and his team will continue to focus on providing top-notch service and a safe and enjoyable betting experience for their users. “We are dedicated to delivering the best possible experience for our customers,” says Liberman. “And we will always strive to improve and innovate in order to meet the evolving needs of our users.”

In conclusion, the story of Paul Liberman and DraftKings is a testament to the power of determination, hard work, and a commitment to excellence. Through years of dedication and a focus on data-driven decision making, Liberman and his team have built a company that has revolutionized the gaming industry and continues to set new benchmarks for success.
Pitch Perfect

Gabriela Hoops ’19 operates at the crucial intersection between sports and tech.

BY AMY CRAWFORD
REFEREE TORI PENSO REVIEWS THE VIDEO REPLAY DURING THE FIFA WOMEN'S WORLD CUP FINAL MATCH BETWEEN SPAIN AND ENGLAND IN SYDNEY, AUSTRALIA.

“I’ve just always been passionate about soccer,” she says. “It’s one of the few sports that, as a girl, you can imagine growing up to play professionally.”

Making it to the World Cup was always her ultimate dream. And while Hoops may not have been on the field during the tournament in Australia and New Zealand last summer, she did have a key role. As a replay operator with Hawk-Eye Innovations, the world’s top provider of video assistant referee (VAR) technology, she used the firm’s cutting-edge system to help FIFA officials make fair and accurate decisions about goals, offenses, and penalties. The stakes were as high as they get, and Hoops was in her element. For the 2019 mechanical engineering graduate and former WPI soccer goalkeeper, a career with Hawk-Eye offered the perfect combination of sports and technology, bringing together the engineering skills she honed at WPI with a love of the game that has animated her for as long as she can remember.

MAKING THE TOUGH CALLS

Hawk-Eye Innovations’ computer vision technology was originally developed by British engineers in 2000 to help viewers see the ball’s trajectory. The company soon adapted its ball-tracking, smart replay, and other technologies for sports as diverse as golf, ice hockey, and NASCAR. Meanwhile, applications grew to include not only telecast enhancement but officiating. Hawk-Eye now works with the majority of the world’s top leagues and has become a brand recognized by sports fans around the globe.

“A lot of people know us from watching tennis, where you see the ball and its shadow,” Hoops says. “That’s what we do.”

Although the technology can determine locations down to a few millimeters, some leagues were cautious in embracing video review to make officiating decisions. As time went on, the utility of using it for tough calls—for instance, determining the precise location of a ball or a player’s foot relative to a boundary line—became impossible to ignore.

“The more popular sports tend to be entrenched in their ways,” she notes. “But, at the same time, I think players, coaches, and fans would be more upset if it wasn’t used.”

Hoops joined Hawk-Eye’s U.S. headquarters in Atlanta immediately after graduating from WPI. In the summer of 2019, it was a small office (although it would grow by 2023 to more than 70 U.S. employees), and

THE FINAL

GETTY IMAGES
You're not just sitting back and waiting for something to happen...there are official checks that you see on TV when the referee runs over to the screen. But the VAR team is checking everything throughout the game. The moments of high pressure are certainly there, and it takes a lot of experience to get used to it.

"You're not just sitting back and waiting for something to happen," Hoops says. "There are official checks that you see on TV when the referee runs over to the screen. But the VAR team is checking everything throughout the game. The moments of high pressure are certainly there, and it takes a lot of experience to get used to it.

In addition to knowing how to operate the system, knowledge of the game itself is crucial, she explains. "You need to know who you're listening for and what you're checking. There's a lot of audio and visual information in this high-pressure situation with not a lot of time to think. But it's also exciting. To be able to go to a Women's World Cup was a dream come true, and I like that I got to be a part of it as more than a spectator."

A PERFECT FIT

Hoops can't actually remember when she first stepped onto the soccer pitch—"she may have been 3 or perhaps 4, but it was definitely at the age when kids' shirts are too long and you can't find shorts that fit," she says with a laugh.

The Connecticut native played through high school and knew she wanted to play in college. She also loved math and science; she wanted to study engineering, and she hoped for the opportunity to study abroad. A few interviews with college coaches helped her narrow her options, but it was only when she met Stephanie Riley-Schafer, WPI's head coach since 2011, that she knew where she was going to spend the next four years.

"I could do engineering degree at WPI," she says. "But I could also play soccer at a high level on a competitive team where I liked the coach, and I could study abroad—and do all that in four years without disrupting my studies. So that was all I needed."

The school proved to be a perfect fit. Hoops completed her Interdisciplinary Qualifying Project in Copenhagen, examining the potential for urban rooftop farming as a way to create a more sustainable food system and mitigate climate change. Project-based learning worked well for someone who was used to being part of a team, and Hoops learned to take a step-by-step approach to solving difficult technical problems—one that has served her well in her career.

"In the technology sector, a lot of what you're working on is proprietary," she explains. "There's no way for me to have been able to learn Hawk-Eye's tech before I got here. But what I did learn from WPI was 'This is how you troubleshoot; this is how you approach complex problems. You just take it one step at a time. How does point A get to point B? What are all the little jumps and hops and skips in between?'

Hoops excelled academically, but her heart stayed on the field, and Riley-Schafer was pleased to see that her own efforts to recruit the young goalkeeper had paid off.

"Gabri was one of the best goalkeepers to go through our program," the coach says. "She was very dedicated to the sport and the team and the academics. I think she found a really good balance in WPI."

During her sophomore year, Hoops helped the team win a New England Women's and Men's Athletic Conference championship. As a senior, she got to flex her leadership muscles, taking on the role of team captain.

"She really took the back line under her guidance and was great about giving feedback and helping younger players," Riley-Schafer says. "Gabri's one of those people who includes everybody. A lot of our players just want to put their heads down and get the job done, and she would key in on them and recognize their hard work and recognize what really drove them to be successful."

The season after Hoops graduated, Riley-Schafer recalls, she did an exercise with her players about what makes a great leader. She asked, "What qualities did the players seek in a leader and who embodied those qualities for them?" Some players named world leaders, others historical figures. But the players who had been on the field with Hoops named her.

"She was somebody that really loved the sport, loved the team," Riley-Schafer says. "I can see her taking that into what she's doing now."

A WORLD CUP DREAM

During the 2023 Women's World Cup, Hoops spent seven weeks in Australia, working most of that time—in all, she operated for 15 of the tournament's 64 matches, including the final, which saw Spain beat England, 1-0, in a match played before 75,000 fans. Back in Worcester, Riley-Schafer and the WPI women's soccer team were watching together when the coach got a glimpse of a familiar curly-haired head.

"There were moments when they flashed to the VAR room," Riley-Schafer recalls. "At one point, they flashed to her. I went up to the screen and I pointed at that head and I said, 'This is one of our alumni!' And the players were like, 'What? That's amazing. How do we get to talk with her?'

Hoops graduated before any of the current WPI Women's Soccer Team members arrived, but they were inspired to know someone who had been in their cleats had made it to the World Cup, working at a crucial intersection between sports and tech.

"I really do think WPI was great for Gabi," Riley-Schafer says. "I'm glad that she gets to keep sports in her life. And the years have gone on, hearing where she's been and what she's been able to do and all that. I just think it's a great fit. Working in sports can be hard, it's long hours, it's off hours. So you really do have to love what you're doing. And I think she does."

That's the truth, Hoops says. And while she plans to keep rising through the ranks at Hawk-Eye—she just took on a new role, leading a team on the tech side of the business—the 2023 World Cup will always stand out as a highlight.

"It was really a core memory moment," she says. "To be involved, at that level, in a World Cup final—that was probably one of the coolest things I'll ever do in my life."
Jamal Yagoobi’s dual areas of expertise have him in demand everywhere from outer space to the manufacturing floor.

BY LAUREN REBECCA THACKER
Jamal Yagoobi has two areas of expertise, and both involve heat—more specifically, the theoretical, numerical, and experimental study of heat transfer and mass transport enhancement. One area helps keep electronic equipment from overheating in space; the other addresses the energy-hogging drying process in the large-scale manufacturing of items such as food, paper, and chemical products.

As a result, the George F. Fuller Professor of Mechanical and Materials Engineering can find his innovative technologies in places as exciting as the International Space Station or as ordinary as a snack food manufacturing plant.

“Although these two areas may seem to be very different, they’re based on a common technical platform,” he says. “Drying deals with the heat and mass transfer in moist porous media while the cooling of electronics is concerned with liquid/vapor phase change in the presence and absence of gravity.”

In addition to being technically complex, Yagoobi’s research considers heat transfer at a large scale. “Picture a football-field-sized oven that dries or bakes dough that will eventually be snacks, or pulp that will end up as packaging,” he says. “This is the scale of industrial drying. The processes that companies use are mostly decades old and the U.S. Department of Energy estimates that almost half of this energy use is wasted. Industry needs new technologies.”

Heat is also a concern aboard spacecraft. Without proper cooling, the processing of materials and the operation of electronic equipment could be compromised. “I had such a keen interest,” he says. “I went through everything in the local bookstore and even subscribed to magazines about space.”

From his hometown of Tabriz, Iran, a 14-year-old Yagoobi wrote to one such magazine, asking how he could pursue a career that would allow him to investigate the many mysteries of the universe. The answer came back: study physics or engineering. He chose engineering and began a journey that would take him from Sharif University of Technology in Tehran to the University of Illinois in Urbana-Champaign, to WI— and even to NASA’s zero-gravity aircraft.

As a graduate student at the University of Illinois, he studied mechanical engineering, which led to a postgraduate fellowship at NASA’s Goddard Space Flight Center. These days, he and his research team are in regular contact with Goddard as well as Glenn Research Center scientists and collaborate on the development of cooling technologies that function in the absence of gravity.

“Although these two areas may seem to be very different, they’re based on a common technical platform,” he explains. “It’s a non-mechanical way to move fluids with extremely low power and no vibration or rotating machinery.”

The technology, which uses electrically charged fluids to absorb and carry heat away from electronics and other heat-generating equipment, was tested for over a year aboard the International Space Station in 2018. In addition, Yagoobi and several of his students were able to test their technology on NASA’s zero-gravity flights for a total of 12 days over three years.

“Thus far, I’ve been very impressed by how my students and I have taken advantage of this opportunity. More important, we got to conduct important experiments—we also tested the technology with moon and Mars gravity. We’re proud of what we developed and are confident the technology will be used in next-generation satellites as well as long missions by NASA. It also has terrestrial applications in industrial cooling and heating, ventilation, air conditioning, and refrigeration systems.”

In-demand drying technology

While Yagoobi’s interest in space tech can be traced to his childhood dreams, his work on industrial drying developed from his work experience after receiving his doctorate. “I didn’t know much about drying until I worked in industry after graduating,” he says of the three years he worked at Wooraco, a pulp and paper company. “That’s where I began to appreciate the importance of drying, the amount of energy it uses, and how much work we can do to reduce our carbon footprint. I decided to return to academia and focus on this challenge.”

Yagoobi’s work in this area has established him as a national leader whose technological advancements are in demand by industries looking to reduce their energy usage and carbon footprint.

As the founding director of CARD, which was established in 2017, Yagoobi leads a team of faculty and graduate and undergraduate students from WPI and the University of Illinois in Urbana-Champaign. As one of NSF’s Industry-University Cooperative Research Centers, CARD facilitates close cooperation between academic researchers and industry partners. Companies such as BAE, Mondelēz International, and PepsiCo have partnered with CARD.

These collaborations allow researchers to have an inside look at how companies function and what solutions would be most viable, at the same time helping companies quickly bring advanced drying technologies from the lab to the plant floor. Each year, CARD hosts two meetings with its industry advisory board, where faculty and student researchers share updated findings and, in turn, industry leaders provide direct mentorship and feedback about their challenges. In addition, CARD offers site visits to member companies and provides advice on what technology is needed to achieve their objectives. Students hold virtual meetings every month with member representatives.

Yagoobi’s research has major implications for the nation’s energy and sustainability goals. Industrial drying, particularly in the food, paper, and chemicals industries, accounts for about 1.2% of this country’s total energy consumption. “U.S. companies are mandated to have a zero-carbon footprint by 2050. CARD will play a critical role in helping meet that goal even earlier than that,” he says.

CARD researchers have developed a dielectrophoretic drying technology that extracts vapor from moist material, and airborne ultrasonic dehumidification process that removes moisture with ultrasonic waves. They are also working on the use of fiber optics to detect information about moisture in porous materials, which may lead to more precise measurements and efficient drying. Artificial intelligence also plays a role in CARD projects—researchers can simulate various drying processes to determine the optimal processes for different materials. With simulation, numerical calculations, and experimental data, CARD research can minimize energy consumption while also improving product quality.

Yagoobi is particularly proud of the development of slot jetreattachment nozzle technology, which improves convective heating and reduces natural gas consumption, and ultrasound-
Yagoobi and colleagues conduct at the Advanced Manufacturing Center, which opened in 2021 in a former manufacturing building near WPI’s campus. The new space accommodates a technology that came to Yagoobi’s mind during a run—when many of his ideas come to him, he says. “I’m not a fast runner, but I very much enjoy it.” he says. “During one of my runs, I wondered if I could design a dryer with various technologies, one that could help industries by testing different methods and gathering scalable data.”

After some more thinking and $3.5 million in funding from the U.S. Department of Energy, plus support from the Massachusetts Clean Energy Center and WPI’s Manufacturing and Innovation Center, which opened in 2021 in a former manufacturing building on campus, the smart dryer testbed became a reality. Coming in at 10 meters long and equipped with a conveyor belt and custom sensors (developed by his colleagues Associate Professor Doug Petkie, mechanical and materials engineering, and Professor Joerg Pollex, physics, and their students), the testbed includes technologies such as airborne ultrasonic drying, slot jet reattachment nozzle technology, infrared technology, and dielectrophoretic desalination technology. “This testbed, widely used by industry partners, is for food, paper, chemicals, you name it,” Yagoobi says. “We can easily change the location of these technologies. So, for a given product, we determine the optimal combination and operating conditions. It’s quite novel—there’s nothing similar to it in the world.”

In addition to testing drying methods that industries can implement to lower their energy usage, he intends to use the testbed as a teaching tool for graduate and undergraduate students. “Research itself lets them see how research is done and how it’s relevant to the classroom material,” he says. “I don’t look at it as a distraction from my research—absolutely not. In fact, so much of research is teaching. I really love teaching, going to the lab, and interacting with my students.”

LEADER IN THE LAB AND CLASSROOM
Yagoobi knows that listening to a lecture can be challenging, and it’s also not the best way to develop a deep, nuanced understanding of complex topics. In his classes, he looks for ways to interrupt lectures with opportunities for interaction. That might mean inviting a student to the front of the room to explain a concept, or simply pausing to ask a question. He gives students a heads-up that his class functions this way and offers the chance to opt out, but most students want to participate.

He also brings undergraduate students to the Advanced Manufacturing Center so they can get insights on what it means to conduct research. “Showing the testbed to students who aren’t necessarily doing research themselves lets them see how research is done and how it’s relevant to the classroom material,” he says. “We all daydream when we sit in a meeting, right? I try to create a collaborative environment, so that students stay engaged.”

Students who do engage in research with Yagoobi get fundamental understanding as well as hands-on experiences—the zero-gravity experience being the most exciting example—in addition to receiving mentorship from partner industries and seeing how experimental technology is actually used in manufacturing plants. One experiment from Yagoobi’s lab soon will be flying into space and will bear a logo designed by a former student Michel Talmor Tilley, PhD ’23, who passed away in 2021 while working on her dissertation. After her death, Yagoobi took it upon himself to complete her dissertation on electrohydrodynamics. “I had known her since 2013, and I felt responsible for her work,” he says. “There was no question that I would do this. I wanted her work to be in the scientific literature under her name.”

What followed exemplifies Yagoobi’s commitment to his students. He reviewed years of drafts and data that Talmor Tilley had shared during times as his advisee, revisited and submitted scientific articles they had written together, and watched recordings of their meetings. He submitted her dissertation, which included tributes from current and former graduate students who worked with her. WPI posthumously awarded Talmor Tilley a PhD in Mechanical Engineering. Over the course of his career, Yagoobi has supervised upwards of 100 other students as they complete their doctoral dissertations and master’s theses, both at institutions where he has worked and at universities in France, Sweden, Morocco, and India. He’s also hosted more than 70 international students and scholars in his research laboratories at WPI, and at Illinois Institute of Technology—Chicago and Texas A&M University. He’s been recognized for his outstanding teaching and research by Texas A&M; for his research by the American Society of Mechanical Engineers (ASME), IEEE, and NASA; and for his collaborative work by the French Ministry of Education. He is a fellow of ASME and IEEE and has published 135 articles in lead journals, conference proceedings, and book chapters. “Teaching is interactive and interesting to me,” Yagoobi says. “I don’t look at it as a distraction from my research—absolutely not. In fact, so much of research is teaching. I really love teaching, going into the classroom, and interacting with students.”

COMBINING INTERESTS
In the future, he hopes to add additional technologies, such as microwave, radio frequency, laser, and induction heating to the smart dryer testbed at WPI. He’s also working on making heat pump technology more efficient by adding electrohydrodynamic technology, something he calls “really, really exciting.” And there’s more to be done in the world of heat pumps, as he works to develop one that can operate at higher temperatures and with reduced energy consumption. For this project, he says, he is “merging my two research hats.”

Ultimately, Yagoobi says, he will continue pushing his research interests forward, keep teaching, keep collaborating, keep innovating. But first, he wants to see heat pumps and energy consumption during his runs, and see where it takes him, whether that’s to zero gravity or zero carbon emissions.
“In 2005, I reconnected with WPI. A year later, I was able to complete my MQP based on my RADAR work. I finally got my degree in computer science in 2006! This whirlwind reconnection eventually led to Patricia’s and my creating a scholarship in honor of my parents who worked tirelessly for me. We hope the James and Alice Kelly Memorial Scholarship helps WPI students realize their goals now and in the future.” —KEVIN KELLY ’75

Kevin Kelly ’75 knew WPI was the right fit for him. The experiences he had with the WPI Plan gave him the tools to get an early start in his career. While trying to finish his MQP, he landed a great job as a software developer in Harvard Square doing project management applications. His new job took up all his time, which ultimately caused him to be unable to complete his MQP. Kevin says, “I walked into a 30-year career in digital real-time signal processing and algorithms for RADAR systems,” which he used to complete his MQP in 2006. His tenacity is a great example of how it’s never too late to achieve your goals!

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ALUMNI ASSOCIATION PRESIDENT
PAMELA (GIASSON) LYNCH ’05

Dear Alumni,

In the previous WPI Journal, I invited you to reflect on your WPI experience and contemplate how the university and your WPI education have impacted your life. Today, I invite you to join me in looking forward to the future that I and the Alumni Association Board hope to achieve for the WPI alumni community.

Founded more than 100 years ago by a small group of alumni to promote general interest in education and to strengthen ties with the university and each other, the WPI Alumni Association continues this work today while also developing new ways to serve alumni and students.

Below, I have outlined strategic steps the Alumni Association Board has planned to meet our overarching objective of increasing meaningful alumni engagement with the university:
– Increase alumni connections by doubling social media engagement
– Increase alumni volunteering and event participation
– Develop and launch a “Welcome to the City” program for alumni
– Elevate our collective network through alumni engagement
– Demonstrate the impact WPI alumni have on the world by promoting alumni accomplishments
– Strengthen the alignment of Alumni Association resources in support of our mission
– Leverage Alumni Association committees to identify annual priorities and areas of focus
– Align Alumni Association Board effort and discussions on strategic goals and priorities

As the Alumni Association continues to seek ways to perpetuate WPI’s cherished traditions and inspire pride in the WPI community, we ask you to partner with us on this mission, by sharing your time, treasure, and talent with our beloved alma mater.
If you noticed a stunning vista of red-and-white striped rugby shirts spread across campus on Homecoming Weekend, you can thank the Student Alumni Society (SAS) and its 40th anniversary celebration. Easily recognized by their striking “rugbies,” members of SAS are the university’s beloved tradition keepers who encourage participation from alumni, students, faculty, and staff in WPI’s rich and historic traditions.

The well-attended Homecoming event, held in the Rubin Campus Center Odeum, found SAS members enthusiastically enjoying each other’s company, as well as a delicious spread of sweet and savory fare. President Grace Wang offered a congratulatory message to the attendees, and as the microphone was passed, current and former SAS members shared heartfelt memories of SAS joys and uproarious tales of SAS shenanigans.

When asked how SAS began, event attendee and founding SAS member Kathy Vignaly ’84 shared, “As an undergraduate student, my friends and I would help the Alumni Association with Homecoming and Reunion events. During those times, alumni often talked about long-forgotten WPI traditions, such as beanies, the Tech Bible, and the Goat’s Head Rivalry. After hearing how much alumni enjoyed those traditions and lamented their disappearance, my friends and I began work to revive those traditions for students to enjoy.” In 1983, with the support of the Alumni Office, the Student Alumni Society was officially established on campus.

SAS member Daniel Shea ’24 says he had an amazing experience at the event. "It was nice connecting and reminiscing with friends I haven’t seen in a little bit and to get a glimpse of how their college lives shaped their current life paths. Also, it was a great opportunity to connect my recent graduate friends to current members for networking opportunities, and current members could have a glimpse of what has shaped SAS over the past few years.”

Reminiscing on her SAS experience, Rachel Delisle ’96 says, “I earned my rugby as an alumna when I served as Alumni Association president. It is one of my most prized possessions I still participate in as many Bridge Crossings as I can to help welcome the first-year class into the WPI family.”

On behalf of the entire WPI community, we congratulate SAS on its 40th anniversary, and thank the members for all they do to keep WPI’s traditions alive.

—Sira Naras Frongillo

Student Alumni Society Celebrates 40th Anniversary

“My experience at the SAS anniversary event was amazing! It was everything I could have asked for. I was able to meet SAS alumni, hear how SAS has changed over the years, and hear about how SAS alumni’s lives have turned out.” —Christian Oliveira ’26
At first blush, one might not think an engineering education could be useful for writing a bestselling murder-mystery novel. But author Nina Simon ‘03 says the problem-solving skills she honed as an electrical engineering major at WPI helped her successfully pivot from a fast-paced career as a CEO to one where she’s plotting murders—considering how to reveal clues and plot twists.

“Writing a good murder-mystery starts with a ‘What if?’ question,” says Simon, just like in the scientific process. What if— as in the plot of her new novel, her mother is doing well today. Simon spent months with her mother trying to help her heal and get stronger. (She is quick to assure, “her Hero First Four Careers

Her First Four Careers

By her own calculation, Simon is on her fifth career: just out of college, she worked as a contractor for NASA in Washington, D.C., a job that evolved from her Major Qualifying Project. At the same time, she was working at a low-paying but highly fulfilling weekend job fixing exhibits and creating puppet shows for the Children’s Museum. The creative joy she found at the museum infused doubt into her initial career aspirations. “I felt very much conflicted. A part of me felt very proud that I was a woman in electrical engineering,” especially at a time when women represented only one percent of workers in the field. “I thought this was my dream job. But I was sitting in a windowless room doing math problems. I just wasn’t loving it.”

Simon has always embraced both sides of her brain—the creative and the technical—even at WPI, where she described herself as an engineer by day and a slam poet at night. “Using one side without the other left her wanting more.”

Simon’s entire family was in the medical field, including the director of the museum (a former CIA agent) and the highest-ever defender from the KGB. She tapped her engineering skills to deconstruct the technical craft of writing. “I’ve never taken a writing class, so I would take some of my favorite books off the shelf and diagram a scene to see, for example, how an author builds tension. I was trying to take it apart—like an engineer—to see how it works.”

The mystery-solving protagonist is a feisty real estate executive based loosely on her own mother, whose real-life battle with cancer was the catalyst for Simon’s abrupt career change. “The first draft I wrote 100 percent to make my mom smile. The main character is this outrageous, superhero version of my mother,” she says. “In the end, what began as a fun distraction turned into a Reese Witherspoon Book Club-endorsed novel now climbing the New York Times bestseller list.

Love and Escape

Simon spent months with her mother trying to help her heal and get stronger. (She is quick to assure, “her mother is doing well today.”)

I was also working on myself to deprogram and let go of some of the intensity of all that CEO life. We both love mysteries, so I said to her, ‘What if I try writing a murder mystery, and make the detective someone like you.’”

At some point she decided to take “this little project about love and escape” and see if she could actually get it published. Simon’s husband was an essential partner in this undertaking and he gave his blessing without hesitation. “We’re both entrepreneurial and creative. We decided early on in our marriage to live fully and well on one salary so we could always say yes if one of us wanted to start a new business, or write a book, or take time off to help someone. We’ve made that trade about five times in the past 21 years.”

Simon’s multi-career background, appealed to publishing executives. “They loved the story of someone who has lived many lives. One editor said, ‘You probably have a lot of stories to write,’ she says. “My persistence and my energy and the continual learning finally paid off.”

She found an agent who worked with her to rewrite the book to flesh out two other main characters—the protagonist’s daughter and granddaughter—and they sold it to publisher William Morrow. Being the September 2023 selection in Reese Witherspoon’s Book Club gave it critical visibility that helped launch it onto the New York Times bestseller list. Simon also sold film adaptation rights to Capital Entertainment, a production company now developing the story for the screen.

While she’s currently spending most of her time crisscrossing the country promoting “Mother-Daughter Murder Night,” a production now developing the story for the screen. “I’m staying in general premise of strong women and crime fiction,” she says. “I haven’t hammered out all of book two yet, but I’m sure there will be a dead body and some kick-ass women.”

--Kristen O’Rally
Susan and William Rutherford ’73 have nine granddaughters, and when they endowed the William A. ’73 and Susan Rutherford Civil Engineering Scholarship, they did so to help ensure there would always be scholarship support available for all women if they chose to study civil engineering.

Growing up in the 1950s and 1960s, Rutherford says he recognizes how different his life would have been had he been born a woman. With the gender inequity of the mid-20th century, he says, “No matter how capable or hard-working I was, if I were a woman in those days, I would never have been encouraged to take the pre-requisite high school courses needed to attend WPI, never joined the Army Reserve Officers’ Training Corps (ROTC), never joined a fraternity, never worked as a union ironworker, welder, and truck driver, never become a professional engineer and construction manager, and, ultimately, I never would have experienced having my own forensic engineering business.”

Rutherford reflects, “Regrettably, I didn’t appreciate these sad facts of American life until I entered the work world. Susan did a lot to educate me after telling me about her youth and the professional struggles she faced, so we are doing what we can to help close the persistent workplace gender inequity gap. Our hope is that our nine granddaughters, and their daughters and granddaughters after them, will grow up in a world where women engineers have the same professional opportunities as their male counterparts.”

Rutherford grew up in Worcester, attended Burncoat High School, and was drawn to WPI by its long-standing reputation for rigorous academics. He commuted from home for two years to save money and says he was fortunate to have received a three-year ROTC scholarship that enabled him to complete his education. “Without it, I most certainly would have left WPI,” says Rutherford.

“I was never a wizard at anything,” he says. “I had to work hard at everything I did. Over the years, I learned the importance of good luck, persistence, and having the desire to take advantage of good opportunities.” He graduated in 1973 as a second lieutenant in the Army Reserve and then took a position as senior nuclear waste management engineer with the Department of Energy in Richmond, Wash. From 2000 to 2010, he managed his own forensic engineering/consulting business and eventually retired to Idaho and then Arizona with Susan. “Today, we enjoy the blessings of our three children, 18 grandchildren, and one great-grandchild,” he says.

Acknowledging the role WPI played in his professional career, he says, “The technical training I gained at WPI was invaluable. I learned how to tackle complex problems, adapt quickly, work with others, ask for help, and most important, persevere. Making it through WPI’s tough curriculum gave me confidence in myself, and having a WPI degree opened a lot of doors.”

When asked about why they endowed the William A. ’73 and Susan Rutherford Civil Engineering scholarship, he says, “I feel very fortunate to have received a three-year Army ROTC scholarship, which allowed me to earn a WPI education. I am especially grateful for the many WPI alumni who played roles in my fulfilling professional journey. For all WPI has afforded me and my family, Susan and I wanted to give something back.”

Our named scholarship will give students who need assistance an opportunity to attend WPI and pursue a degree in civil engineering. We have structured the scholarship with WPI’s help so that half of the recipients will be men and half will be women to the best of WP’s ability. We would like to see all the scholarship programs offer the same equity, if they don’t already do that.”

As Beyond These Towers: A Campaign for WPI continues its mission to sustain and enhance the university, this gift supports both the student scholarship campaign priority as well as the priority for all students to feel a sense of equal belonging and support in their quest for excellence on The Hill. “Susan and I have had a good life and want to invest in WPI and the young women and men who choose to attend this great school. To my fellow WPI alumni, I say, ‘Give, give, give. You, too, can make a positive difference in someone’s life.’” —William Rutherford ’73

Rutherford left the service in 1977 as a captain and moved to New Hampshire with his young family to begin his professional career. “From truck driver and pre-con cast concrete plant manager to union iron worker and structural steel welder, my professional journey led to design engineering and field engineering at nuclear power plants, among many other positions.” He became chief planner for the Beaver Valley Nuclear Power Station in Pittsburgh, and then took a position as senior nuclear waste management engineer with the Department of Energy in Richmond, Wash. From 2000 to 2010, he managed his own forensic engineering/consulting business and eventually retired to Idaho and then Arizona with Susan. “Today, we enjoy the blessings of our three children, 18 grandchildren, and one great-grandchild,” he says.

Acknowledging the role WPI played in his professional career, he says, “The technical training I gained at WPI was invaluable. I learned how to tackle complex problems, adapt quickly, work with others, ask for help, and most important, persevere. Making it through WPI’s tough curriculum gave me confidence in myself, and having a WPI degree opened a lot of doors.”

When asked about why they endowed the William A. ’73 and Susan Rutherford Civil Engineering scholarship, he says, “I feel very fortunate to have received a three-year Army ROTC scholarship, which allowed me to earn a WPI education. I am especially grateful for the many WPI alumni who played roles in my fulfilling professional journey. For all WPI has afforded me and my family, Susan and I wanted to give something back.”

Our named scholarship will give students who need assistance an opportunity to attend WPI and pursue a degree in civil engineering. We have structured the scholarship with WPI’s help so that half of the recipients will be men and half will be women to the best of WP’s ability. We would like to see all the scholarship programs offer the same equity, if they don’t already do that.”

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Phillanthropic Giving in Support of Gender Equity

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If you missed Giving Day 2023, you missed 1,865 minutes (see what we did there?) of exhilarating and impactful donor philanthropy. Held in mid-September and with the support of university donors near and far, this year’s Giving Day event yielded 1,564 gifts for a total of $312,502 raised in the just-over-36-hour event. According to Director of Annual Giving Liz Chirico, “This year’s Giving Day saw the highest number of gift challenge, gift-match, and leaderboard opportunities in Giving Day history and yielded the most dollars associated with these giving opportunities.”

Explaining her gift-match for the High-Powered Rocketry Club (HPRC), of which her daughter, Reya Truher ’25, is a member, WPI parent and Giving Day donor Tammy Truher says, “The opportunity to work on HPRC has been the highlight of my child’s experience at WPI. It’s as hands on as you can get, and it’s hard to imagine a better experience for an aerospace engineer, or anyone interested in rockets. WPI provides students an education and professional development all rolled up in one. Last year, as an incoming sophomore, Reya was able to travel to New Mexico for an international rocket competition. There is so much opportunity for students who are involved in HPRC.”

As in previous years, committed Giving Day Ambassadors led the call to philanthropic donors in support of their causes. This year, Peter Korfuzi ’24 (for the High-Power Rocketry Club) and Kristen “Ten” Heller ’25 (for the Video Game Club) earned the Top Student Ambassadors positions, and Steve Hall ’87 (for the DeFalco Endowed Wrestling Fund) and Morgan Bell ’17 (for the Women’s Impact Network (WIN)) earned the Top Alumni Ambassadors positions. In recognition of their Giving Day outreach efforts, all four groups these Ambassadors represented received an extra gift.

Of special note this year, was the especially strong student engagement with Giving Day. Fifteen student clubs and groups staffed tables in the Rubin Campus Center during both days of the event where they provided peer-to-peer education on Giving Day and encouraged philanthropic support to their many student groups. Their efforts resulted in 96 student groups receiving at least one philanthropic gift — up from 82 groups last year.

And new this year was the Pie-in-the-Face Challenge. Over a dozen WPI students, alumni, faculty, and staff are so enthusiastic about the university, they agreed to take a pie in the face for their philanthropic cause. Giving Day donors, who were able to cast a pie-in-the-face vote while making their Giving Day gift, gave the most votes to Associate Athletic Director Ann McCarron in support of the WPI American Cancer Society on Campus, Relay for Life. McCarron received her pie in the face—and an extra $600 for her cause—before an excited crowd during Homecoming Weekend.

If you missed the opportunity to join the excitement by supporting the university during Giving Day, please note that the Goat Nation Giving Challenge in support of WPI athletes and athletic teams will take place in February 2024. Philanthropy is a founding tenant of the university, and WPI would not be the robust, global, and critically relevant institution it is today without the generosity of our alumni, parents, and friends—including students, faculty, and staff. Support your alma mater as part of Beyond These Towers: A Campaign for WPI and do your part to help ensure the university continues to develop the world’s leading innovators, researchers, and leaders.

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“Being able to pursue both engineering and the arts has been critical to my WPI experience, so I serve as a Giving Day Ambassador to help raise funds for WPI’s growing jazz program. Each year we try to provide unique experiences for our students by playing at local and distant venues and by bringing in guest artists; I want to help create more of these experiences for more WPI students.”

—Nate Reppucci ’24
WE’RE WAITING FOR YOU ON THE HILL!
— MAY 10 & 11, 2024 —
Reunions for Classes Ending in 4 and 9

REUNITE. REVISIT. RELIVE.
Details and registration available at
WPI.EDU/+REUNIONWEEKEND

submit yours to CLASSNOTES@WPI.EDU
Charles (Chuck) Burdick '62

writes, “As a member of the National Academy of Science, and the Constructed Environment (ACIE) of the National Academy of Science, Engineering, and Medicine. What a great experience to be able to return to the WPI campus to not only work with John McNeil, but also with members of the Symposia Series: Introducing and Embedding Safety Culture Concepts in Undergraduate Education,” which was recently distributed to attendees and distributed on the Board on Infrastructure, Energy, and the Environment at WPI.

1973

Bill land writes, “I have retired from the federal government after working as a clinical psychologist for the Veterans Administration and Defense Intelligence Agency in Washington, D.C. I continue to work part-time for Optum Health, providing mental health services to Veterans of the Afghanistan and Iraq wars.”

Jeff Webber writes, “This third book in my Enimori series was published in August 2023. The series is the continuing story of an engineer from California who is accidentally transported to a medieval(ish) world where magic is real.”

1976

Mike Abrams '77, Steve Mezak '78

writes, “Classmates Ken MacDonald '77 and Ken MacDonald '78 came to visit me at my home in Albuquerque. Steve is a contractor at Kirtland Air Force Base in Albuquerque. Steve and I are retired and split my time between Houston and Kuidoo, N.M. We talked about old times, did a couple of hikes, and visited a winery and brewpub for some tastings. It was great catching up with them. Ken is a contractor at Kirtland Air Force Base in Albuquerque. Steve is retired and lives outside Reno. I am retired and split my time between Houston and Kuidoo when I am not traveling. I am still on WPI’s Alumni class notes"
bouquet winery in Santa Barbara that specializes in pinot noir, syrah, grenache, rosé, and chardonnay—with her husband, Dave. SAMsARA Wines has embraced sustainability, and Szkutak offered insights into the industry’s efforts to reduce its carbon footprint. She says, “We went to lightweight bottles in 2023 because, for us, sustainability is incredibly important. We’re a SIP (Sustainability in Practice) Certified winery, and so we recognize that the biggest impact on the carbon footprint is the weight of the bottles. Now these bottles are sourced in California, along with our grapes, which are sourced right here in Santa Barbara.”

1980
Chartsiri Sophonpanich was featured in the line-up of distinguished speakers for the 21st Forbes Global CEO Conference, held in Singapore. Over 450 prominent business leaders from around the world were included in this prestigious event. Chartsiri is president of Bangkok Bank.

Martin Rowe is Senior Technical Editor at EE World, one of the WTWH family of publications along with Design World.

1982
Scott Harris joined the Board of Directors for the Discovery Museum in Acton, Mass. A member of the Litchfield School Board more than 20 years ago. Since then, an article in the Nashoba Patch noted that Laurie has worked tirelessly to get access to public financial documents and development information.

1985
Paul Cheah was named executive vice president and chief operating officer at Exelon Energy, where he has served...
in various roles, including executive vice president and COO since 2019. The company announcement says Paul will now lead the electric transmission and distribution, gas, water, electric engineering and grid modernization, enterprise emergency preparedness, offshore wind project execution, operations support for critical safety and security organizations as COO. He is also a veteran, having served 12 years in the U.S. Navy.

1986
Robert Kitchan reports that he has retired and stepped away after a 35-year career in biopharmaceuticals. In his last role, he helped establish and lead public policy-related activities. Before entering public service, he worked as a technology and management consultant with Accenture, assisting in implementing customer relationship management solutions for Fortune 500 companies.

1990
Lisa Barton has been named CEO of Alliant Energy, a utility company serving Iowa and Wisconsin. She will take on this role after serving as president of the company’s Wisconsin business segment. She moves into this role on Jan. 1, 2024.

1996
Lisa Beatty, co-founder and president of Safe Aerospace, is the founder and CEO of Safe Aerospace, a haven for military and commercial pilots—trained military air crew, commercial pilots, and some of the latest research on UAPs and their impact. He is the founder of the COIN (Counterintelligence Organization) and has previously served as a member of the 2nd Battalion, 2nd Marines in the spring of 2014. He has been awarded the Meritorious Service Medal, Navy and Marine Corps Commendation Medal with Combat “V” and the Combat Action Ribbon. He currently lives in North Carolina.

2008
Ryan Green was featured in an article by the Worcester Telegram & Gazette about his time as a Navy pilot and his testimony in D.C. about his witness to unexplained aerial phenomena. "UAPs are in our airspace, but they are grossly underreported," he testified. “These sightings are not rare or isolated, they are routine. Military air crew and commercial pilots—trained observers whose lives depend on accurate sighting reports—are frequently witnessing these phenomena.” Ryan founded the nonprofit Americans for Safe Aerospace, a haven for UAP witnesses often afraid to come forward for fear of repercussions. He hosts a podcast that discusses the latest research on UAPs and has appeared in other podcasts to discuss his experiences.

2011
Farran Ayubjee joined the UMass Chan Medical School’s Morningside Graduate School of Biomedical Sciences (GBS) in the role of associate dean for student success and...
engagement. She leads GSRS initiatives in student advocacy, success, and retention, as well as communication, community building, and engagement through development of policy and academic programming. She has a decade of experience in research, education, and development and implementation of student success programming at the undergraduate and graduate levels.

2012
Kyle Powers writes, “I hope all is well up on Tech Hill! I graduated from the Craft Brewer Apprenticeship program with American Brewers Guild (ABG) in November and am preparing to make a career transition from pharmaceutical manufacturing to the craft beer industry.”

2015
Dave Caughrt, MBA, was a panelist at a GOLD (Graduates of the Last Decade)-sponsored discussion on formal vs. informal leadership, which took place in December 2023 at WPI’s Seaport facility in Boston. Currently vice president of growth data science at Barton Associates, Dave is the author and architect of Insty Level Escape. He is an analytics executive with experience at large companies like CVS Health and PwC. John Guerra, IMGD, released an article, “especially when it comes to user needs. Diversity in project teams broadens the team’s perspective. Not only do you need different backgrounds, but you also need people with different skills to solve problems.”

2017
Zulean Cruz-Diaz, management engineering, was featured in a speaker series as part of the inaugural Business Week at WPI in October 2023. Zulean reports that after graduating, she dove into the nonprofit world, and she has lived all over the country (including Hawai’i). Now in Texas, she’s recently transitioned to leadership consulting. “My company, Z Conecta, is helping shape the next generation of leaders through communication and interpersonal skills as they make their transition into managerial roles,” she writes.

2019
Miles Hallen was a panelist at a GOLD (Graduates of the Last Decade)-sponsored discussion on formal vs. informal leadership, which took place in December 2023 at WPI’s Seaport facility in Boston. Miles is a strategic account manager at Tulip Interfaces, a frontline operations software company based in Somerville, Mass. John is the lead gameplay designer at Rocket Rat Games, a small independent studio. In addition to design, he’s also involved with programming, production, and story writing. His prior game, Sunshine Heavy Industries, received an Independent Game Festival Honorable Mention for Excellence in Design in 2022. Jesse Lohman reports he is now a PhD candidate at UMass Chan Medical School. He uses RNA sequencing approaches and quantitative analyses to determine how quickly mRNAs from different genes are produced and matured. “I came to graduate school to learn how to define and address my own complex biological questions,” he says. “The qualifying exam process reinforced the importance of research autonomy and self-discipline. When I left the exam room, I felt validated in my scientific ability and ready to truly dive into my thesis work.”

2021
Zhuofan (Norberta) Lu, appeared in an EE World profile about her work during her summer 2021 internship at Transaera, a Boston-area start-up developing more energy-efficient cooling systems. Norberta, who is currently working toward her MS in robotics engineering at WPI, credits her grandfather, who worked as a radar engineer during World War II, with piquing her interest in engineering. She is especially aware of the need for a diverse engineering workforce. “People with different backgrounds approach problem solving differently,” she said in the article, “especially when it comes to user needs. Diversity in project teams broadens the team’s perspective. Not only do you need different backgrounds, but you also need people with different skills to solve problems.”

2022
Jesse Lehman reports he is working toward his PhD at the University of Michigan. Jesse is now a PhD candidate at UMass Chan Medical School. He uses RNA sequencing approaches and quantitative analyses to determine how quickly mRNAs from different genes are produced and matured. “I came to graduate school to learn how to define and address my own complex biological questions,” he says. “The qualifying exam process reinforced the importance of research autonomy and self-discipline. When I left the exam room, I felt validated in my scientific ability and ready to truly dive into my thesis work.”

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2024
Grace J. Wang, PhD 17th President of Worcester Polytechnic Institute
The ceremony and festivities will take place on Friday, March 22, 2024, in Worcester, Massachusetts.

wpi.edu/+inauguration
In addition to a BS in electrical engineering from WPI, Norton received a master’s in operations research from Florida Institute of Technology, an MBA from Florida State University, and a doctorate in business from Harvard Business School. He was co-founder and director of several professional services firms focused on strategic management, including The Palladium Group. He also co-founded Nolan, Norton & Company, which was acquired by KPMG Peat Marwick. With Norton, he was the author of five books and eight Harvard Business Review articles on using the Balanced Scorecard. The books have sold more than a million copies and been translated into 23 languages.

Norton was a member of WPI’s Board of Trustees from 1990 to 2000. The university honored him with the Robert H. Goddard Alumni Award for Outstanding Professional Achievement, named him the 2012 Innovator of the Year, and inducted him as part of the inaugural class into the WPI Hall of Luminaries.

Norton leaves Melissa, his wife of 60 years, three daughters, nine grandchildren, two step-grandchildren, and three great-grandchildren.

—Michael Dorsey

The Women’s Impact Network funds initiatives that provide pathways to advance women at WPI, increase and retain the number of women in STEM fields, and create a positive difference for women in STEM in the WPI community. When you support the Women’s Impact Network, you’re also supporting Beyond These Towers: The Campaign for WPI and our goal to create a campus community where everyone feels a strong sense of belonging and has opportunities to achieve their full potential.

We need champions to help us get there.

Be a champion. wpi.edu/+give