



## ON THE CUTTING EDGE

PRACTICEPOINT RESEARCHERS,  
STUDENTS, AND BUSINESSES ARE  
WORKING ON TOMORROW'S MEDICAL  
DEVICE BREAKTHROUGHS TODAY



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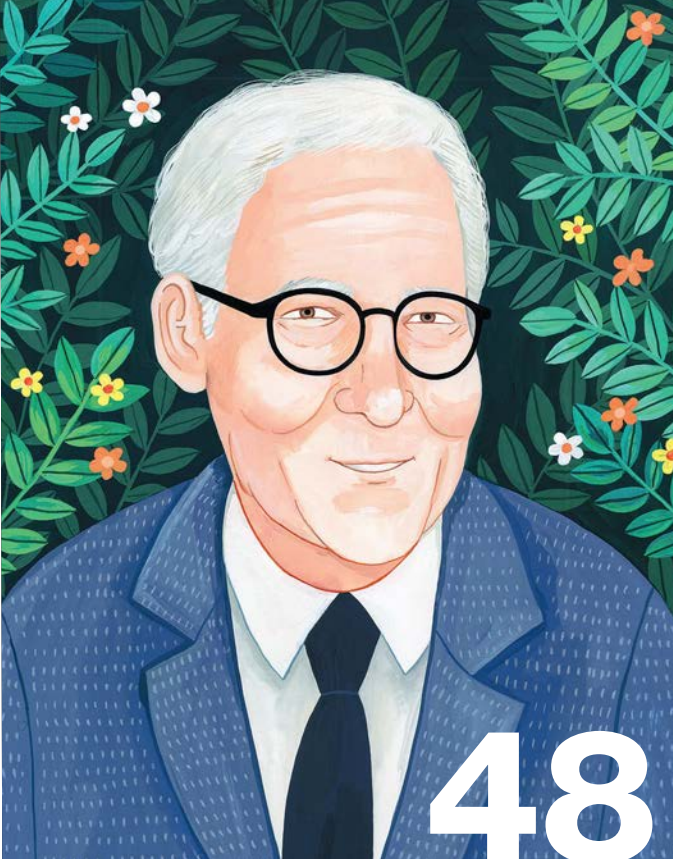
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## summer 2020

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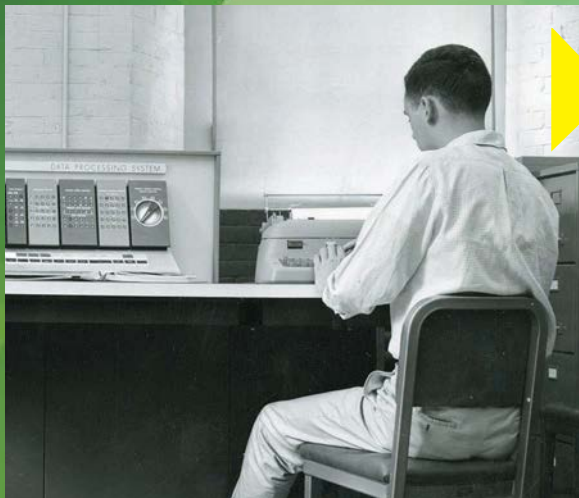
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# LETTERS

## TO THE EDITOR

*Letters to the editor may be altered for length, clarity, and accuracy. We ask that letters offer the reader's opinion without rancor. Letters that mock or insult will not be published. Opinions expressed do not necessarily reflect the views of WPI. Send your letters to [wpijournal@wpi.edu](mailto:wpijournal@wpi.edu).*

## The Wayback Machine



### ON THE COVER

PracticePoint is a facility that reflects the goals of WPI, says Gregory Fischer, director of PracticePoint and professor of robotics engineering at WPI. "We like to have real problems to solve. We're not just sitting in a cubicle coming up with problems and figuring out how to shoehorn them into actual real-world problems," he says. "We're building things."

PHOTOGRAPHY BY PATRICK O'CONNOR

### EDITOR'S NOTE:

Our Summer issue was cut short a segment or two (or three) when the COVID-19 pandemic sent us all into social distancing from our home offices. You'll see a smattering of the reverberations from the virus within our pages here—but expect far more coverage in our Fall issue. Until then, if you or someone you know from the WPI community has been doing exceptional work during this time of crisis, email us at [classnotes@wpi.edu](mailto:classnotes@wpi.edu) and share it with our team!



I read "The Archivist" in the Spring 2020 *WPI Journal* with interest, since my job from the fall of 1961 through the spring of 1963 (while I was an EE graduate student) was to help students use the recently acquired IBM 1620 computer. Looking at the picture, I immediately recognized Professor Buell (my supervisor), the paper tape reader (the primary input device), the paper tape punch, and the computer (which I would describe as desk-size rather than desk-top). I have a slide dated February 1962 showing the same configuration. And looking at the picture more closely, I recognized myself sitting at the IBM electric typewriter!

A few of my memories (which are admittedly hazy after almost 60 years):

To use the computer, FORTRAN source code was punched onto paper tape offline read-in, compiled as executable code, punched onto a new tape read-in, and executed—a two-pass process that also involved read-in system program tapes at various points along the way.

Printed output came from the IBM electric typewriter. In addition to being a very tedious way to get answers, the capital O and the zero were indistinguishable. We were supposed to get a modified type bar for the zero, but I got tired of waiting and implemented an engineering workaround: using a file to notch the bottom of the zero. Dr. Buell was not pleased.

We learned to watch the lights on the console: flashing lights meant that the program probably was executing; static lights meant that the program had crashed; all lights dimly lit signified an infinite loop.

Since it was almost impossible to splice paper tape, any error in the punching process meant starting over from the beginning. One enthusiastic early user of the new computer was Professor Walter Kistler of the ME Department. To ease the process of correcting a source tape, he wrote a program that read it and a separate correction tape into the computer, which then punched a corrected tape—an early version of an editor. (As a side note, Professor Kistler gained a certain notoriety among EE students taking Thermodynamics: he would write equations on the blackboard with his right hand while simultaneously erasing them with his left hand).

As you might guess, the use of paper tape was a frustrating, error-prone process for the students (and me). Fortunately, Dr. Buell recognized this as well, and paper tape was replaced by punched cards. I don't remember exactly when this happened, but it was probably during the spring of 1962, because I remember trying to impress my newlywed wife with the power of computers by punching some cards with a ridiculous prediction of how many children we would have. Although that prediction was wildly inaccurate, she has stuck with me for over 58 years.

**Bruce Woodford '61, '63 (MS EE)**





PHOTO MATTHEW BURGOS

**AS OF PRESS TIME**, the coronavirus situation continues to unfold. We hope this message finds you healthy and safe and able to make connections in some way with your loved ones and with your WPI family.

These are certainly unprecedented times—and WPI's student-centered, problem-solving DNA is more evident now than ever before. We've moved all courses online for the remainder of the spring and for the summer, and we've done it with true WPI intensity: with thousands of Zoom meetings! The campus systems are holding up very well, thanks to our faculty, IT, all our student support teams, and many other campus partners.

Of course, it has not been all good news. In addition to canceling all spring events—from Alumni Weekend to student tours—as well as canceling most of our summer programs and moving the remaining online, we made the responsible but very difficult decision to postpone Commencement to a future date, still to be determined. With feedback from graduating students, we're making new plans to honor our graduates with an in-person Commencement ceremony for the great Class of 2020 when it is safe to do so.

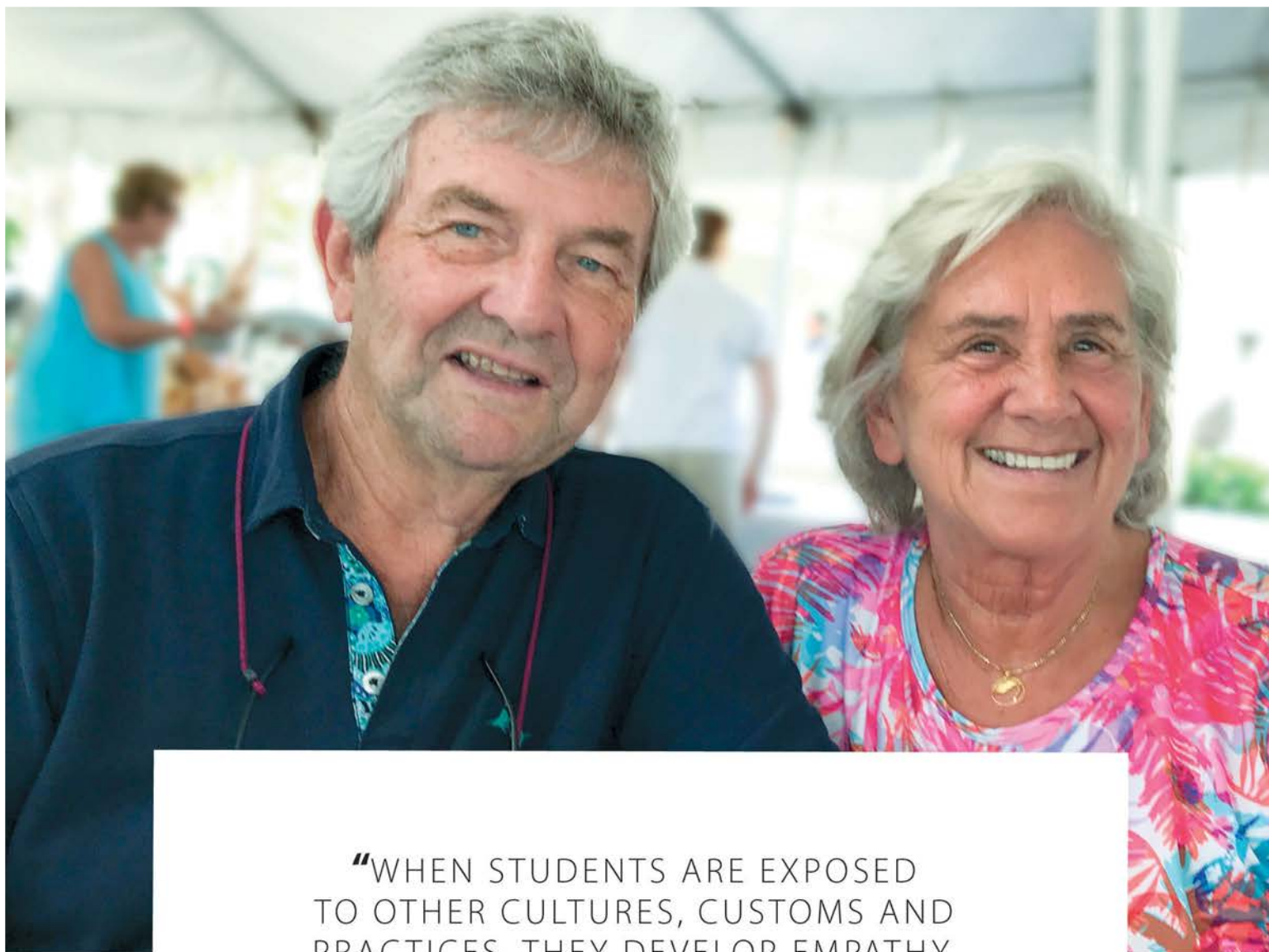
We wish to thank those within our community who are stepping forward in so many ways during this crisis to donate supplies and contribute to open-source engineering projects to meet demands for critical equipment, among many other efforts. (You'll see a few of those stories in this issue, with more coverage to come in our Fall magazine.) We thank those of you who have supported the WPI Emergency Assistance Fund ([wpi.edu/+emergencyfund](http://wpi.edu/+emergencyfund)), which is helping students and staff experiencing financial hardship from the COVID-19 crisis. Your generosity is more powerful than ever in these uncertain times and makes a difference in the lives of people who need it most.

We have seen our community of students, faculty, staff, and alumni rise to meet this challenge in so many different ways during these trying months. Even though much of the coming school year is still dependent upon the fluctuation of COVID-19, what is assured is that we will get through this together and emerge a stronger Goat Nation.

Stay safe and healthy,

**Laurie Leshin**  
PRESIDENT





“WHEN STUDENTS ARE EXPOSED TO OTHER CULTURES, CUSTOMS AND PRACTICES, THEY DEVELOP EMPATHY, CONFIDENCE AND LIFE SKILLS THAT CAN'T BE TAUGHT IN THE CLASSROOM. THESE SKILLS STAY WITH THEM FOREVER.”

— WINTHROP M. WASSENAR '59

Win believes this is a critical component to the project-based learning at WPI, which is why he established the Winthrop M. Wassenar '59 Global Projects Scholarship. Through a bequest, Win will add to his scholarship at his passing, ensuring WPI students will continue to have an impact around the world for generations to come.

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# INSIDER

## AVERY HARRISON '19

By the time **AVERY HARRISON** graduated with a psychology degree from the University of Richmond in 2015, she knew that grad school would be her next logical step. To prepare, she took time teaching English as a second language in Thailand, then in Spain. These experiences sharpened her focus on education, and led Harrison to WPI, where “the model of theory and practice embodied my goals for conducting meaningful research on student learning and supporting K-12 education,” she said, and thus set her on a path to an MS in LS&T in '19, and now on a track to a PhD in '22.

“Simply put, I believe that we can learn about what students do and do not understand in math by studying their actions, gestures, and speech as they solve problems,” she says. Harrison also believes that students can benefit from participating in games and activities that help students ground their understanding of a math concept through tangible experiences. “In general,” she says, “I think it’s worthwhile to consider learning activities that provide fun, engaging alternatives to traditional textbook work.”

The biggest surprise of her PhD journey has been the amount of freedom and support she’s been offered. “Each student who leaves the Learning Sciences & Technologies program cultivates a set of skills and experiences unique to their own interests and goals,” she says. With multiple opportunities for research, leadership roles, public speaking, and outreach, Harrison says she is “incredibly grateful.”

When asked what element of her education she values the most to date, she cites the cross-disciplinary work and research she’s been involved in, as well as the community fostered on campus. “I really appreciate the opportunities to work with so many members of WPI outside my field in an effort to promote STEM education and support women in STEM research,” she says.

Giving back to the community is high on her list, as a recent WIN (Women’s Impact Network) grant confirms. It began when her advisor, Erin Ottmar, had the idea for a Women’s Young Investigator (FYI) Fellowship program, which would allow research labs to facilitate cross-level mentoring among students, postdoctoral researchers, and faculty. “Erin headed the original grant proposal, then went on maternity leave just as we began the first year of the program,” she explains. “I quickly realized that helping women in research is one of the most meaningful opportunities I’ve had at WPI. With substantial help from our program committee members, I started leading the program.” Now in its second year of funding, the WYI Fellowship has supported a total of 36 women as they represent WPI at research conferences around the globe.

With an eye toward a faculty position within a learning sciences or educational psychology department at a university, Harrison has sincere hopes to “continue my research, to mentor students, and to seek out opportunities for outreach initiatives targeting women and girls in STEM.”

With her WPI experience solidly supporting her ambitions, future classrooms may be in for a significant boon from the future Dr. Avery Harrison.

—DOREEN MANNING



### HONORABLE MENTIONS

• NSF Graduate Research Fellow • Women’s Impact Network Grant Recipient  
• Graduate Student Council of Arts & Sciences Representative • Learning Sciences Colloquium Series Organizer • Graduate Writing Tutor

HARRISON RELAXES IN THE QUORUM CAFE AT HIGGINS HOUSE





# GLOBAL IMPACT

**EMILIA PEREZ** considers herself a positive person, but when the WPI junior learned in March that her spring trip to India for an Interactive Qualifying Project (IQP) had been canceled along with all university travel because of the COVID-19 pandemic, she felt a loss.

“Of course, I can go another time,” says Perez, an environmental engineering major who had been scheduled to study ecotourism opportunities in India. “But the project aspect of it—meeting people and interviewing people—I am very aware that I have lost that experience.”

She’s not the only one. About 280 WPI students and their advisors who had been scheduled to depart for offshore projects centers in early March were instead told to scuttle their plans as public health authorities raised alarms about a novel coronavirus spreading worldwide.

Teams that would have been in South America, Europe, Africa, and Asia scattered to their homes to work remotely, sometimes on entirely different topics.

Ingrid Shockey, director of the India Project Center, who had planned to accompany 22 students to the Himalayan foothills community of Mandi, feared students unable to travel would feel despondent. But that’s not what happened.

“They’re interested in what’s possible,” Shockey says. “We’re at the point now, instead of saying, ‘What have we lost?’ we’re saying, ‘What can we still do?’ ”

For many WPI undergraduates, junior-year travel to a project center to tackle a problem at the intersection of science and society is a highlight of the WPI experience.

Alex Harrigan, an aerospace engineering major, had been scheduled to go to the Berlin Project Center with a team to assist the Leibniz Institute of Freshwater Ecology and Inland Fisheries with better integration of open-source software practices. Instead of interviewing the Institute’s staff in person, the team shifted to email and video conferences with the German staffers.

“There are going to be technical hiccups with having to deal with that many online interviews, but it’s definitely a relief being





ILLUSTRATION JONATHAN REINFURT

able to just continue with a lot of the work we had previously planned,” says Harrigan.

For project directors and advisors from the Bucharest Project Center, the reimagining of a global, project-based learning experience consisted of immersion into the sights, smells, and rich history of Romania without actually stepping on its soil.

In addition to working on their IQP focusing on promoting eco-tourism, raising awareness on pollen allergies, saving urban green spaces, redesigning intergenerational learning centers, and promoting collaborations through the American Chamber of Commerce in Romania, students have sampled the country’s signature dishes, and hosted special guests via teleconferencing to discuss history, geography, art, and film. “We are constantly working to keep the teams focused and enthusiastic,” says project co-director and associate teaching professor Rodica Neamtu, computer science.

Through it all, students still had an obligation to complete projects and satisfy sponsors, says Sarah Stanlick, assistant professor of Interdisciplinary and Global Studies. “Working under an emergency situation and pivoting, that is a great lesson to learn,” she says.

Still, some projects simply could not go forward as planned. Of five teams scheduled to go to the Paraguay Project Center, two teams working on wetlands conservation and scientific problem solving in Paraguay dissolved.

History professor Peter Hansen came up with a new theme for students who needed to pivot to something different: collecting, compiling, and analyzing stories from the pandemic.

Perez was among the students who signed on, and she came to feel the project had more global connections than the one she originally pursued.

“Ecotourism isn’t something that’s applicable everywhere in the world,” Perez says. “This project (about the pandemic) is something that every single person in the world has a story about.”

—LISA ECKELBECKER, WITH LAUREN BORSA CURRAN



# WPI

The latest in university news, research, and commendations



# HEART

## VALVE DISEASE LINK

When valves work properly in a beating heart, they open and close with ease.

But all too often those same valves thicken with calcium nodules as we age and stop working well. The usual treatment? Surgery to repair or replace a valve.

It's not clear why nodules form, but some researchers hypothesize that remnants of cells that have undergone programmed cell death are serving as aggregation sites for calcium.

Kristen Billiar, department head and professor of biomedical engineering, will use a \$154,000 grant from the American Heart Association to study that link in aortic valve disease. His two-year project will involve laboratory experiments with cells grown in flat and three-dimensional shapes.

"We don't know why calcific nodules form, but one of the things correlated with it is programmed cell death," says Billiar. "We can use engineering techniques in reproducible experiments and see calcium depositing in cells like it does in valves. Now we want to know, what are the mechanisms involved in that?"

Programmed cell death, also known as apoptosis, is a normal process in which a cell self-destructs and breaks apart in the body in a controlled way that avoids an immune response. Billiar, whose research has focused on the way groups of cells mechanically pull on each other in the body, will probe the process of calcification to determine whether it can be interrupted.

"If we can figure out how," he says, "we can start thinking about treatments that could stop them from what they're doing."

—LISA ECKELBECKER

# A PANDEMIC

## MADE REAL

For the past seven years, bioinformatics researcher **DMITRY KORKIN** has started his bioinformatics class by assigning students to watch the 2011 film *Contagion*, a thriller about a pandemic. It's an opportunity for his students to understand the key proteins inside a virus.

"My students are able to see scientists in the film looking at key proteins in order to design a novel vaccine," says Korkin, who serves as director of WPI's bioinformatics and computational biology program.

As it turns out, the film is true to life given the coronavirus pandemic that has swept the globe, leading to more than 4 million cases and almost 300,000 deaths (at press time). "The reality is that virologists and bioinformaticians are at the forefront of studying this disease," he adds.

Korkin made national headlines earlier this year when he and his eight-member research team created and unveiled a structural 3D roadmap of COVID-19, a major development that potentially holds the key to understanding the spread and treatment of the deadly virus.

And rather than keep the research to himself, Korkin freely shared the 3D roadmap with scientists worldwide. It was also posted on bioRxiv, a free online archive that was available for download by the scientific community, and was published in *Viruses*, a leading virology journal. In fact, the cover of *Viruses* highlighted his team's work.

"Anyone can download our models, get any kind of information, and use it for research," he says. "This is one of the first examples of how data-driven science can quickly respond to this challenge."

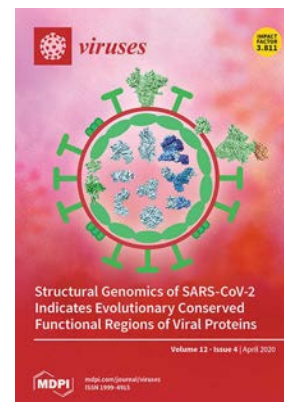
As a next phase of his research, Korkin and his team are studying the molecular basis of susceptibility to the virus across different ethnic populations. Additionally, he just concluded a five-year study examining infectious outbreaks in confined environments, focusing first on cruise ships.

With the cruise ships study, he designed a 3D geographical information system (think Google maps) and used AI technology to introduce a realistic simulation of the path that passengers take on ships as a means to understanding the most contaminated locations. Prevention protocols can then be implemented and virtually tested. The simulations can also extend to outbreaks in other contained areas, such as schools, corporate offices, and grocery stores.

As with his earlier research, Korkin will share these findings far and wide.

"We will collaborate with other researchers and the CDC," he says, "to ensure they have tools they can use."

—ANDY BARON



## WPI EMPLOYEES RALLY WITH DONATIONS



It was late March, the early days of the coronavirus pandemic, when WPI employees rallied to the call of acute shortages of surgical masks, gowns, visors, safety glasses, respirators, and ventilators. Faculty initiated the effort, which was soon elevated to President Leshin and the CERT (Coronavirus Emergency Response Team).

WPI collected, inventoried, sorted, labeled, packaged, and loaded the following items onto pallets ready to be picked up and delivered to medical facilities that need them most:

- 36,400+ nitrile gloves
- 2,890 latex gloves
- 810 surgical masks
- 84 surgical masks with eye shield
- 200 cleanroom masks
- 36 N95 masks
- 136 safety glasses
- 41 protective gowns
- 700 surgical caps
- 250 shoe covers
- 250 surgical drapes
- 4,000 cotton-tipped swabs for testing
- 200 biohazard bags
- 200 chemical protective suits to UMass Memorial
- 2,000 rolls of toilet paper to Worcester's housing for the elderly
- 1,000 3D printed face shields to healthcare organizations

The items were then sent to the Massachusetts Emergency Management Agency (MEMA) for distribution.



### PROJECT YURT

Thanks to the Class of 2020, WPI students working on IQPs at Turn Back Time, a 58-acre working farm and nature education center in Paxton, Mass., will be able to bunk down in fully furnished yurts with electricity—and even WiFi! The graduating class devoted its Senior Class Gift to provide an off-campus residential experience for students doing projects through WPI's Farm Stay Project Center. Plans include four housing yurts to accommodate up to four students each, and one community yurt with living room, dining room, and work space.

"While the opportunity to actually leave Massachusetts and go to a faraway IQP site is a privilege that many of us on the committee got to experience, we know that not all students at WPI have that ability," says senior Haley Ornstein, who co-chaired the Gift Committee with classmate Sarah Armstrong.

The yurt village is scheduled to be operating in spring 2021, with a goal of eventually constructing two additional housing yurts.

—LAUREN BORSA-CURRAN



## WPI PARTNERS WITH EWB

WPI sends hundreds of service-minded engineering students abroad every year to work on projects all over the globe. Now that expertise will be put into service in a new partnership with Engineers Without Borders, the international nonprofit with 14,000 members in the U.S. This collaboration opens up opportunities for some of them to come to WPI and become truly interdisciplinary engineers working in cross-cultural contexts.

EWB's diverse participation also opens up opportunities for WPI. "This helps us expand our scope geographically and in terms of diversity and inclusiveness," says Professor **ROB KRUEGER**, the WPI lead on developing the partnership. "They have a social mission. Underrepresented STEM groups have traditionally been attracted to STEM with a social mission."

Krueger is working with EWB-USA to help the organization develop its own educational programming to prepare its students for their international experiences, and then undertake advanced training when they return to campus. There's potential for the university to accredit these courses as WPI certificates. "We're also working with them," he says, "to develop a pipeline from their membership for people who would be interested in working in this area of development engineering."

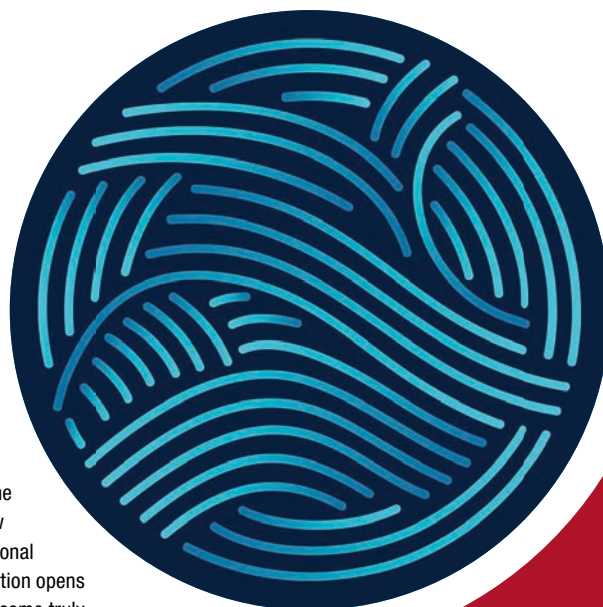
The two organizations are hardly strangers. WPI's student EWB-USA chapter has been working for years in Guachutuq, Guatemala, on systems to provide a safe, clean water supply. In 2017 the chapter received the EWB-USA Premier Chapter Award, which was presented by then-EWB board president Joe Adams '75, who expressed pride as in the work of his alma mater. In 2014 EWB founder Bernard Amadei received an honorary degree from WPI. In his commencement address, he urged graduates use their special skills to help solve the world's great problems.

"You have gained knowledge, ability, and skills during your time here," Amadei said. "You are equipped to be truly effective problem solvers. You have also been engaged in the humanities and were taught to think of your place in the global context of our world, and your place in the universe."

—PAULA OWEN



**THE CLASS OF 2020 MAY HAVE BEEN OFF CAMPUS**, but they were very much on the minds of the WPI community during Commencement Week back in May. Creative ways were offered to help families celebrate, such as lawn signs and banners, Facebook frames and social media messaging, a customizable presentation to download with a commencement Zoom party background, a Commencement box sent to all graduates, and a special video message and tribute from President Leshin.



## WPI PROMOTES FACULTY WITH EXPERTISE IN MAPS, NAPS, EVERYTHING IN BETWEEN

Prolific authors, accomplished teachers, and trail-blazing scholars are among the **23** WPI faculty members who recently learned they were promoted.

The group includes people with expertise in everything from late imperial Chinese literature and culture to humanitarian engineering, and most also have histories of working across departments and disciplines to tackle big problems.

"Their innovative work is improving the world, and they are preparing a new generation of leaders through their commitment to our students," President Laurie Leshin says.

Of the **23** faculty members promoted, **six** received tenure. **Twelve** advanced to the rank of full professor or full teaching professor. The largest number of promotions—**seven**—occurred in the computer science department. **Eight** of all faculty members promoted, or just over **one-third**, are women.

What does it take to attain promotion? Excellence in teaching, scholarship, and service.

Many of those promoted also have expansive academic interests. Carolina Ruiz, promoted to professor of computer science, uses machine learning to understand sleep. David DiBasio, promoted to professor of chemical engineering, has worked on infusing ethics into engineering education. Stephen McCauley, promoted to associate teaching professor in the Interdisciplinary and Global Studies Division, has mapped areas of extreme heat in Worcester. And Huili Zheng, promoted to associate teaching professor of humanities and arts, created a Chinese tutoring program.

All promotions take effect July 1.

—LISA ECKELBECKER

# 4 GRANTS, ONE PROFESSOR

Imagine a plant glowing to alert a passing drone that there are explosives hidden underground. This could be a reality, helping keep soldiers and citizens safe thanks to one of four research projects that **ERIC YOUNG**, Leonard P. Kinnicutt Assistant Professor of Chemical Engineering, is working on.

Young recently received four separate grants totaling more than \$2 million to support his research into using yeast and fungi to take on significant genetic engineering challenges.

A \$719,994 grant from the U.S. military's Defense Advanced Research Projects Agency is supporting his research into using fungi and two bacterial strains to monitor underground areas for explosives, such as TNT. Fungi grow in the soil in root-like networks—Young is developing bacteria that will follow that “highway” into the ground to detect the presence of explosives. Another bacterial strain being developed will produce a glowing warning light on the surface that can be spotted by remote cameras or drones.

Young also received a five-year \$512,591 CAREER award from the National Science Foundation to engineer organisms to make it easier to develop numerous products—like biofuels, medicines, nutrients, and renewable plastics—fast enough and at scale to make them commercially available.

He received a portion of a \$204,148 grant to work with a consortium of universities on a database of articles and repositories for successful synthetic biology experiments, so scientists formulating new experiments can see what worked for other researchers.

Young's fourth grant—a \$580,500 two-year award—from the Massachusetts Life Sciences Center is geared to revolutionize the production of a component essential for gene editing therapies.

ILLUSTRATION MICHAEL MULLAN





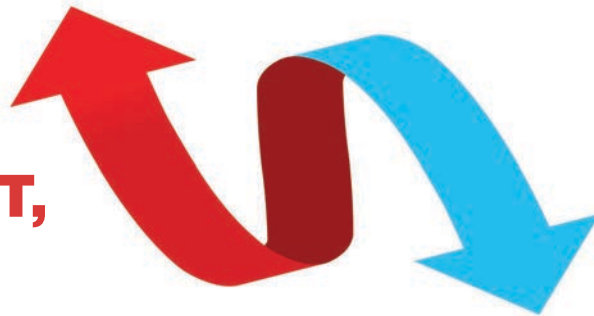


## THE ARCHIVIST

School of Industrial Management Classes Begin

PHOTO WPI ARCHIVES

## TOO HOT, TOO COLD



Three WPI researchers have been awarded a \$299,991 grant from the National Science Foundation to develop technologies that detect and boost student engagement in lessons by controlling indoor physical environmental factors such as temperature, ventilation, and lighting.

**SHICHAO LIU**, assistant professor of architectural engineering, is principal investigator of the three-year project. Co-principal investigators at WPI are **STEVEN VAN DESSEL**, associate professor of architectural engineering, and **JACOB WHITEHILL**, assistant professor of computer science.

The project tackles a fundamental issue with indoor classrooms: Different students feel distinct levels of comfort or discomfort under the same conditions.

"When we look at how student learning can be improved, a lot of researchers start from the perspective of pedagogy and teaching materials," Liu said. "As an engineer in building sciences, I know indoor environmental quality is a big factor that affects people's comfort and cognitive performance."

The researchers will study undergraduate volunteers in different simulated classrooms while varying temperature, light, and ventilation. They also will develop technology that might someday go into smart buildings to detect student engagement, and they will test how students engage in recorded lectures after a change in the environment, such as a mild thermal stimulus from a wristband device designed to make the wearer feel warmer or cooler.

The research builds on a \$10,000 seed grant awarded in 2018 by WPI's Office of the Dean of Engineering.

—LISA ECKELBECKER

## On January 3, 1950,

in response to a direct plea from local industrial leaders, WPI welcomed 29 students to Stratton Hall as the first cohort in the School of Industrial Management (SIM). Representing 22 Worcester companies, each was nominated by his respective employer as worthy of further management responsibilities and training.

As area businesses transformed in the years following World War II, industry leaders realized that increasing specialization of job roles necessitated a more robust training program than individual companies could offer. These industrialists utilized their long-standing positive relationship with WPI faculty and administrators to form a committee to study management programs at other institutions and explore how WPI's existing resources could support this initiative. Committee leaders included Wallace Montague, Class of 1912, vice president and manager of planning for Norton Company; Philip Morgan, president of Morgan Construction Company; and Robert Stoddard, vice president and general manager of Wyman-Gordon Company. WPI faculty members serving on the committee included Albert Schwieger, Ernest Phelps, and Edwin Higginbottom.

Included in that cohort of 29 were six familiar faces. Returning to the Hill were Robert Maynard '36, John Poeton '37, John Quinn '41, Howard Aubertin '43, Alfred Larkin '44, and Alfred Green '45. The initial SIM curriculum was designed as a four-year program with eight one-semester courses, including Effective Speech, Human Relations, Economics of the Firm, Report and Policy Writing, and Production Management. In the spirit of the founders' ideology of theory and practice, the early courses were designed to offer opportunities to exchange experiences and test real-world scenarios.

In the 70 years since those first students accepted the challenge of WPI's newest program, hundreds of students have earned undergraduate and graduate degrees while the regional economy continues to benefit from the school's original purpose: preparing WPI students for the ever-changing demands of industry.

—Arthur Carlson, assistant director of Archives & Special Collections at the George C. Gordon Library



## SMART DRYING

When you open a new bag of potato chips, you're probably not thinking about the energy used on the journey from field potato to bagged chip. But like any manufacturing process that requires drying/baking to form a final product, lots of energy is used, and a good portion is wasted, along the way.

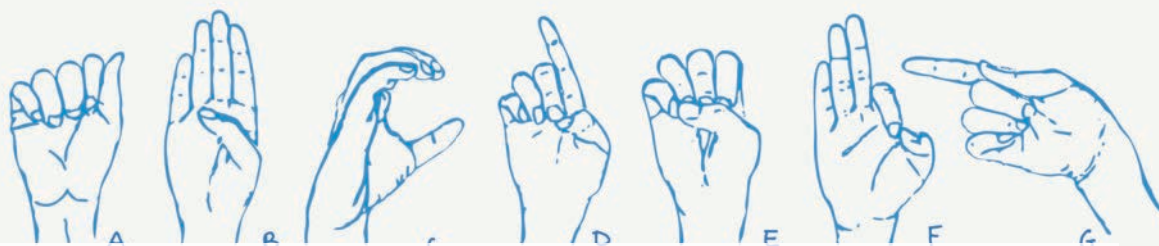
WPI's expertise in efficient drying was recently bolstered with a \$4.5 million Department of Energy award (includes Massachusetts Clean Energy Center contributions) to support innovative advanced manufacturing research and development with a special focus on energy efficiency in drying of mainly food and forest products. With this funding, WPI will act as project lead and expand "smart drying" work with colleagues at the University of Illinois at Urbana-Champaign, and Oak Ridge National Laboratory, Tenn., to develop cutting-edge, energy-saving drying technologies. "People don't realize how much energy is consumed inefficiently in these industry sectors and how much that negatively impacts the environment and global warming," says project lead **JAMAL YAGOObi**, department head, mechanical engineering. "Our goal is to develop novel energy-efficient drying technologies for food, pulp, paper, and other energy-intensive manufacturing industries."

The largest project task is to develop state-of-the-art test beds to increase product quality of various food and forest products while decreasing the energy required to dry them. The innovative research could have large-scale future impact in the chemical industry as well, he says, while also being on the leading edge of developing the next generation drying process and work force.

Yagoobi notes this research includes the specific challenge of building multidrying mechanisms and adapting them to work in sync, research to which graduate and undergraduate students will contribute. The three-year project will yield test beds at WPI and in Illinois that will eventually be available for industry use.

—JULIA QUINN-SZCESUL

## SL1 ACCESSIBLE



**Erin Solovey**, assistant professor of computer science, has received a \$1 million National Science Foundation (NSF) grant that could lead to significant breakthroughs in technology platforms for the ASL-signing Deaf Community.

Solovey will investigate the feasibility and effectiveness of computer interfaces that will allow deaf individuals to navigate, search, and interact with technology completely in American Sign Language.

The SL1 design has the potential to level the playing field for deaf students seeking to access academic, linguistic, and other informational content online.

"This project takes a human-centered computing approach to build a foundation that advances understanding of how deaf individuals could work and learn in environments that are designed with their needs and preferences at the forefront," says Solovey.

Jeanne Reis, co-principal investigator on the project, brings over three decades of experience and understand-

ing of the need for this technology. She is director of the Center for Research and Training at The Learning Center for the Deaf (TLC)—a nationally recognized leader in educational, therapeutic, and community services with deaf and hard of hearing children and adults.

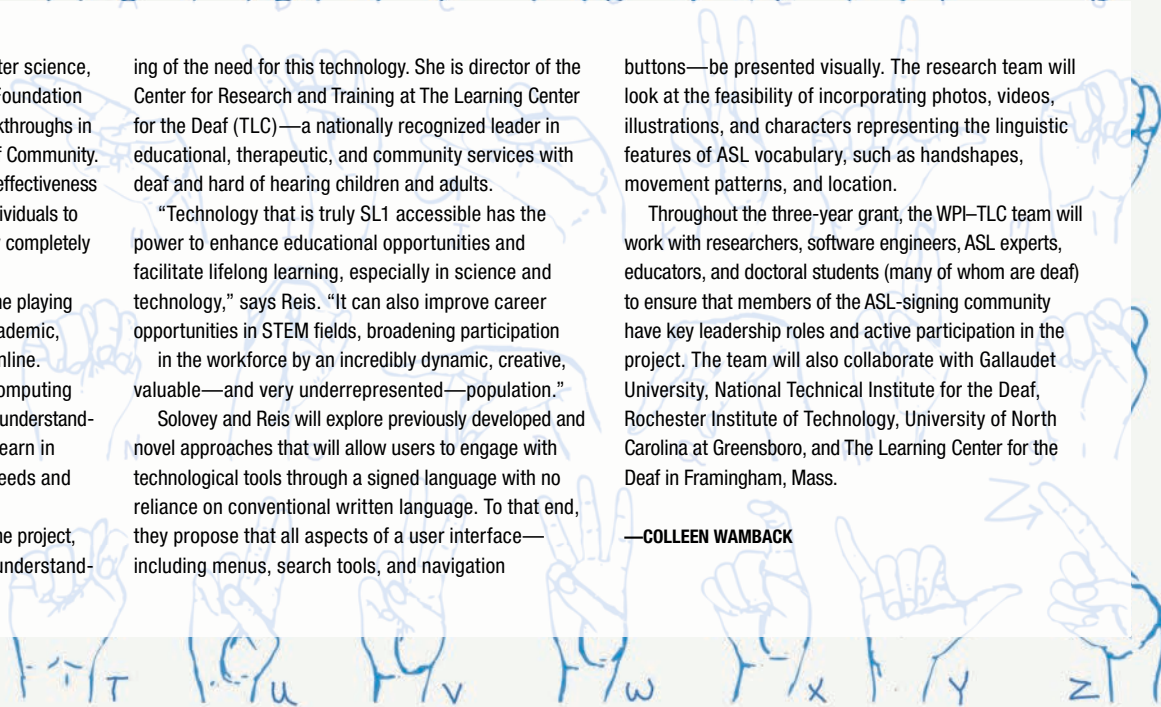
"Technology that is truly SL1 accessible has the power to enhance educational opportunities and facilitate lifelong learning, especially in science and technology," says Reis. "It can also improve career opportunities in STEM fields, broadening participation in the workforce by an incredibly dynamic, creative, valuable—and very underrepresented—population."

Solovey and Reis will explore previously developed and novel approaches that will allow users to engage with technological tools through a signed language with no reliance on conventional written language. To that end, they propose that all aspects of a user interface—including menus, search tools, and navigation

buttons—be presented visually. The research team will look at the feasibility of incorporating photos, videos, illustrations, and characters representing the linguistic features of ASL vocabulary, such as handshapes, movement patterns, and location.

Throughout the three-year grant, the WPI-TLC team will work with researchers, software engineers, ASL experts, educators, and doctoral students (many of whom are deaf) to ensure that members of the ASL-signing community have key leadership roles and active participation in the project. The team will also collaborate with Gallaudet University, National Technical Institute for the Deaf, Rochester Institute of Technology, University of North Carolina at Greensboro, and The Learning Center for the Deaf in Framingham, Mass.

—COLLEEN WAMBACK





# RESILIENT SMART CARS



Often when people talk about a future with autonomous vehicles, someone invariably will say, “But what happens if an attacker hacks into my car’s system and causes an accident?” With a five-year, \$503,000 CAREER award from the National Science Foundation, **ANDREW CLARK**, assistant professor of electrical and computer engineering, is working on how to prevent just such an attack.

“This project is growing out of the realization that it’s not going to be feasible to keep attackers out of smart systems,” says Clark, “We need cyber resilience so we can keep the car and passengers safe even when an attacker is in the system.”

The researcher is looking to build defenses into both the lower-level systems of a smart car, such as a real-time controller, and the higher-level ... think intelligence and planning algorithms.

If, for instance, a hacker taps into a driverless car and tells it that a vehicle ahead is 50 feet away, but the camera and other sensors indicate that vehicle is only 10 feet ahead, Clark’s update will act upon a larger group of sensors to keep the vehicle safe.

His algorithms will also work to choose a route between Point A and Point B that is less crowded with pedestrians and vehicular traffic to minimize risk if the car comes under a hacker attack.

Clark hopes to make smart cars a smidge smarter, indeed.

—SHARON GAUDIN



## ADVANCES IN AMMONIA

**ANDREW TEIXEIRA**, assistant professor of chemical engineering, received a five-year, \$572,856 CAREER award from the National Science Foundation to help make it cheaper and easier for farmers around the globe to grow food through his ammonia research.

He says ammonia, a critical ingredient in fertilizer, sustains the human population through its integral usage

for farming. The problem is that creating ammonia is energy intensive, consuming about 2 percent of the world’s energy for this one process.

Teixeira’s research will not only make it more economical to create, but also enable farmers to produce it themselves, eliminating the need to ship great distances.

Focused on dramatically cutting the energy requirement by changing the production process, his research goes beyond the classical laws of thermodynamics. Instead of combining hydrogen and nitrogen with electricity and a constant flow of intense (and expensive) high pressure and temperature, Teixeira is looking to pulse that heat and pressure, dramatically cutting the energy requirement.

This comes on the heels of two other grants that Teixeira has recently received: a \$175,000 grant from the Department of Energy for a lab and training course to teaches professionals and students how to make the chemical process behind creating pharmaceuticals more efficient; a two-year \$400,000 grant from the U.S. Army to create a way to purify water without the use of a filter.

—SHARON GAUDIN

## SEEDS OF NEW RESEARCH

**LOOKING FOR GRANT MONEY? COLLABORATION IS KEY.**

To help expand faculty research collaboration and funding, WPI has created the Transformative Research and Innovation, Accelerating Discovery (TRIAD) seed grant program.

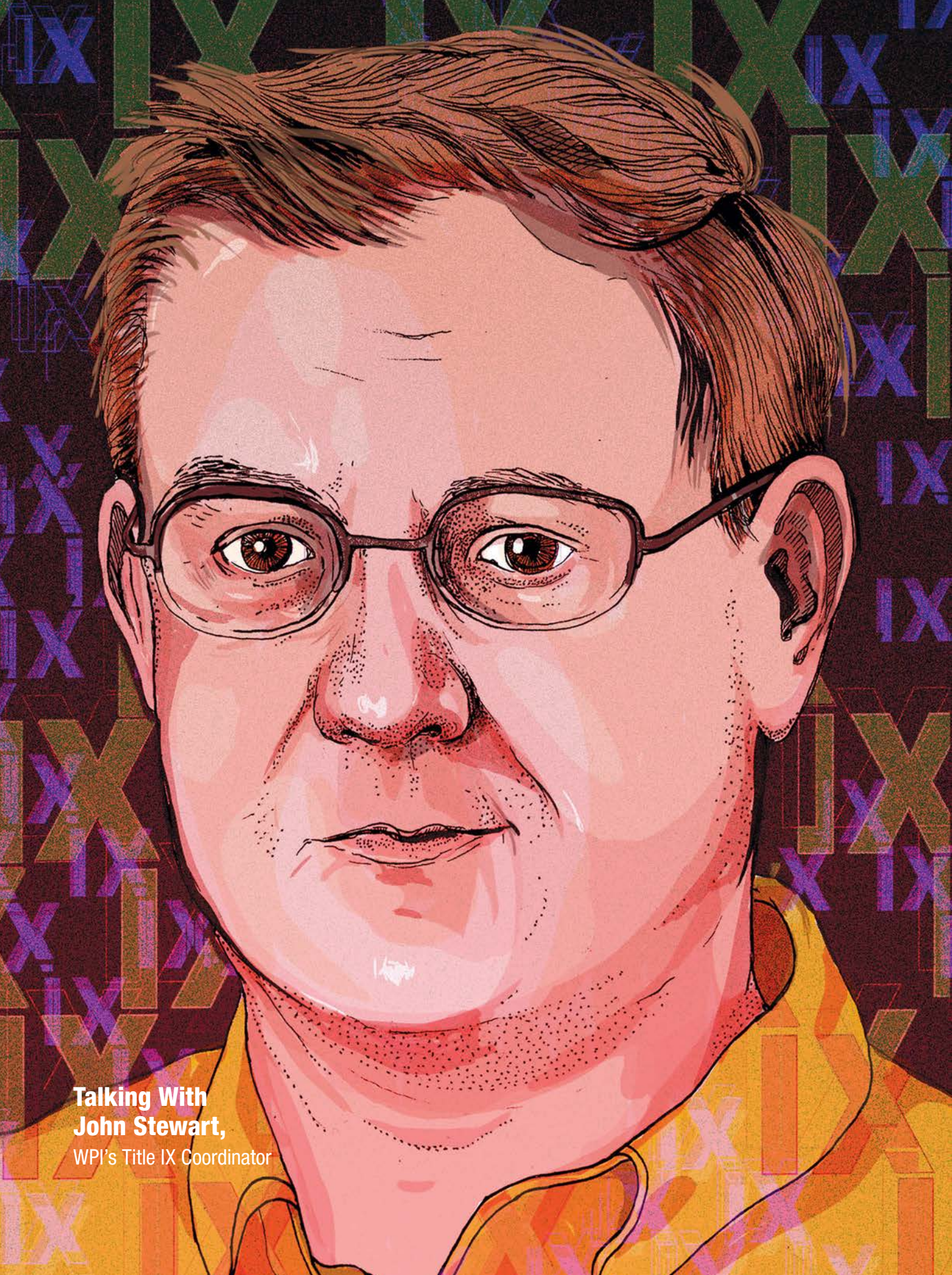
“The idea behind TRIAD is to provide seed grant funding for innovative new collaborations,” says **ANTJE HARNISCH**, assistant vice provost for research. New teams of three or four members—members cannot have worked together previously—must represent at least two departments, she says.

“As part of WPI’s strategic plan, we successfully increased our external funding by 60 percent in just four years,” says **BOGDAN VERNESCU**, vice provost for research.

“We want to continue to nurture and grow research funding and reenergize multidisciplinary research. Through the generosity of the Board of Trustees, alumni, and internal funding sources, we’ve been able to put together this program. We are seeding this collaborative research with the goal of stimulating new ideas and new collaborations, developing new impactful research, involving more students in multidisciplinary research, and attracting more funding for research at WPI.”

Teams can choose either a \$60,000 full TRIAD grant or a \$15,000 mini TRIAD grant. The funding structure is divided so each faculty team brings one-third of the funding from their own development funds (for a three-person team, each brings \$6,667 and a fourth member can join the team without cost), associated department heads devote one-third of the funding, and the other third comes from the Office of the Vice Provost for Research. The funding for the 17 awarded seed grants (over \$1M total) comes from returned indirect costs, and a generous contribution by a WPI alumnus and one from WPI’s Board of Trustees chair, Jack Mollen. Each project can last up to a year with a possible six-month extension.





**Talking With  
John Stewart,**  
WPI's Title IX Coordinator





Although Title IX was founded on the principles of gender equity as related to university sports, it's now primarily known for its laws and protections around sexual harassment and sexual assault. **JOHN STEWART**, new to WPI last fall, says the biggest hurdle of his role has nothing to do with his responsibilities. It's all in the simple fact that he's a male in a role that is frequently held by women.

With more than two decades of experience in community policing and crisis intervention, Stewart knows that a strong and supported community functions better. He says that even one Title IX situation is too many and believes that fostering a community rich in diversity, inclusion, and equity can starve out the opportunity for those situations to occur. Here are some of his thoughts on his mission to serve as a trusted resource for students, faculty, and staff.

#### **On equity and core values:**

"I am a human being, and my goal is to help other human beings who need assistance get through a difficult time. Title IX still comes down to being about equity. If someone comes to me with a complaint—or in response to a complaint—I'm going to make sure they get the help they need.

#### **On getting through a crisis:**

"A crisis is anything that happens to you that overloads your coping mechanisms. Each person has different coping mechanisms, so a crisis to one may not be a crisis to another. The help and information I provide to someone will help them move away from the crisis and back to a sense of normalcy."

#### **On students who hesitate to report an incident for fear their own behavior (such as drug use or underage drinking) may come under scrutiny:**

"I am not a judge nor a jury, and I don't have the final say. My role is not to discipline; it is to help. I'll do whatever it takes to make sure that students are safe, and that their well-being is taken care of."

#### **On deciding how to proceed:**

"They are driving the bus on what they do. The first meeting with a complainant is about offering information. I create a folder with everything I've explained, which they can take with them and comprehend at their own pace. I do the same for respondents. There are lots of

different options and resources available at WPI. I am a firm believer that you can't make a good decision without having all the information."

#### **On having skin in the game:**

"I have two college-age boys and a daughter in high school. As a parent, how would I want my children to be treated? How would I want to be treated? I look at it from the eyes of an individual, a parent, and a Title IX coordinator. I want WPI's Title IX process to be the best of the best."

**READ THE FULL PROFILE ONLINE AT**  
[WPI.EDU/+TITLEIX](http://WPI.EDU/+TITLEIX)





Bengisu Tulu

ASSOCIATE PROFESSOR,  
FOISIE BUSINESS SCHOOL

# FACULTY

SNAPSHOT

PHOTO PAT O'CONNOR

# In my office

1. My daughter gave me these extremely durable Mother's Day flowers when she was in preschool. I don't have the touch for live plants, but this flower arrangement has survived all sorts of conditions (hot, cold, flood, you name it) in my office. It gives me inspiration and support whether I am thinking about a new project or trying to respond to a tough critique.
2. There is no better source of inspiration than the objects that showcase my students' successes. This certificate (and others I continue to collect) represents their hard work and dedication.
3. Digital health is what I live and breathe when it comes to research, as well as my teaching. You'll find many phones floating around my office with apps my research teams have developed—each helping patients access the best care possible with a single touch.
4. This cup is from an international conference I organized. It was an amazing experience to host more than 80 international design science scholars representing 17 countries. I heard so many compliments about how beautiful WPI's campus is and what a great school it is.
5. Janice, a former custodian at Washburn, painted this for me before she retired. The fish is one of my favorite characters from her self-published books, which I encouraged her to publish. You never know how much talent is hidden among WPI staff.
6. As someone who builds apps to help people stay healthy or better manage their chronic conditions, I constantly study ways to engage users and encourage them to make health choices. As I like to practice what I preach, this kettlebell is one of my favorite forms of exercise.
7. As a mother of two, I learned a lot about the challenges new moms face. Lifeline4Moms was one of my favorite MQP themes, where we addressed the needs of new moms with the help of talented WPI students.
8. I stay tuned to changes happening in the field of information systems and business analytics. A blessing in disguise, I constantly look for opportunities to learn new tools and approaches that companies are integrating into their technology portfolio to address their needs. Integrating these new tools in my courses allows students to gain new perspectives.



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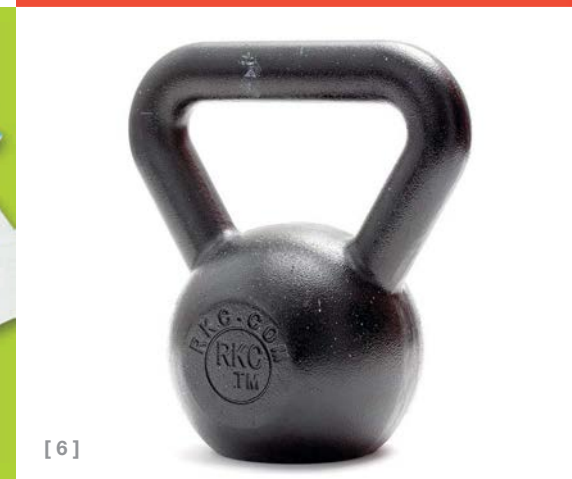
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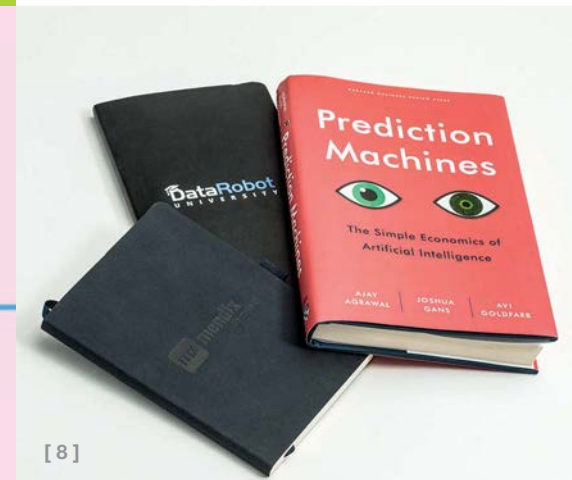
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**HIGGINS HOUSE, A TUDOR-STYLE MANSION, WAS ONCE THE HOME OF ALDUS C. HIGGINS, SON OF MILTON P. HIGGINS, THE FIRST SUPERINTENDENT OF THE WASHBURN SHOPS AND A FOUNDER OF NORTON COMPANY IN WORCESTER. DONATED TO WPI IN 1971, TODAY IT HOUSES THE OFFICE OF ALUMNI RELATIONS.**



# SENSE OF PLACE



PHOTO SCOTT ERB, DONNA DUFALT





# INNOVATION



PracticePoint researchers, students, and businesses are working on tomorrow's medical device breakthroughs today

BY KATE SILVER  
PHOTOGRAPHY PAT O'CONNOR





Bob Cathcart is in the depths of technology development. The CEO of AiM Medical Robotics is working on a device that could one day revolutionize brain surgery.

The technology—a small, robotic surgical device that can operate on the brain while inside a magnetic resonance imaging (MRI) scanner—was, in fact, developed at WPI. AiM Medical Robotics licensed it from the university and is now working to take it from prototype to market. To do that, Cathcart knows he'll need a lot of help, including access to medical equipment for testing, engineering capabilities, insights from industry experts, and an office where he can carry out the work. That led him to WPI's new facility, PracticePoint.

"PracticePoint combines the expertise of leading academic researchers with cutting-edge facilities, where groundbreaking medical device technologies can flourish," says Cathcart. "We have the ability to do real hands-on work in this top-notch facility and then put it into practice in that environment."

Having kicked off in 2017 with a \$5 million matching grant from the Massachusetts Baker-Polito Administration and the Innovation Institute at the MassTech Collaborative (MTC), PracticePoint officially opened its doors in January 2020. With the help of its founding partners, including MTC, GE Healthcare, UMass Medical School, MITRE, and WPI, PracticePoint aims to advance healthcare through collaboration and innovation in working with cyberphysical systems (i.e., smart medical devices of all kinds).

PracticePoint is many things: an incubator for businesses, a collaborative space for members to meet and exchange ideas, a state-of-the-art research facility for educators and students, and the nexus for innovation that could change the world of healthcare as we know it.

It's also a facility that reflects the goals of WPI, says Gregory Fischer, director of PracticePoint and professor of robotics engineering at WPI. "We like to have real problems to solve. We're not just sitting in a cubicle coming up with problems

and figuring out how to shoehorn them into actual real-world problems," he says. "We're building things."

Fischer's goal for PracticePoint is to identify those healthcare challenges and work with its corporate partners to solve them. In doing so, the center is speeding up the innovations of tomorrow by helping businesses, academics, and students conduct research together and build solutions today. For entrepreneurs like Cathcart, that's a game changer.

## THE VISION

There's a shared challenge for those who aspire to build technology and solve problems in the healthcare field: they often have limited access to hospital settings and equipment, such as million-dollar imaging machines.

Fischer, whose research is in medical robotics developments, was a co-inventor of the surgical robot technology that Cathcart has licensed. He remembers continually working around that challenge, both in grad school and in recent years. "You find yourself going to a local hospital at really odd times for a couple hours," he says. "You pack up all your stuff at the lab, you drive it or—in some cases—ship it down to the hospital. You do your experiments for a couple hours, then pack everything up and drive it or ship it back to the lab."

Those experiences, in fact, planted the seed for PracticePoint. Fischer began to imagine the possibility of establishing, at WPI, a hospital-like environment used for research purposes.

"I've seen people take their suite and drop it in a nursing school so they can practice nursing activities," says Fischer. "But I've never seen anybody take all these clinical suites—operating room, MRI suite, patient care suite, motion capture labs, rehab areas—and drop them all together in the center of an engineering school that can accelerate healthcare device development."





That's exactly what PracticePoint offers—along with manufacturing capabilities that include 3D printing, CNC manufacturing, electronics assembly, and test capabilities—all of which are open to students and faculty as well as member organizations, which currently include GE, Boston Scientific, MITRE, Karl Storz, Delsys, eMotionRX, Stability Health, UMass Medical School, and AiM Medical Robotics.

## BUILDING SOLUTIONS

By using a strong magnetic field and a computer, an MRI produces detailed images of the inside of a body. If Cathcart and AiM Medical Robotics have their way, one day the robotic surgical device they're marketing will be able to perform surgery inside the narrow MRI tube as the surgeon views the images and controls the device from outside.

"The robot will be able to deliver therapy to areas deep in the brain," says Cathcart, "with a level of precision and accuracy that even the finest surgeons cannot match today."

To punctuate how powerful that could be, he compares it to the evolution of the GPS.

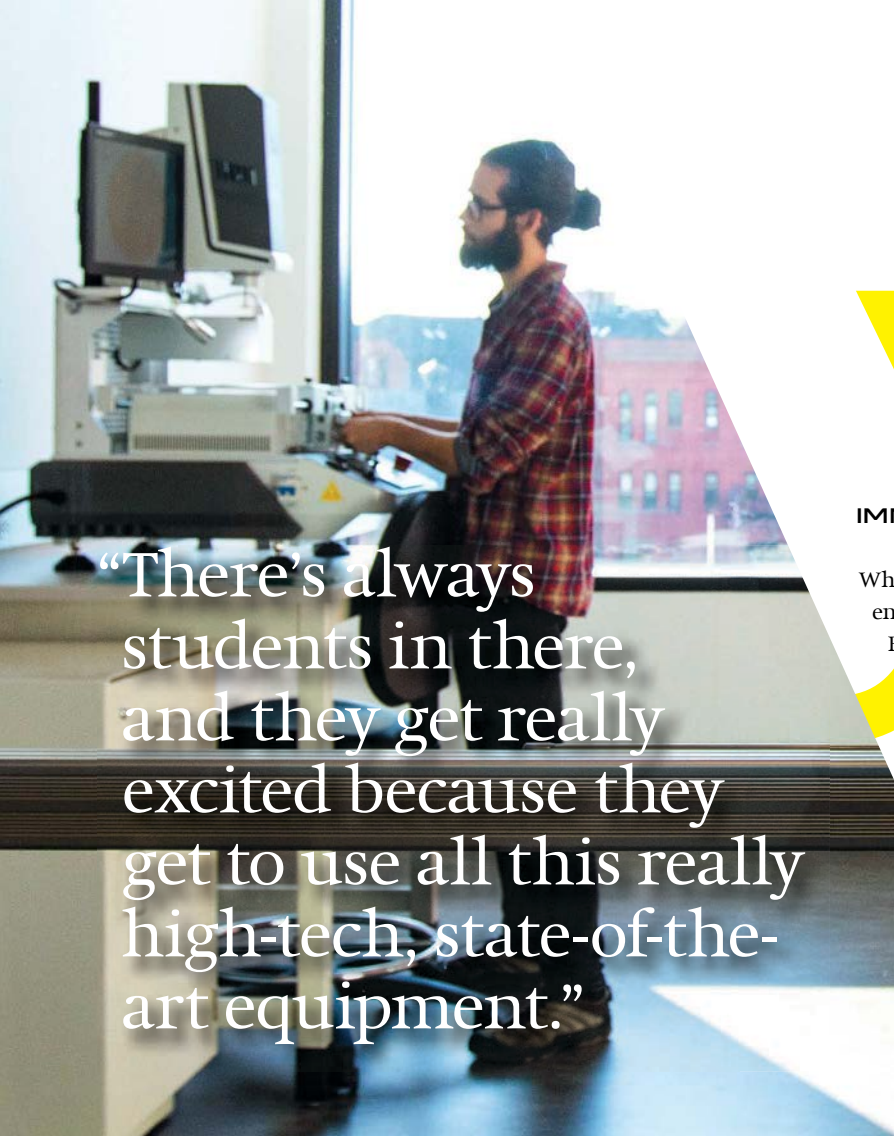
"Think of it as getting in your car with a GPS system dating back 15 years. You enter a coordinate of your location and the GPS will begin to tell you how to get there," says Cathcart. "But if you run into heavy traffic or if a road is closed or if

weather conditions change, those first-generation GPS systems really can't help you anymore. So you revert to flying blind, so to speak."

With the robot-assisted surgery in the MRI, there's no more flying blind. "What the robot does inside an MRI scanner is very much like using Waze while driving a car today. You can take an image with MR that can tell you your target has shifted or the pathway you're on in the brain is wrong and you need to adjust," he says. "The robot can then adjust all the tools and different probes and pathways you're using."

The timing of PracticePoint couldn't have been more fortuitous for Cathcart, who is working with the Boston office of Cambridge Consultants to design and build the commercial robot. AiM Medical





“There’s always students in there, and they get really excited because they get to use all this really high-tech, state-of-the-art equipment.”

Robotics will have an office at PracticePoint, which will be their main site for testing the work as it’s developed. He will have direct access to Fischer and his team, who can help validate the designs and consult on the development. In time, Cathcart says, AiM Medical Robotics will likely collaborate with WPI teams to design sophisticated software, which could include artificial intelligence, augmented reality, and virtual reality applications.

Aside from the access to expertise, office space, and equipment, Cathcart says he’s thrilled for the networking opportunities at PracticePoint. “For a company like ours that’s small and new and unknown to people,” he says, “it’s going to give us great exposure to potential industry partners.”

And then there’s the validation that comes with this kind of partnership.

“As we’re starting this company,” says Cathcart, “we’re trying to develop a name for ourselves and a reputation. A lot of people within the industry don’t know who we are, but our ability to refer to WPI and the tech it’s developed, and refer to Professor Fischer for the leadership role he has at WPI and that he came out of a very highly regarded robotics lab at Johns Hopkins—all that speaks very well for us.”

## IMMERSIVE LEARNING

When Christopher Nycz ’16 MS, ’18 PhD, was studying robotics engineering at WPI, he encountered the same kinds of problems Fischer spoke of. When he needed to use devices such as MRI machines that were not in the lab, it required a good amount of planning and commuting. Today, in his job as a research scientist at PracticePoint, he knows just how fortunate the students he works with are. With easy access to equipment, they’re able to quickly make changes, fix problems, and manufacture components.

“Getting hands-on with an MRI machine gives you insights that sitting in a class about medical physics can’t give you,” he says. “I think having access to it is going to be very beneficial for students.”

The MRI machine, part of the Hospital Care Suite, is just the beginning. There’s also a hybrid operating room suite and a clinical care suite.

In the Manufacturing and Prototyping Space there’s a machine shop, equipment for electronics fabrication, and 3D printing capabilities. And in the Home Rehab and

Assistive Care Environment, there’s a residential care suite and a motion capture suite. The latter, says Fischer, has been especially popular with students since PracticePoint opened. “There’s always students in there, and they get really excited because they get to use all this really high-tech, state-of-the-art equipment,” he says.

For Class of 2020 graduates Josephine Bowen (mechanical engineering), Ben Thornton (biomedical engineering), Blake Dobay (computer science), and Marc Reardon (computer science), the technology at PracticePoint was invaluable to their MQP. All four students are rowers; Bowen was captain of the women’s team and Thornton was captain of the men’s team. For their project, they created a series of sensors that rowers can wear to help coach themselves and improve their technique.

“In rowing, the sequence of body movement is important,” explains Bowen. “First your legs move, then your body, then your arms. Currently, rowers have the technology to see the force they apply over time, but they are unable to see if they are applying the force with the right part of the body.”

Thornton used the motion-capture equipment at PracticePoint to record Bowen’s movements on a stationary rowing machine and analyzed changes in different angles as she rowed—knee, elbow, and back angles. Placing sensors on the machine, the team is also recording acceleration in different areas—the handle of the machine, the seat,



and the back. Those results determined the degree to which acceleration changes with different angles in different parts of the body. Dobay and Reardon worked on the data visualization aspect of the project, creating graphs and force curves that illustrate their findings. Through this work, they engineered a tool that rowers can use to understand the movement of their own arms, back, and legs, and adjust accordingly to improve performance.

“Seeing this on a graph in live time,” says Bowden, “will enable rowers to use the graph to make appropriate changes to their rowing.”

While PracticePoint is a natural fit for engineering students, Fischer emphasizes that it’s a place where everyone in the WPI community can learn and grow, in all areas of study, from undergraduates to PhD students to faculty. Data science and data visualization students can uncover new ways of presenting meaningful patient data; robotics students can design, build, and test new technology; neuroscience students can assess mental efforts and cognitive load; business school students can study user experience by

studying eye tracking and optimizing user interfaces; students at the Home Health Care Delivery Institute can develop relevant apps, and cybersecurity students can test interoperability and cyber safety.

“I don’t want people to think this is a robotics center,” says Fischer. “We really want to engage everybody in developing these systems.”

## LEHR UND KUNST

Though it’s in its early days, it’s clear that the possibilities of PracticePoint are unlimited. It’s a place where students can learn new skills and prepare for jobs. It’s an office where businesses can access cutting-edge equipment, conduct research, develop devices, and meet their future employees. It’s a hub where innovation happens every single day.

AiM Medical Robotics is just one example of a business that’s working to change healthcare, with the help of PracticePoint. “When we combine the accuracy, precision, and efficiency of the surgical robot with the real-time imaging capabilities of the MRI scanner, we hope to significantly improve the lives of patients suffering from brain cancer or functional brain disorders like Parkinson’s disease and epilepsy,” says Cathcart. “The ability to move quicker, faster, more efficiently is probably the biggest benefit to the system.”

When Fischer thinks about the potential impact of PracticePoint, he’s excited. The facility allows businesses to enhance their capabilities and device development so that they can get their technology out to help people, and students can play an important part in that journey. That, he says, reflects the university’s guiding philosophy.

“WPI’s motto is *Lehr und Kunst*, theory and practice,” he says.

“And that’s really what PracticePoint is all about.” [J]





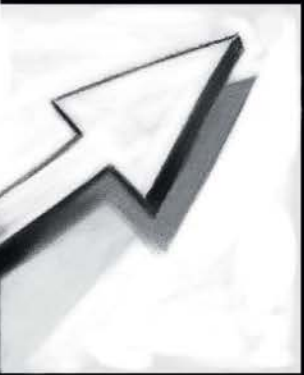





*Jodi Gernon '86*

# Leading the Arthur Rock Center for Entrepreneurship at HBS

BY JULIA QUINN-SZCESUL  
ILLUSTRATION PHIVI SPYRIDONOS







**JODI (GRIESEMER) GERNON** is the first to admit that the tumultuous, exhilarating world of start-ups, entrepreneurial endeavors, and seat-of-the-pants potential isn't for everyone.

"In a start-up, all bets are off," she says. "You have to figure out what problem the company is trying to solve, and it has to be a problem you want to work on. You have to create it and develop it from the get-go."

As the director of Harvard Business School's Arthur Rock Center for Entrepreneurship, Gernon guides HBS students, faculty, and alumni down the entrepreneurial path while using the experience she's gathered over decades in the innovation and entrepreneurship realm. Gernon also leverages the expertise of the HBS faculty and the school's seasoned serial entrepreneurial alumni.

Despite the risks, the appetite for being an entrepreneur seems only to grow. Start-ups, she says, offer a fast path to more leadership, less politics, and plenty of opportunity to prove yourself at a younger age than a traditional route. Start-up founders do all tasks out of necessity so their work is never boring—but it can be all-consuming. "Early start-ups aren't for people who like structured environments," she says. "You have to be flexible and agile and comfortable with the unknown."

## An Innovation Guide


After decades working for and with fledgling companies, the HBS role Gernon assumed five years ago puts her in a position of experienced advisor for those ready to change the world with a new product or business innovation. It also keeps her on the cutting edge—the place where she's most comfortable.

"I love this job because it keeps me young," she says, acknowledging the incredible appetite for and curiosity about entrepreneurial success in students. "I couldn't do any other role at HBS than this role. I work with investors, funders, joiners, students, alumni, faculty. I travel and try to understand innovation in the world and share that. I feel like I can help a larger group of people in this role than I could at one company."

At this exalted business school, Gernon's approachable style is focused on entrepreneurship, with particular attention to deep, world-changing ideas. It's the entrepreneurs that come through her door, she says, who can identify a problem and have a plan to solve it ... who keep her going.

Entrepreneurs aren't always naturals. When they aren't sure how to get from point A to point B, she guides them. Sometimes, she sends them back to square one. After all, she's taken this path many times before. "I have all these years of experience," she says. "I am at the stage where I can help and that's tremendous. I feel like I am coming to a point now where I can give back."





**“I am at the stage where I can help and that’s tremendous. I feel like I am coming to a point now where I can give back.”**

### **Demystifying Entrepreneurship’s Complexities**

Gernon is drawn to both the multilayered entrepreneurial process and the product. The process of getting a company launched includes evaluating everything from initial problem to existing competition to market interest to business plans. She uses her business expertise and a fine-tuned global approach to evaluate social impact.

If her professional checklist sounds like project work at WPI, that’s because it started there. “WPI was a great experience,” she says. “It set me up for looking at opportunities and new way to solve problems.”

Always a strong student in math and science, Gernon’s upstate New York hometown was far from WPI’s campus and even farther from her plans to head off to medical school. But her father encouraged the third of his five daughters to look at engineering schools—so she sent applications to MIT, Clarkson, WPI, and RPI.

“My grandfather is a doctor,” she says, “and I honestly thought I would go to medical school. But WPI offered that path too. WPI sounded like a natural fit for me.” Med school plans detoured into a fortuitous blend of engineering work at WPI and eventually, a keenness to improve healthcare. “There are so many problems in healthcare and so many opportunities to fix them,” she says.

### **WPI Provided Foundation and Challenge**

Gernon formed a community through her years at WPI and especially thrived in the role of SocComm (Social Committee) chair. She was tapped by Skull, and she was a sister of Alpha Gamma Delta sorority. She remembers the impact made by biology professor Helen Vassallo (who became a strong female role model for Gernon) and her academic advisor, John van Alstyne.

“He took the time and cared about what you were doing,” she says.

“I just knew I could go to him. He was a good person who wanted to see you succeed.”

Academically, WPI’s project work helped Gernon visualize her future. “WPI let me become more collaborative and a team player—that was important when I went out into





the working world. And with my IQP and the emphasis on writing and the humanities, I knew how to communicate in the workplace and that helped me.”

Even WPI’s pass-or-do-not-graduate Competency Exam (which was discontinued in the ’80s and was the bane of many seniors’ existence) offered a challenge both terrifying and motivating. “I wish they never stopped that,” she says of the Comp, which required months of preparation and nerves of steel. “It was a big deal, and it gave such a big sense of accomplishment.”

Gernon’s IQP was especially memorable for its seemingly futuristic topic—evaluating the potential impact of robotics on the everyday worker with GE—and bestowed the exact perspective WPI wants to impart. “As an engineer, you have to look at society’s issues and what technology will do to society,” she says. “With today’s rapid technological advances, societal impacts that were never even imagined are emerging and are unacceptable—and innovators can’t ignore that piece of the puzzle.”

The project was also memorable for another reason—unequal participation. Gernon says one teammate was dealing with problems unrelated to the IQP and didn’t do the work. The impact on the project was significant and created conflict, although it fostered personal growth.

Thirty-plus years later, the experience lingers. “When our advisor asked if we all contributed equally, we had to answer, ‘No,’” she recalls. “It taught me that if you’re part of a team, you have to pull your weight—otherwise it’s not a team.” Even today she bases some of her management approach on that specific project and honors what each person brings. “I am more sensitive to how teams work,” she says.


## Path to Entrepreneurship

After graduation, Gernon joined GE’s Manufacturing Management Program, where she gained training and leadership experience throughout the organization. “It was an incredible program,” she says, although it required near-continual travel. “I didn’t even have an apartment,” she says. She again considered going to med school but eventually submitted an application to Harvard Business School’s MBA program—almost on a whim and without expectations.

The night before leaving for a six-month Paris-based assignment, her one-off application cracked open a door. “They said, ‘We want you to come meet with us,’ but they really wanted to know if, as an engineer, I could make it,” she says. “Fifty percent of my grade would be class participation. They wanted to know if I could speak in class and convey my thoughts in an effective manner.”

With one rerouted flight to stop at Harvard before heading to Paris, her life changed. She joined the HBS Class of 1991 and thrived. She worked as a brand marketing manager for Pepsi between her first and second years at HBS—even acting as Pepsi’s marketing rep for the 1992 Super Bowl. “But the reality is that I don’t drink soda—and if I did it would be a Diet Coke,” she says laughing. But she enjoyed the fast pace of the work and her achievements in the environment. “I loved the creativity and energy of a consumer products business,” she says.





**“When our advisor  
asked if we all  
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she recalls. “It taught me  
that if you’re part of a team,  
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### Finding Her Own Path

After graduation from HBS, Gernon assumed sales, marketing, mentor, advisor, and consultant roles with companies in the healthcare and medical device space. The early roles found her comparing her job to the thrilling, fast-paced world of Pepsi and finding it lacking. She missed the creativity and the speed to market she found with Pepsi.

When she joined a start-up shortly thereafter, her role combined sales, marketing, and business—wrapped in that I&E environment. “I was hooked,” she says.

She also learned how to fit her passion for entrepreneurship into her life away from work. After she founded Launchitvity, which advised healthcare start-ups, Gernon and her family—husband and three kids (now 21, 19, and 17)—moved between Massachusetts and Toronto. To keep pace with work and family, she took what she refers to as a step back from the full-time role.

“But I never disconnected,” she says. “Opportunities are lost when women totally remove themselves.” Gernon continued to work for start-ups and helped them define early product attributes and evaluate market opportunities as part of the initial founding teams.

### World Urgency for Innovation

Now at the Rock Center, Gernon is thrilled to work with people who have the same passions to make a change, although they don’t all come at it in the same way. There are some who just want to fix problem that can help society—but they haven’t identified the problem.

“They are enthralled with being entrepreneurs, but don’t have a problem they’re solving,” she says, noting that she helps them explore options, but sometimes she just has to tell them to come back when they can be more specific. There’s good reason for that, she says. “If you’re not passionate about a problem, you’re never going to make it through the process.” she says With grueling, and typical, 18- to 20-hour days, entrepreneurs can’t tire of trying, so they have to be focused on something they care about.

“But the ones who are passionate about a problem? Those are the ones I am excited about,” she says. “There’s one student who is trying to make it easier for students to package their student loans and the project is running at the speed of sound. Another is investigating a substitute for palm oil, one of the largest causes of deforestation. Yet another, motivated by a personal experience of a delayed emergency response, is developing an app to help rapid response teams get to the correct location of an emergency. This is saving millions of lives. We’ve built a village here to support these people.”

Gernon remains involved with WPI through her work with Donna Levin in WPI’s I&E Center—as mentor-in-residence with the Women’s Innovation Network (WIN). She’s impressed by the university’s growth and the students’ capabilities. “I think the students are so much smarter than I was,” she says. “I’ve seen some of the scientific posters, and the work seems so much more advanced than what we did.”

The competition for global innovation isn’t lost on Gernon. “I truly believe entrepreneurs will create the new jobs,” she says. “Seventy percent of new jobs come from 30 percent of the companies. We have to innovate at all costs.” The future of work, she says, rests on countries recognizing the need to innovate and create.

Being part of innovation’s forward momentum is incredibly satisfying for her. “I feel like I’m part of something,” she says. “I’m trying to share what I know of innovation and entrepreneurship with the world and to evangelize the opportunities that are available. And if I can help get these projects another half-mile down the road ... it’s so rewarding.” **WJ**





ERIC SOEDERBERG '83

# SUNRISE LAB'S INNOVATIONS ARE BOTH CHANGING AND SAVING LIVES

BY SCOTT WHITNEY  
PHOTOGRAPHY MATT FURMAN









or an electrical engineer in the medical device world, Eric Soederberg's role models aren't entirely—well—expected. “Oh, Gandhi, probably,” says Soederberg, with a self-effacing laugh. He falls silent for a moment, tousling his auburn hair. “Although, lately I’ve been asking myself, ‘What would Fred Rogers do?’” he adds, drumming his fingers on the table.

How did a gearhead graduate of both WPI and MIT find inspiration in such humanistic heroes? The path may have started decades ago on Boston's Commonwealth Avenue, where a 20-something Soederberg walked frequently, admiring the memorials and statues that line the historic greenway. One in particular captured his imagination: that of sailor and historian Samuel Eliot Morison, whose statue bears the inscription, “Dream dreams, then write them. Aye, but live them first.”

Thirty years have passed since Soederberg first read those words, and he now stands at the helm of Sunrise Labs, a medical product development company whose innovations are both changing and saving lives. And after years of dreaming his dreams, he's discovered that the impact he wants to have on the world isn't limited to the things he makes, but also in how he treats the people with whom he makes them.

## MR. FIX-IT, JR.

Signs of Soederberg's future as an engineer came at a young age—three years young, to be exact. “My mom couldn't get the vacuum cleaner to work, and I managed to fix it in a couple of seconds,” he's been told. Other early triumphs included building intercom systems from scratch and bugging his sisters' rooms, a feat he still recalls with relish. But it wasn't until he earned his amateur radio license in his early-teens that Soederberg got serious about engineering as an academic discipline. “I learned a lot about electronics while studying for that ham radio license. They had all these study guides, and that's where I learned Ohm's Law,” he says. “I also learned that I wasn't very interested in just sitting there talking to people; I wanted to be in the basement soldering and building the radio. I was a nerd before it was cool.”

And so began Soederberg's great passion for all things technical. In fact, to hear him tell it, he was headed for a perilously solitary life of transmitters and Morse code, until he discovered wrestling in

high school, a sport that opened him to the rich complexities of socializing ... albeit in doses. “You're the only one out on the mat at the moment, but you're still on a team, and it was a way for me to see a little more of the world.”

In addition to illustrating that he could thrive in a team atmosphere, wrestling also laid the groundwork for a future in the competitive world of product development. “That sport taught me that, winning matters,” he says. “You don't want to be the second-best guy for the job; you want to be the best guy for the job. It definitely gave me a competitive spirit.”

The sport also opened the door to his future alma mater, WPI. After visiting campus on the urging of WPI's then wrestling coach, Phil Grebinar, Soederberg saw that the school might be a perfect fit for his aspirations. “When it came right down to it, I knew I was going to be an engineer, and at WPI I could take a class specifically in circuits and really learn how to use Ohm's Law—it was all just manna from heaven,” he recalls. “The WPI Plan gave me the chance to study what I wanted to study and build my own curriculum. As a result, I left with more than just a degree in electrical engineering. I had a passion for it, too.”

After graduation, Soederberg put his engineering theory to practice at a series of electronics firms, though two jobs would prove pivotal in building the socially conscious entrepreneur he is today: that of a production supervisor at Motorola and a project manager at DEKA Research and Development.

The mobile phone industry was set to explode in 1992, and fresh out of MIT's Leaders for Manufacturing Program with new operations and engineering skills, Soederberg was looking for a challenge. He got it, and learned the importance of strong values and a people-centered culture along the way. “In those days, Motorola was a principles-driven organization,” he says, “and that's where I learned the two core values that I've preached ever since: uncompromised integrity and constant respect for people.”

Although he was well on his way to becoming a leader in his field, he was dreaming dreams ... but not yet living them.

And then the phone rang. An old school colleague feverishly recounted two new projects his firm had in the pipeline, projects so secret they were referred to by their code names, “Fred” and “Ginger.” He had hopes that Soederberg would consider joining the team. “Eric,” he pleaded, “it's going to change the world.” That's all Soederberg needed to hear. The answer was yes.





“I LEARNED THE TWO CORE VALUES  
THAT I’VE PREACHED EVER SINCE:  
UNCOMPROMISED INTEGRITY AND  
CONSTANT RESPECT FOR PEOPLE”

Sunrise Labs has a strong connection to WPI through its many alumni hires: from left, (front row) David James '15, Alex O'Donnell '16, Megan Bredes '15, Hannah Bond '15; (back row) Ethan Shipulski '19, Jillian Urban '04, Ryan LaRocque '97, Eric Soederberg '83, Elizabeth Walfield '17, Trisha Bouthot '12 (not shown, Andrew Harner '11).

## CULTURE SHOCK

For several years in the late '90s, engineer Dean Kamen '73 and his team at DEKA Research and Development worked quietly on a revolutionary technology he called dynamic stabilization, ultimately leading to two groundbreaking projects that put the innovation to work.

The first, Ginger, was a two-wheeled transportation device the world would come to know as the Segway. Kamen's second project, Fred, produced a wheelchair that allowed users to stand on two wheels, greet others at eye level, and navigate stairs and uncertain terrain in four-wheel drive.

Soederberg led the 'Fred' team, bringing the iBot to market, and the effect the device had on people's lives proved staggering. “We'd see grown men who would put this thing in balance-mode and dance

with their wives in tears,” he remembers. “We heard about people who hadn't been in their backyard for years, or had never even seen their basement. That really helped me see that this medical stuff could be pretty cool.” He discovered that, as much as technical challenges got his blood pumping, he was even more rewarded in building devices that directly improved the lives of those who used them.

Riding high on his success with Kamen and his team—and having found a new focus in medical innovations—Soederberg needed the opportunity to lead, and not just at the project level, but as a company's primary decision maker. He found that chance at Sunrise Labs, a small product-development firm in southern New Hampshire where he could leverage his two passions: medical innovation and principled leadership. Brought on as a manager in 2008, he was soon offered an ownership stake by founder Drew Sunstein, and was appointed president and CEO in 2015. He now had a sandbox in which to test his theories—of products and people alike.

## BUILDING A BETTER ENTREPRENEUR

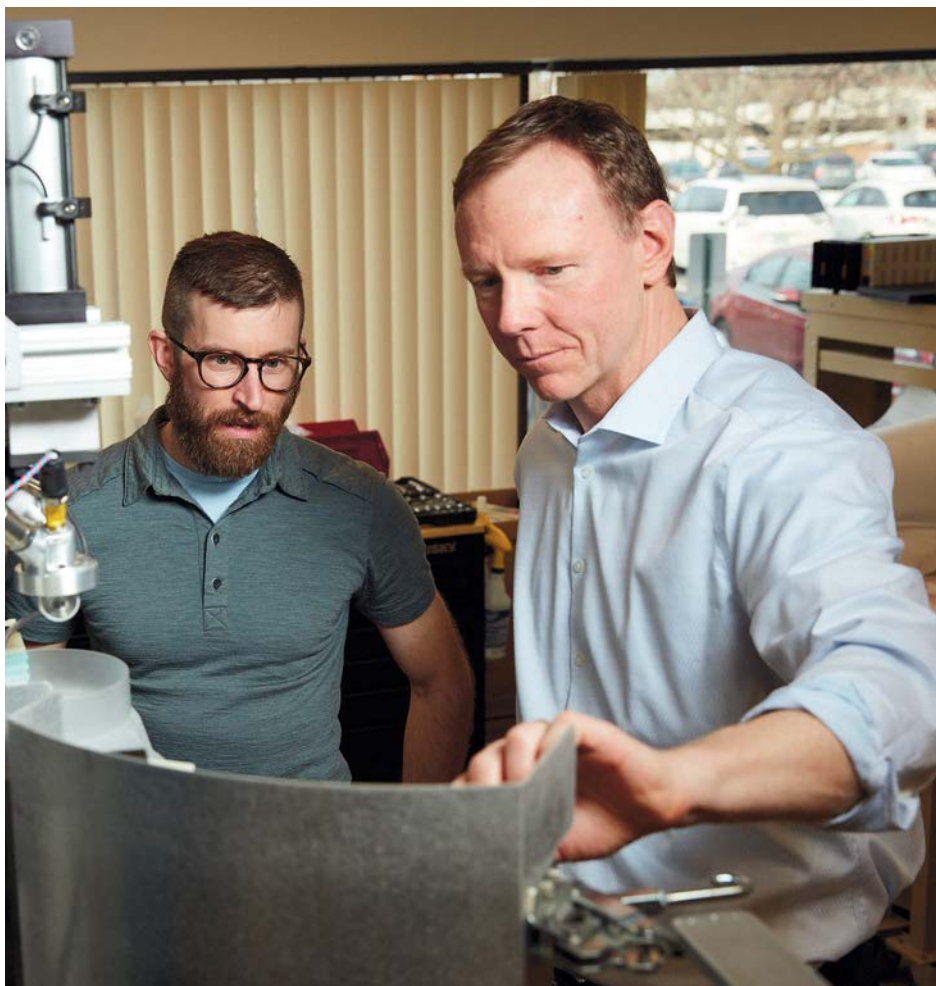
Among his first moves at Sunrise, Soederberg dramatically altered a culture that had begun to lean toward scarcity. “When an employee asks me if they can buy something, I just say ‘yes’ whenever possible. What that says is, ‘I trust and respect you,’” he explains. “If you’re asking people to come up with new ideas, you really have to support them.”

Sunrise Labs’ values-driven culture doesn’t stop with expenditures. Soederberg is a strong proponent of an interpersonal approach he calls “assumption of positive intent.” As anyone who has experienced office culture will attest, a single poorly worded email can wreak havoc on trust and collegiality. Soederberg argues that a reset is possible, if we check our assumptions before acting. “When someone in the company does something that makes me think, ‘What the heck were they thinking?’ I try to start by assuming positive intent, because I absolutely believe that everyone at Sunrise is out for the best interest of Sunrise and our clients,” he says. “If that’s the case, I simply need to talk with them, because usually I find my assumptions were just plain wrong.”

A people-first culture does more than just boost morale and employee retention, argues Soederberg; it also makes for confident decision making. “When we’re faced with a tough decision and wondering what to do, it’s much easier to say, ‘Well, we’re going to do the right thing.’ Then we just have to decide together what the right thing to do is, based on our values. And because we’re privately held, we can do that.”

Laurin Noel, vice president of business development at Sunrise Labs, stresses that Soederberg’s values earn more than mere lip service from his staff. “It’s just not a blame-based environment where people’s first question is, ‘OK, who screwed up?’” she says. “Assuming positive intent is definitely a part of that, and for Eric, that’s also how he wants to live his life.”

When pressed for why he places such heavy emphasis on company culture, Soederberg’s answer is both emotional and pragmatic. “I want to look forward to going to work every day, and I want my people to as well,” he explains. However, he resists the suggestion that his motivations are exclusively altruistic. “I’m a pragmatist,” he counters. “Not acting toward people with a high-integrity model is just short-term thinking. For example, when a contractor comes to do work at my house, instead of trying to talk him down on the



Principal systems engineer Ryan LaRocque '97 shows Soederberg a prototype for an on-demand dry plasma manufacturing system the Sunrise Labs team developed with Velico Medical.

price, I say, ‘Be sure to treat yourself fairly.’ And guess what—then he treats me fairly! It just makes sense.”

Perhaps Soederberg’s greatest feat lies in building a company around principles and values—that has never lost its competitive edge. Last year, *Business NH Magazine* named Sunrise Labs among the top places to work in New Hampshire, and the New Hampshire Tech Alliance dubbed Soederberg its Entrepreneur of the Year. He’s proud of these accolades, but is quick to point out their practical value in retaining good talent. “A lot of our engineers stay with us for our culture. A few years ago we had an engineer leave to take a position closer to home and with higher pay,” he says. “He came back to us in a week.”

And what does the 2019 Entrepreneur of the Year see for the future of Sunrise Labs? Growth, but not for growth’s sake. “When an entrepreneur or a company comes to us looking to develop projects that change people’s lives, it’s hard to say no,” he says. “We’re in it for the long run; we’re not looking to make a killing and get out.”

Soederberg admits that a great culture is only as good as the work it produces, and he comes alive when showing off a prototype for an on-demand dry plasma manufacturing system his team recently developed with Velico Medical. By spray-drying blood plasma, the



device creates a point-of-care plasma product for transfusion which can be stored for long periods of time. It simplifies logistics and is reconstituted in under five minutes.

“Frozen plasma is just not an option for pre-hospital care. You just add water!” he exclaims. “This allows a combat medic or civilian first responder to infuse blood plasma right in the field, which is going to save a lot of lives.”

Soederberg moves on to a show-and-tell of another product developed with SynCardia Systems, an artificial heart driver for patients waiting on a permanent transplant. Worn as a backpack, it's pneumatically tethered to an artificial heart within the body—failure of this device can be catastrophic. Soederberg and his team worked with their client to develop an improved driver that is lightweight, highly reliable, and nearly silent, a requirement they satisfied by inventing new seal technology and advanced motor controls.

“The stories coming from this device are wonderful,” says Soederberg. “We’re hearing about patients going to the library or movies—places they couldn’t go before because it was too noisy.”

Developing life-saving products for the medical field may be the primary way Soederberg gives back, but he’s as true to his values outside the office as he is in. After becoming aware of the wide-spread issue of teenagers suffering from anxiety and depression, Soederberg is working to bring an emotional resilience training program called IHEART [Innate Health Education and Resilience Training], currently thriving in British public schools, to his local school system in Bedford, N.H.

Recently, Soederberg met with several other business leaders and MIT alums to discuss how they might help frame climate change in a way that politicians on both sides of the aisle could embrace. “Putting solar panels on our roofs isn’t going to have enough impact,” he says. “We need policy changes, and having a rational business voice in the room helps politicians recognize that this is not strictly a left-wing, Greenpeace kind of issue.”

In all of his philanthropic endeavors, the through line is clear: when it’s within his power to say yes, Soederberg finds it unconscionable to say no. “We spend so much time grouching about the state of the world, when you see an area where you can have an impact, you’ve got to do it,” he says. “Also, engineers thrive on building things to make the world a better place.” **[J]**



## PET PROJECT

**Q: IF FIDO IS RUNNING AT 65 MPH, HOW LONG WILL IT TAKE HIM TO GET FROM BOSTON TO SANTA FE?**

If you answered, “How the heck is Fido clocking in at 65 mph?” you answered correctly—and Sunrise Labs may have a dog collar to sell you.

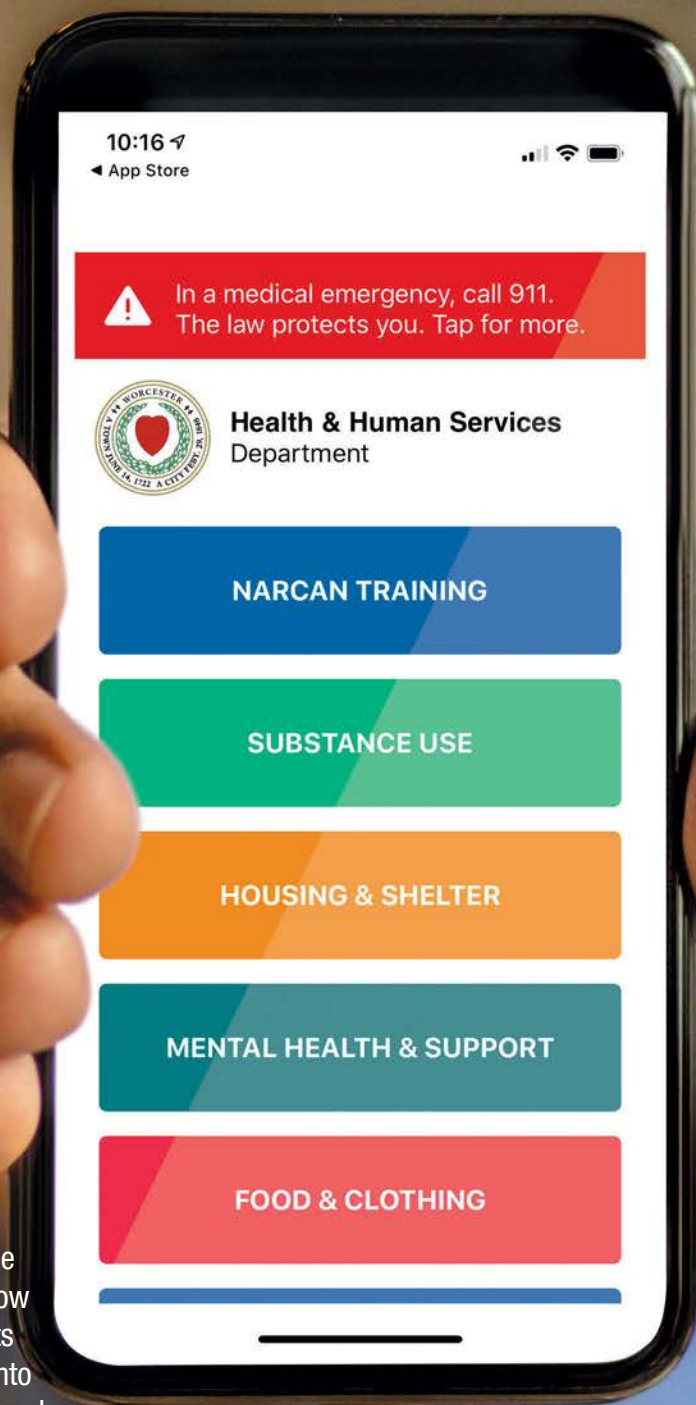
Despite their focus on medical products, CEO Eric Soederberg and his team find it painful to say no to supporting good ideas. So, when their fellow New Hampshire-ites at OnPoint Systems came looking for help in developing a virtual dog fence, they jumped at the opportunity. The SpotOn Virtual Fence’s criteria for a successful system was simple: 1. It includes an electronic dog collar paired to a smartphone app. 2. It can save customized perimeters of any shape and size. 3. It can track where your pet is headed at all times ... and how fast he is traveling. Check, check, and check—the SpotOn collar and Virtual Fence was born.

From a technical standpoint, the SpotOn collar is an engineering feat unto itself. “It’s got GPS, Bluetooth, and cellular radios all playing together in a very small package,” says Soederberg. “Oh, and an accelerometer and gyros to improve the resolution of the GPS, so you can see where your pet is anywhere on earth and in real time.”

We still may not know “who let the dogs out?” but thanks to OnPoint and Sunrise, at least we know where they’re headed.

# PROJECTS

In each issue you'll see how WPI students put theory into practice through projects.



## IQP: STIGMA FREE WORCESTER

### THE BIG IDEA:

In collaboration with the City of Worcester Health and Human Services Department, this IQP team created an accessible directory of substance use treatment services and related resources through a mobile app. Prior to the project, there was a lack of communication between service providers and those seeking treatment. Through in-person visits, semi-structured interviews, focus groups with potential users, and a survey, team members collected information and received feedback related to app features and designs. They determined which features were most useful, while keeping the app simple and user-friendly.

### PARTICIPANTS:

- Walker Christie
- Kyle Foley
- Natasha Honcharik
- Michael Kola

### ADVISOR:

Professor Thomas Ballistreri

### HOW IT WORKS:

The application will help those seeking treatment and support by easily communicating with local organizations and services. Because the application is not intended for medical emergencies, a message at the top of the screen tells users to call 911 if the situation is urgent; it links to step-by-step instructions on what to do if witnessing someone experiencing an overdose, what to say when calling 911, what to do while waiting for the ambulance, and how to perform rescue breathing. The home screen has five buttons, one for each major category. Each meets the Web Content Accessibility Guidelines and is offered in the most common languages in the Worcester area: English, Spanish, and Albanian. Categories include substance use, housing & shelter, mental health & support, food & clothing, and events calendar. The listings are automatically sorted by distance, showing the user nearby locations first.

### WHAT'S NEXT:

The app will be published; ownership and account access will be transferred to the Department of Health & Human Services technical department.

→ This project won the 2019 President's IQP Award.



# ALUMNI NEWS





Philanthropy has the power to change lives and offer hope. Gifts to the WPI Fund support student financial aid and scholarships that enable students to follow, or continue, their dream of receiving a WPI degree. These gifts also support the work of WPI's faculty, who innovate solutions to the challenges facing our global society.

*Thanks to everyone who gave to the WPI Fund this past year!*



### Three easy ways to give:

#### ONLINE

[wpi.edu/+givejournal](http://wpi.edu/+givejournal)

#### MAIL

THE WPI FUND  
100 Institute Road  
Worcester, MA 01609  
(check payable to WPI)

#### PHONE

1-877-WPI-FUND



# ONE WEEK, 20,000 FACE SHIELDS:

## ALUMNI RISING TO THE COVID-19 CHALLENGE

This spring, as the world faced down the COVID-19 pandemic, the WPI community was uplifted by the many stories of alumni rising to this global challenge with creative and inspiring acts that held true to the ideal of project-based problem solving.

One such alumnus is **Matt Dunster '16**, VP at Special Technical Services, Hackettstown, N.J. The family-owned business makes static ground monitoring systems that stop static discharge around volatile materials, protecting individuals and communities from catastrophic events such as explosions.

Since the COVID-19 pandemic, Dunster has completely shifted the company's focus to help address a critical need in the medical community: personal protective equipment. Working with his Mount Olive High School engineering and industrial design teacher, David Bodmer, volunteers from robotics teams, and others, Dunster produced 20,000 face shields in one week. The face shields were donated to hospitals and first responders throughout New Jersey and around the country.

Dunster, a mechanical engineering major whose Mount Olive teacher first turned him on to WPI, got started on the face shields to meet the immediate demand he saw in his own community and erupting throughout the country. He had firsthand knowledge of the demand for personal protective equipment: his sister is an oncology nurse at Hackensack Meridian Health. "I was watching my sister in the field, on the frontlines right outside of New York City, thinking, 'there has to be something we can do,'" he says.

Meanwhile, employees in his company had been furloughed for their own health and safety as the virus began to spread, leaving an empty facility while Dunster was starting to see plans for 3-D printed masks circulating from multiple sources. When he determined 3-D printing would be too slow, someone con-

nected him to a firm in Pennsylvania that could laser cut the largest face-shield pieces, and a plan was formulated.

"It took just a few of us to start the snowball effect," Dunster says. "It's easy to do if you can put a few posts on Facebook and put a purpose behind it."

Dunster and a small team—social distancing required—took delivery of the laser cut pieces by the end of the first week of April. The smaller components had already been made at Special Technical Services, where the small crew hand-assembled the face shields. It was the type of work, he explained, that went faster with fewer hands. In addition, Dunster and his team raised \$40,000 through crowdfunding to offset the cost of producing the face shields; the shields were donated free of cost wherever they were needed, coordinated through Warren County, N.J., emergency services and state police and through requests to the Marauder Innovation Learning Lab at Mount Olive High School.

Dunster found his WPI experience came in handy during this endeavor—organizing remote teams of people with various skill sets, pivoting quickly, solving problems on the fly, and all while also running a company. These are skills he credits to his time at WPI, not to mention engaging in hands-on, project-based learning during WPI's seven-week terms.

"The whole thinking outside the box mentality—this is a real-world situation we're a part of. I think WPI gets you ready for real-world experiences like this."

This is one story of many. Share yours with us! Email [classnotes@wpi.edu](mailto:classnotes@wpi.edu) so we can publish it in our most popular section of the *WPI Journal*. Nothing makes the WPI community prouder than to see the many ways our alumni use their WPI education to make a positive difference in the world.



## WITH GRATITUDE

Members of the WPI Giving Societies gathered at the Worcester Art Museum on March 1, a couple of weeks prior to COVID-19 restrictions, for a special reception and performances by Alden Voices (all-female, non-audition choral ensemble); the Technichords and the Ketones (both all-female a cappella groups); the WPI Jazz Ensemble, the Medwin Honors String Quartet, and the Flute Ensemble.

The program, “Music Composed by Women, Performed by Women,” focused on music by living women composers and was performed throughout the museum’s galleries. The WPI community missed connecting with our Giving Societies members in person—our most generous lifetime supporters of the university—throughout the rest of the spring and celebrating the difference they make in the lives of WPI students and faculty.

We look forward to seeing you on campus again soon and sharing with you all the ways your philanthropy makes a difference at WPI.



## CONGRATULATIONS 2020 Alumni Association Award Recipients

Recognized for their remarkable professional achievements and service to the university, these alumni bring pride to the entire WPI community. We look forward to celebrating them in person with their friends, classmates, and families at a future date to be determined.

### ROBERT H. GODDARD AWARD FOR PROFESSIONAL ACHIEVEMENT

Michael Aspinwall '75

Eugene Dionne '65

Elizabeth Phalen '85

Lennox Hoyte '80

Edward Mackey Jr. '85

John Stauffer '60 PhD (posthumously)

### ICHABOD WASHBURN YOUNG ALUMNI AWARD FOR PROFESSIONAL ACHIEVEMENT

Paul Liberman '05

### HERBERT F. TAYLOR AWARD FOR SERVICE TO WPI

Henry Fitzgerald '75

### JOHN BOYNTON AWARD

Pamela S. (Giasson) Lynch '05

Christopher Stank '00

### EDWIN B. “TED” COGLIN '56 HUMANITARIAN AWARD

Bernard Tetreault '60





## From the Desk of

**MARK MACAULAY '89, '94 MS**  
ALUMNI ASSOCIATION PRESIDENT

Goat Nation—on campus and around the world—showed strength in the midst of the COVID-19 pandemic. Let us count the inspiring, but not surprising, ways:

### 100%

WPI curriculum shifted to remote learning for spring 2020

### 11

Alumni Association Award Recipients for 2020 (see page 44)

### 280

D-Term IQP students and advisors adapting and making a difference in the world

### 40,000+

Face masks, gloves, and other supplies donated by WPI faculty and staff to medical professionals

### \$40,000+

*and counting*

Generous donations from alumni, parents, faculty, staff, and friends to the WPI Emergency Assistance Fund (as of 4/14/2020)

### THOUSANDS

Alumni who stayed connected to WPI in unconventional ways this spring

### THREE

Number of things all great alumni do

**STAY CONNECTED**

**GET INVOLVED with WPI**

**GIVE to WPI**

Another number that matters: students seeking financial aid as their families come to grips with the economic aftermath of the COVID-19 pandemic. Your gift to WPI, of any amount, helps these students close the gap between dreaming of a WPI education and making it a reality.

**wpi.edu/+alumni | wpi.edu/+give**





# Time-Honored Tradition

Whether it's gathering around the piano during holidays or attending the same college, everyone loves a good family tradition, and the **Gulezian** siblings are no different. Known affectionately at their church as the "von Gulezians" in a nod to *The Sound of Music*'s von Trapp family, **Stephanie '18**, **Olivia '20**, and **Zachary '23** have been bringing their talents—both musical and academic—to WPI since 2014.

Ask the Gulezians about their relationship, and you get the usual jabs. They readily admit that their strong personalities set them up for sibling rivalries and quirky facts—their group chat is dedicated to not just family news but their mutual love of memes. What connects them most strongly is their passion for music, a component of WPI that proved crucial to Stephanie's decision to attend, and ultimately set a trend for her younger siblings.

After finding a college that gave her the chance to immerse herself in both STEM and the arts, Stephanie jumped in with both feet, joining Alden Voices and VOX musical theatre in addition to landing an internship at Millipore Sigma, where she currently works as a project engineer.

"The experience in project work that WPI offers ... helped me develop my management skills and ability to thrive in team environments," she says.

While she knows what she learned at WPI is invaluable, what sticks with her is the campus community, something she shared regularly with her siblings when they came to visit her or watch her perform. "I think meeting my friends and seeing how caring the community is really influenced them to choose WPI."

That community aspect rang true for Olivia, the next Gulezian to set foot on Boynton Hill. She may have followed in her sister's footsteps, but she's a trailblazer in her own right—she's WPI's first

undergraduate student earning a bachelor's degree in data science, and has already secured a gig as a business analyst at Boston Scientific.

While she too has a love for the arts, she cites one moment in particular as a big selling point in her decision to attend WPI: after her car had been snowed in during a wintertime visit with Stephanie, a handful of students neither of them knew volunteered to help dig the car out of the snow and got her safely on her way.

"That gave me a glimpse into the character of the students at this school," she says—and the rest is history.

At least, until Zachary made *his* decision to attend the school.

While Olivia says she knew her brother would love attending WPI—and he'd had plenty of experiences himself to aid in his decision—he didn't feel any pressure from his sisters to apply or even ultimately attend—he just wanted to. An electrical and computer engineering major, Zachary's involved in similar organizations as his sisters (Glee Club, Sound Logic, Masque, and VOX), but what sealed the deal for him about WPI was its unique class structure and the size of the campus. "I like being part of a smaller school and getting to know people more intimately, because life is all about connections," he explains.

The Gulezian siblings have spent years complementing, celebrating, and supporting each other's strengths and achievements, and for Olivia, the opportunity to do so on the same college campus has been music to her ears.

"I'm fortunate that I got to attend part of my college experience with both of my siblings," she says. "It's quite rare, and really special."

—ALLISON RACICOT

## A Lifelong Passion Project

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Like all writers, Valerie Stauffer knows a good story when she sees one, and the one belonging to her late husband, **Jack Stauffer '60 PhD**, is one for the ages. That's exactly why she's in the process of chronicling it in a book.

"It's more like listening in on a conversation," she says of transcribing his memoirs—about 100 chapters of which are now complete—building off Stauffer's initial dictations that began the summer after his diagnosis with glioblastoma brain cancer. "It's an honest and engaging recollection of his life."

One hundred chapters may seem like a lot, but with a career that spanned decades and continents, there's no shortage of accomplishments to cover. Stauffer studied at Princeton and MIT before arriving at WPI, where he made his biggest academic splash as the Institute's first graduate to receive a PhD in chemical engineering.

"He was proud," Valerie remembers of his graduation day at WPI. "Really thrilled and excited. It was a big day for us all."

As momentous an occasion as it was for both the Stauffer family and WPI as a whole, it almost didn't happen. A military draft had been put in place shortly after Jack graduated from MIT with a master's in chemical engineering. He had planned to put his academic pursuits (with the ultimate goal of earning a PhD) on hold to join the Army, and that's exactly what he would have done if he hadn't received a letter from WPI the day before he was scheduled to enlist, inviting him to study on campus.

"It was fate," Valerie says simply. Shortly afterward, she and Jack packed up and moved to Worcester, a city they'd previously visited only in passing that would soon become their home for the next few years. Jack's time at WPI encouraged him to dive deep into the world of patents and research with no expectation of profit, just the opportunity to share his work. Even after he received his PhD, many people didn't realize he had one because he never referred to himself as a doctor. "It was something he did more for himself," she says, "to gain scientific knowledge through research to help improve the world."

Improve the world he did, first at Stauffer Chemical Company, a multi-national corporation founded by his great-uncle in 1986, and then through his own endeavor—Stauffer Technology. He built an impressive career as an author, consultant, inventor, and speaker.

His book, *Quality Assurance of Food*, published in 1988, was used as a textbook in food science and nutrition courses in universities throughout the world. He spoke at international technology conferences and served as vice chairman of the United Nations Conference on the International Use of Energy and Raw Materials in the Petrochemical Industry, held in Sinaia, Romania, in 1994.

He was issued more than 65 U.S. and international patents involving nuclear energy, innovative batteries and engines, electricity transmission, and chemical processes—many leading to reduction of harmful chemical pollutants.

Such a profound life deserves to be celebrated, but with a resume as extensive as Jack's, it could have been difficult to determine where and how to best honor his memory. For Valerie, though, the decision to donate to WPI was easy. "The whole experience at WPI," she says, "of experimenting, making his own equipment, creatively thinking of ideas and implementing them independently made a huge difference for him."

After several discussions and visits to campus with their eldest daughter, Jill, Valerie made her decision: her generous gift would go toward naming the courtyards outside the new academic building currently under construction on Boynton Street after Jack. "He would've wanted to do something meaningful for the students, and he was always conscious of the campus grounds and landscapes," she explains, while also citing the family's love of cycling and the outdoors as factoring into the decision. "... it all just seemed right."

Stauffer's legacy at WPI doesn't stop there. He will be honored posthumously with the Robert H. Goddard Alumni Award for Outstanding Professional Achievement, and Valerie and several of their children and grandchildren look forward to accepting on his behalf, an honor she says would have "thrilled and humbled" her husband.

Each endeavor Jack Stauffer set upon was driven by curiosity and a desire to improve both himself and the world around him. His life was the definition of a passion project, a legacy that will be upheld by WPI students for years to come.

—ALLISON RACICOT

LEARN MORE ABOUT GIVING AT [WPI.EDU/GIVE](https://wpi.edu/give)











## Scholarship Is a Team Effort

Once at WPI, it didn't take long for Jean (Salek) Camp '84 to take charge—of not only her education, but her entire WPI experience. “I took the reins starting at Orientation,” she says, explaining that the icebreaker activities allowed her to embrace her natural leadership qualities.

Now Camp is building upon the years of leadership roles that followed, through a generous donation to the Jean Salek Camp '84 Endowed Scholarship.

“I think it's a team effort,” she says of the college experience. “People helped me, and it's my responsibility to help the next group.”

The New Jersey native originally had big dreams of becoming an artist, but an introduction to engineering by a fifth grade guidance counselor turned the idea on its head—although not at first.

“I asked her, well, why would I want to drive trains?” Camp recalls with a laugh. “I had no idea what engineering was about, but that summer my dad took me to a pre-college program, and after meeting engineers and learning more about their careers, I decided it sounded great.”

Combine the newfound interest in engineering with a preference for hands-on learning, and Camp, a first-generation college student, found herself at WPI, where she and her drive and passion flourished.

“It led to so many wonderful things,” she says. “It's a good place; I want to share that.”

While her educational experience was entirely her own, she's quick to acknowledge the help and generosity of others that also played a pivotal role in her success. On top of her own work-study job on campus, her parents worked multiple jobs and regularly went without to ensure that she'd graduate without debt; she received scholarships from WPI and a New Jersey engineering society; and a dean offered her a place to stay during summer classes.

Thanks to her own steadfastness, combined with the generosity of others, Camp's resume is brimming with accomplishments—from

roles in public and private sectors, to forming and running her own project management consulting firm in Hawaii. She has built a home that can withstand earthquakes, hurricanes, and termites, and has already been in touch with WPI's Fire Protection Engineering head Albert Simeoni about the details and how to potentially involve WPI students in a future project in a high-risk wildfire area.

There's no doubt she's led an impressive life, and she's more than confident that WPI students will be able to build such lives for themselves in their own ways, regardless of their paths.

“Students learn to solve problems and think at WPI,” she says. “The project centers and project work ... they're all helpful in getting exposure for students to see things on a broader level, globally, and figure out how to address problems. They have the communication skills to share what's happening, and the problem-solving skills to find solutions. As future political and business leaders, these students will learn to use data and science as their basis and guide for good decision making. These kids just get it.”

Camp's merit-based scholarship will be offered to those with financial need as well as to first-gen students like herself. While she'd love to see scholarship recipients use their talents and passions to help address some of the most pressing problems of our time—including environmental sustainability and climate change, both of which are especially close to Camp's heart—she's equally thrilled to be able to give more students the ability to experience WPI like she did.

“I'd love to play a part in students going to WPI, in knowing they'll make a major impact, enabling them to have a better life in multiple ways,” she says. “I hope students can benefit from it and get what they need ... because keeping people down doesn't help anyone. Lifting them up is what does.”

—ALLISON RACICOT



# WELCOME, CLASS OF 2020!

On behalf of the WPI alumni community, congratulations on your achievements and welcome to an alumni network that's over 40,000 strong! You're joining a community of rocket scientists, authors, engineers, teachers, medical professionals—and we can't wait to see the accomplishments you bring.

To help you transition to a WPI graduate, we invite you to take advantage of one (or more) of these opportunities:

- *GOLD (Graduates of the Last Decade)* - an affinity group for young alumni, providing opportunities for professional development and socialization
- *The Women of WPI* - an affinity group for women and those who support women
- *TechConnect* - your exclusive networking platform for all things WPI ... professional networking, connecting socially, and finding other alumni in your area

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# CLASSNOTES

submit yours to class notes [CLASSNOTES@WPI.EDU](mailto:CLASSNOTES@WPI.EDU)



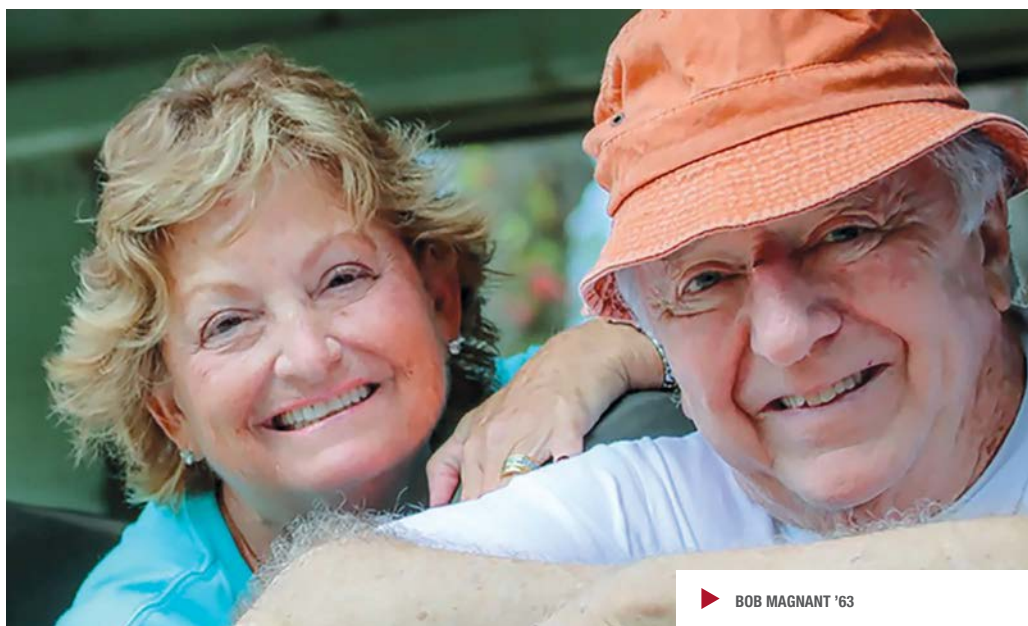
CLASS REUNION YEAR

## 1957

**Spike Vrusho** reports, "Since moving to Vero Beach, Fla., in 2009, I have been fundraising chairperson of my Unitarian Universalist Fellowship and have raised over \$200,000 from yard sales, auctions, discount coupon book sales, and potluck dinner auctions of unwanted Xmas gifts."

## 1963

Through an item in Class Notes, **Bob Magnant** was able to connect with Dan Prouty, an old acquaintance who facilitated WPI projects that exposed students to the realities and the practicalities of on-site construction projects. "Dan still lives in the heart of Oxford, Mass., my home town," writes Bob. "He tracks WPI activities with a *Journal* subscription. The last time I saw him, he was a skinny 10-year-old who was living in his family home, which then was just across the street, no more than 1,000 feet from mine! I was then 23; I had just come back from Vietnam." Inspired by Bob's note about his recent publications, Dan tracked him down. "We had several wonderful conversations for starters," Bob



▶ BOB MAGNANT '63

reports. "But time does fly; we also survived Hurricane Dorian and a wedding last year." He also notes that he now has all seven of his books set up as free downloads on Apple Books.

## 1969

**David Johnson** writes, "My wife, Jan, and I were fortunate to complete a wonderful expedition cruise to



▶ DAVID JOHNSON '69

Antarctica on January 20, before the pandemic exploded. We got to walk in some of explorer Ernest Shackleton's footsteps on South Georgia Island and make a number of stops on the Antarctic peninsula. Utilizing email and Zoom to stay in touch with fraternity brothers while staying at home during the pandemic."

## 1973

**Dean Kamen** was named one of "9 People That Prove 'OK Boomer' Should Really Be 'Thank You, Boomer'" on the *Interesting Engineering* website.

## 1974

As CEO of Professional Systems Engineering, **Jerry "Dutch" Forstater** and his engineering and atelier design firm received the 2019 Outstanding Engineering Achievement in Controls and Electrical Engineering award from the Engineering Societies in Delaware Valley, Philadelphia Chapter, and the Pennsylvania Society of Professional Engineers, for the design and engineering of the Pennsylvania Capitol Police Integrated Command Center. Features of the mission-critical facility include more than 1,000 high-resolution cameras to watch over the 5-million sq. ft. premises, while hundreds of intelligent readers monitor traffic, along with a highly integrated system of phone, radio, and call boxes.

## 1975

Nitsch Engineering announced the immediate retirement of Founding Principal **Judy Nitsch** on April 1, in keeping with the ownership and leadership transition plan that she embarked on many years ago. She founded the company (then called Judith Nitsch Engineering, Inc.) in 1989, and led it as president until 2011, when chairman and CEO Lisa Brothers transitioned into the role of

president and CEO. In a press release Judy said, "When I founded Nitsch Engineering, I envisioned a company that went above and beyond to meet client needs, and that would do excellent engineering work with, as we like to say, 'a smile on our face.' I'm truly delighted with the company that Nitsch Engineering has grown to become, and how the leaders and employees are so well prepared and poised to bring the company to even more success. I know the company will be 'building better communities with you' for a long time!"

She will remain involved in the architecture/engineering/construction industry through service on various boards and advisory groups. The release also detailed her long history of giving back to her alma mater. Judy was the first alumna member elected to WPI's Board of Trustees; she served as chair of the Facilities and Campus Infrastructure Committee for 16 years. Her leadership on two university master plans was noted, as well as on the construction of the Rubin Campus Center, the Bartlett Center, and the Sports & Recreation Center. She was named a trustee emerita in 2012 and received an honorary doctor of engineering degree from WPI in 2015.

## 1977

**Allen Apel** writes, "After over 42 years of working at Pratt & Whitney Aircraft in East Hartford, Conn., I retired at the end of November 2019. My title at retirement was Associate Director, Engine System Modeling Discipline Chief. I worked on developing engine simulation models to predict the performance of jet engines for my entire career. I joined Pratt in June of 1977, and worked on all of its commercial and military engines. I had the pleasure of working with and mentoring many outstanding WPI graduates at

Pratt. Jayne and I continue to live in East Hartford."

## 1978

**Wes Wheeler** is the new president of UPS's Healthcare and Life Sciences unit. He joined the company in 2016 as part of its acquisition of his former employer, Marken, where he served as president and CEO. His career has been focused on key functional areas in pharmaceuticals, including manufacturing, drug development, supply chain logistics, marketing, and engineering. Wes has two adult children and currently lives in North Carolina.

## 1979

**Chris Wilmot** writes, "After a 40 year career in the defense-related industry, I decided to take early retirement and am thoroughly enjoying being home with family and spending time with grandchildren, as well as activities such as biking, family genealogy, and other projects/interests. We are currently renovating our retirement home in Delaware and have been living in Virginia for the past 20 years where, fortunately, we live close to our children and grandchildren. I will always treasure the chemical engineering education at WPI and the friends I made at Alpha Tau Omega fraternity."

## 1980

**Martin Rowe** writes, "On January 13, I joined WTHW Media, heading up a website for engineers called *5G Technology World* (5gtechnology-world.com). In the coming months, we'll be adding technical articles, product announcements, blogs, and videos to help engineers learn about developing products and systems that use 5G. 5GTW will also address other forms of RF communications,

as well as wired (optical and electrical) communications."

## 1982

**Scott Harris** is a Mentor-in-Residence at WPI, with scheduled office hours to assist others with start-ups. A co-founder of Onshape, he retired as VP of Product Definition & User Experience in 2017, but continues to serve the firm as a consultant. His previous roles include distinguished visiting engineer at Olin College, co-founder and VP of New Product Concepts at SOLIDWORKS, director of product engineering at Computer- vision, and serving as an engineer at Pratt & Whitney Aircraft. His profile notes his hobbies as "kayaking, long-distance cycling with Team Onshape, designing and building furniture, and general tinkering."

## 1984

**Keith Ruskin** writes, "Even though my 'day job' is anesthesia, my academic interests involve aerospace medicine. I recently had the opportunity to participate in a microgravity research flight with an organization called Project PoSSUM. The research is fascinating, and it's always fun to explore your own physiological limits. (Spoiler alert: microgravity is a blast!) When I'm not in the air, my wife (Anna Ruskin) and I work together on the faculty of the Department of Anesthesia and Critical Care at the University of Chicago."

## 1985

**Tom Arseneault ('87 MSEE)** is president and chief executive officer of BAE Systems. He has been with the company in senior leadership positions since 2000, when his previous employer, Sanders, a Lockheed Martin Company, was acquired by BAE Systems in 2000. He holds an MBA from Boston University.



## 1987

**Steven Landry** was named department head of the Penn State Harold and Inge Marcus Department of Industrial and Manufacturing Engineering, moving up from associate department head. With a research focus on air transportation systems engineering, he has published widely on areas such as flight deck automation, human-computer interaction in aerospace, and human factors in aviation. Before joining the faculty at Purdue in 2005, he was an aeronautics engineer for NASA at the Ames Research Center, researching and developing air traffic control automation. He previously served as an aircraft commander, instructor, and flight examiner with the U.S. Air Force.

## 1988

**Stephen Farr** was elected to the Board of Directors of Nitsch Engineering, where he serves as a senior project manager. His role has centered around the preparation of design documents, development of work schedules and budgets, management of junior staff engineers, and coordination with various local and state authorities for transportation engineering projects in municipalities throughout Massachusetts. He is active on the Town of Needham's Conservation Commission, and has been a member of the American Society of Civil Engineers since 1988.

## 1989

**Debora Jackson (MS, '00 MEng)** published *Meant for Good: Fundamentals of Womanist Leadership*. Her latest book uses the biblical story of Joseph's exile and rise to power in Egypt to highlight leadership fundamentals that can be gleaned from that story and from the stories of black women's experiences—lessons



▶ MARK MACAULAY '89

that may be redeemed for the good of ourselves and our organizations. The publisher's website notes that "African American women survived nearly 400 years of oppression by crafting a creative culture of resistance, personal perseverance in the struggle, and the ability to adapt while remaining undergirded by faith." She is a former director of lifelong learning at Yale Divinity School and former executive director of the Ministers Council, ABCUSA, and a former senior pastor of the First Baptist Church in Needham, Mass.

**Mark Macaulay** reports another successful pond hockey tournament in February. Gathered with him for the annual alumni tourney in Vermont were **Chris Altemus '87, Mike Fitzpatrick '89, Billy Hamilton '89, Kevin O'Connell '89, Paul Pelkey '89, Jimmy Dellagatta '90, and Kevin Fitzpatrick '90.**

## 1990

**Mike Fillion** shares, "Relocated back to New England after 22 years away. Living in Middleton, Mass., with my wife, Tracy, and son Jack, a freshman at St. John's Prep. Our daughters, Katie (BU) and Abby (URI), attend school in New England as well. Enjoying my new role as EVP of Global Operations for Tecomet in Woburn.



▶ LOREE GRIFFIN BURNS '91

## 1991 ▶

**Loree Griffin Burns** continues to publish science and nature stories for readers of all ages, including an article about "Big Night," the annual spring migration of several amphibian species, in *Yankee* magazine. Her newest book for children, a picture book celebration of moths and moth-watching, has been called "entomological ecstasy" by *Kirkus* and "an engaging approach to nature study" by *Booklist*, in starred reviews.

*You're Invited to a Moth Ball* is Loree's seventh book, published by Charlesbridge Publishers in April 2020. The promotional copy asks, "Most of us are asleep when moths come out at night, but what if we were to stay up late one night? What if there were a way to invite local moths onto our porches and into our green spaces? Moth-watching is actually a thing, and this book invites readers to give it a try."

**Shawn Gordon** was one of 58 recipients of the Northrop Grumman's

# Alumni Respond to COVID Crisis

On March 29, the New Hampshire Union Leader reported that **Dean Kamen '73** and teams at DEKA Research and Development Corp. are “spinning in a dozen different directions” to help manufacture and move supplies. Two weeks later, the paper featured a photo of Kamen with a FedEx cargo plane arriving with 91,000 pounds of protective equipment from Shanghai. The haul included 6.6 million masks, 50,000 face shields, and 24,000 Tyvek coveralls. Kamen enlisted the help of DEKA employees living in China to procure the supplies, which he pre-paid, to be purchased and distributed by the state. His business associate, FedEx CEO and Chairman Fred Smith, helped expedite air transport. The paper also reported on Kamen’s efforts to leverage the young minds and hands of FIRST robotics teams to build ventilators and compile plans into an open-source file for FIRST teams around the world. He said, “The whole FIRST community is used to getting an impossible problem statement, an incredibly short amount of time to deliver a working solution, and to do it in a way that while their robots are competing, the community is working together and sharing.”

Trustee **Steve Rusckowski '79** is chairman, president, and CEO of Quest Diagnostics. In March, two days before COVID-19 was labeled a worldwide pandemic, Quest introduced a new test for the qualitative detection of nucleic acid from SARS-CoV-2 in upper and lower respiratory specimens, having received emergency use authorization from the FDA. As of mid-April, the company had performed more than 900,000 COVID-19 tests, with a capacity for 50,000 tests a day. Priority 1 patients (per CDC guidance) receive results in under a day; for all other patients, the average turnaround time is less than two days.

**Marc Trudeau '81** offered “In This Together,” a series of online Open Space gatherings around the question, “How will we, the WPI community, support each other through this difficult time?” Reporting that he experienced a roller coaster ride of emotions, he invited all those with a passion to connect with and learn from each other to participate. The agenda for the first event, on April 3, included sessions on learning in crisis, inner reflection, and one called “How do we leverage energy + brilliant minds of students to solve challenges around COVID-19?”

Wachusett Brewing Co., led by founder/CEO **Ned LaFortune '90**, released a new brew, Glory American IPA, to raise money for United Way COVID-19 relief efforts in Central Massachusetts and the MetroWest region. The Worcester *Telegram & Gazette* reported that it had been in testing for six months and was expected to be the company’s big beer of the year. Rather than delay the release for better times, the brewery partnered with Atlas Distributing on a timely fundraising effort. Proceeds from the sales of Glory IPA will benefit the United Way of North Central Massachusetts Stand United Fund, the United Way of Tri-County Community Response Fund, and “Worcester Together,” a joint effort between the United Way of Central Massachusetts and the Greater Worcester Community Foundation.

Kohl’s CEO **Michelle Gass '90** elected to not take a salary as thousands of the retailer’s employees were put on furlough. “It is an incredibly difficult decision to extend our store closures and temporarily furlough some of our associates,” she said in an announcement. “We look forward to the day that we can reopen our stores to welcome our associates back and serve the millions of families across the country that shop Kohl’s.”

**Mike Titus '01** is associate director of manufacturing sciences and technology at Moderna Therapeutics, where an mRNA-1273 vaccine has been developed against the novel coronavirus. While a commercially available vaccine is not likely to be available for general use this year, an NIH-led Phase 1 study on human volunteers is underway. The company received an award from the Biomedical Advanced Research and Development Authority, a part of the U.S. Health and Human Services department, for up to \$483 million to accelerate development and FDA licensure—and to scale up manufacturing processes to enable large-scale production for pandemic response.

DraftKings Inc., co-founded by **Paul Lieberman '05**, who holds the post of president, global technology, announced a new charity initiative to mobilize sports fans to band together “in the spirit of triumphing over adversity.” The fantasy sports company committed \$500,000 and challenged fans to double it by posting pictures and videos of themselves “rockin’ your favorite rally cap” on Twitter, Facebook, and Instagram. DraftKings pledged to donate \$1 to United Way for every post with the hashtag #DKRally, until the \$1 million mark is reached.

**Isabella Mendes Lira '06** writes, “With all that has been happening with COVID-19, many students don’t have much access to education, or have very limited instruction. To provide some career inspiration, I am streaming a “Meet an Engineer” series that is open to all from my Facebook page, IMMSTEAM Education. My hope is to bring awareness of STEM fields to children, mainly at the elementary level, as they are natural problem solvers, but also to show the importance of the arts in the STEM fields. In fact, many of my piano students have a natural interest for building and creativity. I have also founded IMMUSIC, my online studio, where I teach, perform, and do educational workshops. In addition, I am working with Lessonface, an online school (where my husband is the producer), offering STEM Mondays through its ‘Go Classes’ program.”

**Lizzy De Zulueta '12** joined up with The Ventilator Project, “a rapid and scalable solution to solve the global ventilator shortage.” The effort has built an army of engineers (250 as of mid-April) recruited to prototype a low-cost ventilator for global distribution, using alternative materials to circumvent the medical supply chain and rapidly mass-produce the ventilators. Lizzy is CEO of Zulubots Inc.

**Marc Printz '19**, community manager of the WorLab incubator, tapped the entrepreneur group’s lab capabilities (along with volunteer help from member companies and partners, such as Growbox, Revolution Factory, and Case Assembly Solutions) to 3D print face shields and N95 masks for local hospitals. The effort includes **Nathan Rosenberg '19** and **Ethan Merrill '20**, who is a lab assistant in WPI’s Rapid Prototyping Lab. “In speaking to one local hospital we’ve found that they need over 840 face shields and will run out of N95 masks this week!” Printz said in a recent appeal to the WPI community. With donations from their GoFundMe campaign, they are purchasing materials and upping printer capacity to turn out hundreds of masks and face shields per week.

—JOAN KILLOUGH-MILLER

TELL US ABOUT YOUR COVID-RELATED PROJECTS. EMAIL [CLASSNOTES@WPI.EDU](mailto:CLASSNOTES@WPI.EDU)



2019 President's Award in the Quality Excellence category for his systems engineering leadership on the James Webb Space Telescope Quality First Culture Change Campaign. The citation notes, "The Culture Change campaign focuses on empowering employees to individually and collectively drive quality across the program." Shawn's group was credited with collaboration that produced more than 60 creative problem-solving ideas to drive down cost and schedule risks.

His wife, Kellie Moore Gordon, tells us, "Shawn's engineering career has humble origins rooted in his early engineering days at WPI when he was inspired to take his love of *Star Trek* beyond his lab bench and into practical aerospace applications." Recruited by TRW (now Northrop Grumman), he moved from Massachusetts to Redondo Beach, Calif. She adds, "Shawn is humble and doesn't toot his own horn, but this an incredible achievement – and I just had to share."

## 1992

**Greg Humora** took the helm as the new city manager of La Mesa, Calif., in February. He had been serving as the city's assistant manager since 2016. Prior to that, he was director of public works for more than a decade. He holds a master's degree in public administration from the University of Massachusetts Amherst.

## 1993

**Tim Brosnihan** was named executive director of the MEMS & Sensors Industry Group (MSIG), a SEMI Strategic Association Partner. The press release stated, "A skilled electronics industry executive and seasoned technologist, Brosnihan brings MSIG extensive MEMS and sensors, product development, and manufacturing experience" to his new

role in directing global activities in research and development, standards, and technical programs. He will also spearhead MSIG executive conferences and develop new services for the MEMS and sensors industry.

## 1995

**Kylie Williams** and **Brigitte Perera '16** serve together at Skanska USA Building as assistant superintendents. "We are both working on the Brookline (Mass.) High School Expansion project," Kylie writes. In March, the two were featured in *Boston Real Estate Times* as part of Women in Construction Week, a project of the National Association of Women in Construction. She adds, "There are lots of stories (and deservedly so) about women making new discoveries and developments in high-tech and biomedical fields, but there's a big solid group of us getting down and dirty in work boots and hard hats getting it done as well." Kylie also appeared in the *Boston Globe* recognition of Women in Construction Week.

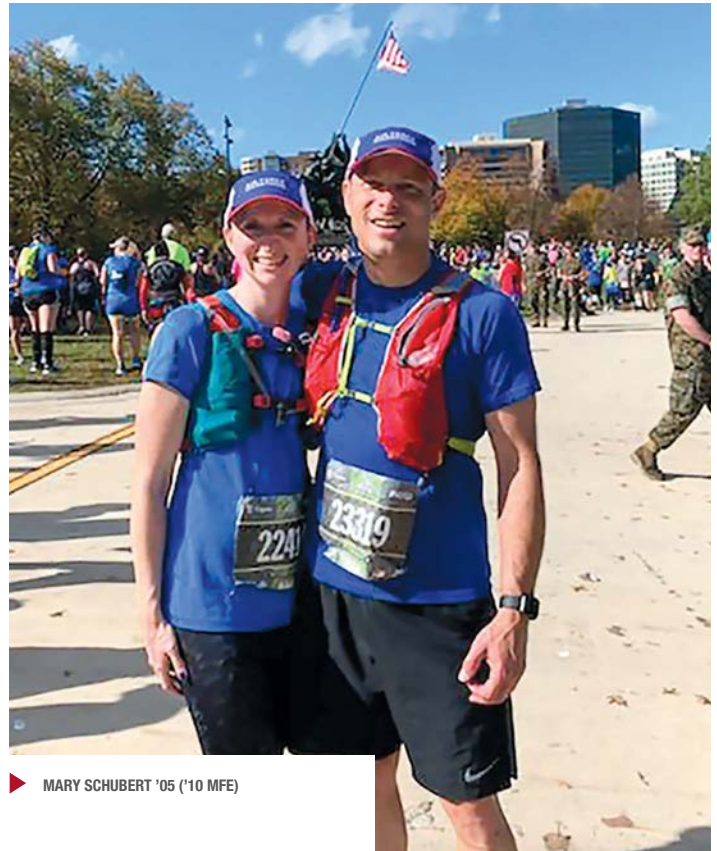
## 2003

**Christopher Gallagher** was promoted from town engineer to director of public works in Foxboro, Mass.

**Amanda Kimball ('04 MS FPE)** was named executive director of the Fire Protection Research Foundation, which is the research affiliate of the National Fire Protection Association. She has been with the organization for the past eight years and previously worked for Arup. She called the new appointment "an honor," and noted that her predecessor left her big shoes to fill.

## 2004

**Ann Mariano (MS, IT)** took on the role of information technology director in the Framingham, Mass., school



► MARY SCHUBERT '05 ('10 MFE)

district in January. She previously worked in other IT roles in Massachusetts—in Stoughton, in Gloucester, and at Ursuline Academy in Dedham. She most recently was director of education technology at Foster-Glocester Regional Schools in Rhode Island.

## 2005

**Mary Schubert ('10 MFE)** and her fiancé, Erik Mikalsen, recently moved to Oklahoma so that she could pursue a role as general manager for an aviation overhaul shop. She was also recently honored with the UTC Mead Medal for innovation in engineering or science. "When not moving or running marathons," she writes, "we are planning for our upcoming New Year's Eve wedding in New York."

## 2007

**Erika Hall ('08 MS BME)** was installed last December as the 2020 President of the Realtor Association of Central Massachusetts. The ceremony took place at WPI, in Alden Memorial. She writes, "In this role, I will continue advocating for home buyers, sellers, and housing policies that promote the American dream of home ownership." She also serves as a director for the state Association of Realtors. Erika currently resides in Northborough, Mass., with her husband, **Dan Filipe '07**, and their daughter, Ivy Rose – "Class of 2038?" Erika jokes.

**Megan Hall** was spotlighted in the *Boston Globe* in a story about vegan Super Bowl parties. Her specialties include Guinness cupcakes with Irish cream frosting (using Bailey's almond milk) and seitan wings made with



► ERIKA HALL '07 ('08 MS BME)

vital wheat gluten (which she says is much higher in protein than chicken). She told the *Globe* reporter that people are pleasantly surprised by how good the food is, and by how the taste and texture is much like meat. "I don't get it when people say they couldn't go vegan because they would miss this or miss that," she said. "What's to miss?" She is a realtor with Keller Williams Elite.

## 2011 ▶

**Patrick Crowe** returned to campus as a new instructor and lecturer in the Department of Humanities and Arts, with a special focus on theatre. As a student, Crowe double majored in mechanical engineering and theatre. Prior to his return to campus, he worked as a mechanical engineer, specializing in industrialized indoor farming, and sprinkler and food processing equipment design. He was also a fire protection engineer, working on NFPA Code reviews for nuclear power stations.

**Huan Lai** serves as director of engineering at Hopper, where he

directs the teams that build Hopper's Flights products. In an interview for *VentureFizz's* Career Path Q&A feature, he said, "Much of my job involves figuring out how to scale the people, processes, and technology to not only keep up with the growth, but accelerate it." His advice on pursuing a career in engineering: "If you don't love what you do, do something else. Our line of work is not easy, and you will run into your fair share of failures along the way. Loving what you do provides that extra push of motivation needed to get across the finish line."

## 2012

*Medium* profiled **Julie Bliss Mullen ('13 BS EE)**, cofounder of Aclarity, in an article called "Water for Everyone: How Julie Bliss Mullen Is Using Her STEM Background to Solve the Clean Water Crisis." The article traced her background in environmental policy and engineering back to her dual major at WPI. It also stressed her service on water harvesting projects in Guatemala with WPI's chapter of Engineers Without Borders as key to

her motivation for her current work. As CEO of Aclarity, she is focused on commercializing and distributing the electrochemical water purification technology she developed, and on collaborating with other organizations to provide community drinking water systems in developing countries. In 2019 she received the "Eat It" Lemelson-MIT Prize and was named to that year's *Forbes* "30 Under 30" list in the Science category.

**Alison Kapushinski**, previously a senior staff engineer at Langan Engineering, is now town engineer for Wallingford, Conn. She holds a master's degree in civil engineering from Stevens Institute of Technology.

After graduation, **Michael Sao Pedro** and **Cameron Betts** started Apprendis with their advisor, Janice Gobert, formerly of WPI, now a professor of educational psychology at the Graduate School of Rutgers University. The company is a spin-off of WPI's Office of Intellectual Property & Innovation. It specializes in developing digital materials for performance assessment of skills in science, including the Inq-ITS (Inquiry Intelligent Tutoring System). Apprendis's Inq-ITS is a virtual learning and assessment system for middle school science, developed using proprietary, educational data mined algorithms. Acting as a virtual lab, the software engages students in scientific inquiry and allows for real-time guidance for the student as well as real-time assessment for the teacher.

## 2013

Classmates **Angela Simpson** and **Brian Joseph** were married Oct. 5, 2019, in Porter, Maine. They first met doing theatre during the 2010 production of *New Voices*. Brian's parents are also WPI alumni, **Barry** and **Gayle (Dalawrak) Joseph**, both Class of 1984). "There was quite the WPI reunion at the wedding," they report, "with over 40 alumni from 1984 through 2016!" The

gathering included **John Foody '15**, **Ben LaVerriere '11**, **Tina Dutra '15**, **Jason Rosenman '14**, **Giovanna (Olson) Chabot '14**, **Larry Marini '84**, **Erin Saari '12**, **Zeph Cady '13**, **Krishna Narayan '84**, **Alex Rock '12**, **Emma (Begbie) Cady '13**, **Anika (Blodgett) Pavis '12**, **Bailey Sarber '13**, **Sean O'Brien '13**, **Jackson Nickerson '84**, **Owen West '15**, **Rich Pavis '10**, **Eileen Wrabel '14**, **Jeff Rosen '12**, **Mary Clare McCorry '12**, **Angela (Simpson) Joseph '13**, **Brian Joseph '13**, **Sebastian Bellisario '14**, **Ari Nitzel '16**, **Carol (Wood) Sutherland '10**, **Joel Sutherland '10**, **Sarah Bailey '16**, **Amy Castonguay '06**, **Lena (Pafumi) Brown '15**, **Hannah Brown '15**, **Sam Moniz '11**, **Emma Raymond '16**, **Joe Brown '15**, **Sarah Gardinier '16**, **Maeve McCluskey '16**, **Mel Wiater '14**, **Sarah Fischer '12**, **Rick Desilets '10**, **Kristen Brann '15**, **Andrew Wilkins '10**, and **Pat Thomas '15**.

## 2016 ▶

**Konstantinos Georgiadis** now works full time with his brothers, importing olive oil from his grandfather's farm in Corinth, Greece, which they sell under the brand name Mr. Papou. (*Papou* is "grandfather" in Greek.) He left his full-time work in sales management to take on internal analytics, bookkeeping, and sales for the company. The *Telegram & Gazette* ran an article on the oil being used at the baptism of a great-grandchild at Saint Spyridon Greek Orthodox Cathedral in Worcester, and the *Keene Sentinel* reported on the family and its other food-related businesses. Locally, Mr. Papou is available a few blocks from WPI at Bahnan's International Marketplace, Bakery, and Café, and it's used at some of the area's Greek restaurants, including Meze Estiatorio on Shrewsbury Street and Zorba's Taverna on Stafford Street, the *Telegram* reports.

## 2019

**John Stegeman** writes, "I have launched my own Smart City company with my



dad's help and am getting some local publicity." The *St. Louis Post-Dispatch* reported on how John, as co-owner and chief technology officer, brought his robotics engineering expertise to Labyrinth Technologies to design controllers for LED streetlights that can be set to make sidewalks brighter at certain times of night, such as when crowds emerge from sporting events. Future add-ons could include networked message boards, weather sensors, and surveillance cameras. The company has received 15 patents for the lighting systems, which feature strips that can turn different colors—blue and gold for the Blues, red for the Cardinals, and a festive combination of purple, gold, and green for Mardi Gras.



▶ ANGELA SIMPSON '13 AND BRIAN JOSEPH '13 WITH BRIAN'S PARENTS, BARRY AND GAYLE (DALAWRAK) JOSEPH, BOTH CLASS OF 1984.

[ COMPLETED *careers* ]

**Bruce Hainsworth '44 CHE** LAMBDA CHI ALPHA

**David Hudson '50 ME** ALPHA TAU OMEGA

**Raymond Boucher '90 MS CS**

**Robert Cushman '52 EE**

**Edward Cahill '55 ME** PHI SIGMA KAPPA

**Jasper Freese '58 CE**

**Harry DiZoglio '60 CE**

**Evan Duane '61 EE**, SIGMA ALPHA EPSILON

**Richard Williamson '62 CE**, PHI KAPPA THETA

**Thomas Modzelewski '64 ME**, PHI SIGMA KAPPA

**Steven Staudaheer '75 EE, '78 MS EE**

**Mark Hasso '83 MS CE, '96 PhD CE**

**Ernest Gregoire '85 SIM**

**Guillermo Caraballo '01 EE**

The WPI community also notes the passing of these friends of the university: **Robert Stoever**.

Complete obituaries can usually be found online by searching [legacy.com](http://legacy.com) or newspaper websites. *WPI Journal* will assist classmates in locating additional information. Contact [wpjournal@wpi.edu](mailto:wpjournal@wpi.edu).



▶ MORTON FINE '37



▶ JOE POLICELLI

**Morton Fine '37**, dubbed WPI's "senior statesman," passed away peacefully on April 19, a few weeks short of his 104th birthday. He was a member of Alpha Epsilon Pi. A loyal supporter of WPI, he belonged to the Alden Society and returned for Alumni Weekend at every opportunity, through 2019.

His engineering firm, Morton S. Fine & Associates, contributed to numerous projects for the State of Connecticut and in the private sector, including Dinosaur State Park in Rocky Hill. In his later years he practiced forensic engineering, giving court testimony for both defendants and plaintiffs in litigation, work that he continued until he was almost 100 years old.

Fine's daughter, Paula Ridge, told *WPI Journal*, "Mort attributed his good mental health largely to his love of music." A clarinet player with The Boyntonians in his undergrad years, he later played in community groups and with the Klezmer band at Congregation Beth Israel. As an usher at Tanglewood for 25 seasons, he was fondly recognized as "the guy with the WPI cap."

Predeceased by his wife, Frances (Kaufman), he leaves two children, five grandchildren, and five great-grandchildren.

**Barrett (Barry) Morgan**, a member of the Morgan family that has been deeply connected to WPI for generations, passed away on April 17. He was a longtime generous supporter of the university whose philanthropy supported the Morgan Center for Teaching and Learning at WPI.

Barrett Morgan was part of one of the industrialist families who built Worcester and grew its educational, cultural, and social institutions. The Morgan family has been deeply ingrained in the WPI community since the Institute's founding, with five generations of the Morgan family having served on the WPI Board of Trustees. The Morgans have made possible the Morgan-Worcester Distinguished Instructorships, scholarships, and several major capital projects, including the Morgan Hall residence and the renovation of the Washburn Shops. A \$2.1 million gift in 2010 from Morgan-Worcester Inc., the philanthropic foundation of Morgan Construction Company, the heirs of Charles Hill Morgan, and the Beagary Charitable Trust, resulted in the renaming of WPI's Center for Educational Development and Assessment for the Morgan family.

Barrett Morgan was a geographer and lived in Iran for three years with his wife, Marhoo. He also served as a professor of English at National University in Tehran in the late 1960s. He went on to have a long career with David Clark Co. in Worcester before retiring. There, one of many important projects he was involved in was the manufacture of space suits for the U.S. government.

Continuing the Morgan family commitment to the Worcester community, he was a past board member and past president of the Worcester Center for Crafts. He and Marhoo were avid ceramics collectors, known for the depth of their vast collection from all over the world.

He is survived by Marhoo, their daughter, Anna Mitra Morgan, and son, Ralph Tavakolian Morgan.

**Joe Policelli**, an adjunct instructor of music and an accomplished organist, died April 27, of complications from COVID-19. He was 71. A graduate of Boston University with a degree in sacred music, he came to WPI in 1995 and augmented the university's growing music program. Teaching Professor and Coordinator of Music Douglas Weeks called him "a dedicated and committed instructor, highly respected by his students."

In a message to the WPI community, Provost Wole Soboyejo wrote, "He was eager to share his knowledge, taking new faculty under his wing when they were learning to teach music fundamentals. He was as meticulous in his teaching as he was in his music performance."

An active and prominent figure in the Worcester music community, Policelli was well known as a concert organist and for his work as dean of the Worcester Chapter of the American Guild of Organists. He held posts as music director and performed at area churches for 50 years, most recently as director at St. Columbkille Church. He also served as an accompanist at Temple Beth Shalom in Needham for several years.

As director of music at Saint Paul's Cathedral, he invited the WPI Brass Ensemble to perform an annual concert. He also played organ at the Mass Academy of Math and Science commencement every year.

In addition to his mother, he is survived by a sister, and a brother.





# #TECHCARES

In March, amid major changes to life and work caused by the COVID-19 pandemic, the WPI community not only remained strong and connected, but also caring and compassionate. As students faced unexpected financial pressures—costs associated with an unexpected early departure from campus, technology needed to support remote learning, and loss of income from employment, among other consequences of the coronavirus situation—alumni, parents, faculty, staff, and friends offered their support.

More than \$30,000 (...and counting) has been contributed to the WPI Emergency Assistance Fund and has already helped a number of students experiencing financial impact of the pandemic.

There are always enough people who care at WPI.

***With gratitude.***



# WPI

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