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WPI JOURNAL

GMO gatekeeper

Melinda Belisle ’08

ON THE COVER: *Melinda Belisle ‘08, across from her USDA office in Washington, D.C.*

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[LETTERS TO THE *editor*]

PRAISE US OR PAN US, OR SIMPLY SHARE BY SUBMITTING YOUR LETTER TO EDITOR DOREEN MANNING AT DMANNING@WPI.EDU

PHOTO BEN BOCCO

SUMMER ACCOLADES

Just a note to say the summer 2016 edition is excellent. It is well balanced, interesting, creative, and tells the WPI story in a readable and attractive format. I've written directly to some of the people highlighted in several stories to compare notes and provide encouragement for their work.

Well done, keep up the great work.

—Henry Strage '54

WATER ACROSS AMERICA

Many of the *WPI Journal* articles deal with bleeding-edge technology and the New England area. Some WPI graduates, like myself, have enjoyed very rewarding careers in a traditional industry in other parts of the United States. For example, my water utility career has taken our family on a wonderful adventure across America—from the pristine reservoirs of New England, to the big rivers of the Midwest, and on to the sacred rivers of the West.

I am very proud that I have been engaged in a career that provides safe drinking water, wastewater management, stormwater protection, water for agriculture, recycled wastewater, and groundwater replenishment.

Over the last 40 years, I have been involved with the planning, design, and construction of over $2.5 billion of water infrastructure. Some of us have also had the opportunity to manage and operate utility systems. I have been on-call, responding to hurricanes, floods, tornadoes, and earthquakes—always making sure the water services were uninterrupted.

Most people in our country wake up every day and turn on the faucet or flush the toilet and take it for granted. Compare this to the environmental issues at the 2016 Olympics in Rio de Janeiro and count your lucky stars!

Thanks, WPI, for providing me the fundamental engineering education to transcend to a wonderful and rewarding career.

—Mark Johnson '76

ICELANDIC VIEWS

I enjoyed "A Widened Lens" that appeared in the Summer 2016 issue of the *WPI Journal*. It was actually the beautiful pictures that first caught my attention and led me to read the fascinating story behind them told in the article. Donal Boyd clearly has an exceptional talent, and one looks forward to seeing more of his work in the future.

I find it interesting that Professor Diran Apelian, Boyd's mentor at WPI, encouraged him to pursue his dreams and "(to) do so with a critical global mindset" instead of merely confining his passion to a hobby. Boyd's work involves a fusion of both art and science, and is a good example of the sort of synthesis we try to nurture and promote at WPI.

I would make only one minor suggestion. In the future, when you publish a piece with photographs like this, it might be nice to say where they were taken and also say a bit about what's in them. I learned later that the pictures had all been taken in Iceland, a country I have never visited but would now like to.

—P. K. Aravind, Professor of Physics, WPI

Letters may be edited for length and clarity.

[MESSAGE FROM THE *president*]

THE VIEW FROM HERE

Dear Friends,

Like many university presidents, I take college rankings with a grain of salt. Too often, I find, they focus on the wrong things—for example how many students a school turns away or the test scores of the young men and women who are admitted. Rarely do they zero in on the qualities that will help prospective students understand what makes a school like WPI distinctive or what they might actually take away from their education.

That's why I was delighted to discover a newcomer to the American rankings marketplace this fall, one that takes a different approach and reaches, in my opinion, more useful conclusions. And as you will see, it is the rare ranking that actually measures a quality that illuminates one of WPI's core values. Like the well-known *U.S. News & World Report* college guide, the new *Wall Street Journal/Times Higher Education* (WSJ/THE) report bases its rankings, in part, on data about faculty quality, college resources, diversity, student engagement, and so on.

But the WSJ/THE rankings add a new spin by cross-referencing those numbers with insight into the student experience. The editors asked 100,000 college students whether they received personal attention from their professors; whether they collaborated on projects; whether they were encouraged to think critically; and whether they'd recommend their school to others. By emphasizing the interview results, and by heavily weighting data about students' postgraduate success, the editors produced rankings they claim are "driven entirely by what matters most to students and families."

In addition to an overall ranking (WPI placed 71st out of 1,000 schools), the editors produced lists that sort colleges according to how well they fit a variety of student-centric criteria. WPI topped a list, titled "The Top Faculties," which ranks schools according to how well their professors balance their roles as teachers and researchers. "Some schools hire brilliant professors whose research expands the boundaries of their academic disciplines," the *Wall Street Journal* noted. "Others hire great teachers who inspire and engage their students." WPI is among a handful a schools that do both, the *Journal* concluded.

I believe our No. 1 ranking is the product of a decision WPI made several decades ago to become a place that values both great teaching and impactful research. With the advent of the WPI Plan in the 1970s, the Institute doubled down on its commitment to undergraduate education as well as its heritage of balancing theory with practice. A decade later, it turned its attention to building a research enterprise, guided by the belief that the best teachers and project advisors not only understand their fields, but are actively engaged in advancing them.

Achieving the best of these competing worlds has required building a faculty that is equally passionate about working with students in the classroom and the lab. That may sound simple, but it requires diligence and a willingness to invest in the kinds of world-class academic and research infrastructure that top scholar educators seek out (think Gateway Park and the Foisie Innovation Studio).

These investments have had a wonderful outcome: satisfied students. Our spot atop "The Top Faculties" ranking reflects what our students think about their experience with our professors. Clearly, they appreciate the opportunity they have to learn from them, to benefit from their mentorship, to solve real-world problems working side-by- side with them on projects, and to be welcomed into their active research programs as valued contributors.

Their excitement at being part of this exciting and intellectually stimulating community is captured not only in the WSJ/THE rankings, but in the annual Princeton Review guide, which perennially finds WPI students to be among the happiest in the nation (we're No. 19 on that list of 318 colleges this year). And while I still think that most rankings miss the mark, this one, I have to admit, seems right on target.

Sincerely,

Laurie A. Leshin
President

ILLUSTRATION AARON SACCO

DIVERSIFY WPI

Michelle Jones-Johnson is WPI's new vice president for talent development and chief diversity officer. Her role in the Office of Human Resources oversees all HR activities. This innovative approach to talent development will have Jones-Johnson collaborating with many groups on campus from faculty and staff to students and organizations, and is a direct result of a recent climate survey crafted to help create WPI's first strategic diversity plan. Recently the Journal *asked Jones-Johnson a few quick questions to get a sense of her goals and aspirations for the coming year.*

THROUGHOUT YOUR 23-YEAR CAREER, WHAT ARE THE BIGGEST CHANGES YOU HAVE WITNESSED WITHIN THE FIELD OF HR?

The greatest changes have been in the changing role of HR and the focus on managing talent within an organization. HR professionals are not just interested in the transactional aspects of the work but are keenly aware of the opportunity to have a more impactful and strategic role on the broader organization both in terms of its people and in supporting the organization in meeting its business objectives.

WHAT IS THE MESSAGE REFLECTED IN THE CHANGE IN YOUR POSITION —FROM VP OF HR TO VP FOR TALENT DEVELOPMENT AND CHIEF DIVERSITY OFFICER?

The role represents more than a title change. It reflects a shift in institutional priorities that align with our strategic initiatives that are enabled through a robust talent management approach grounded in diversity, not just in terms of representation, but inclusive of different perspectives and contributions.

WHAT DO YOU SEE AS YOUR BIGGEST CHALLENGE IN CREATING A MORE SUPPORTIVE, INCLUSIVE CAMPUS HERE AT WPI?

I view life through a lens of opportunity and possibility, each which represent a level of transformation and change that may feel daunting to some or unfamiliar to others. I am excited about working collaboratively with the WPI community to create a strategic roadmap to further build our culture and strengthen inclusion throughout all aspects of our community.

IN AN ACADEMIC SETTING, WHAT ARE YOUR KEY INITIATIVES TO SUPPORT EMPLOYEE AND LEADERSHIP RECRUITMENT AND RETENTION?

I plan to focus on attracting, developing, and retaining talent that distinguishes WPI in the competitive marketplace. WPI is competing for talent both inside and outside of the higher education marketplace. We have to create a strong employee value proposition and craft an enticing employer brand that speaks to the excellence we desire in talent and the diversity we value.

WHAT'S YOUR OWN STRATEGY FOR MAINTAINING A FUN WORK/HOME/HEALTHY BALANCE?

I gave up striving for balance and focus more on choosing to find joy and gratitude in all that I do. I laugh a LOT! I spend time with people who fuel my need for connection, love, and inspiration. I prioritize date night with my husband. I gave up trying to be perfect. I close the door to messy rooms and instead opt to go out and have fun with my family.

ILLUSTRATION JONATHAN REINFURT

wellington, NEW ZEALAND

"It's really quite a dynamic place for being such a small country."

—MICHAEL ELMES

Its history and culture are a rich fusion of influences; its people are proud, innovative, and environmentally fastidious; its picturesque harbor greets looming mountains that are home to an array of exotic and endangered plants and animals. Many factors make Wellington a unique and unrivaled location. That's what ultimately convinced professor of organizational studies Michael Elmes that it would be a prime spot for one of WPI's project centers. After visiting the country as a Fulbright Scholar in 2005, he championed the Wellington Project Center, and students have been visiting and working there for four years.

"It's really quite a dynamic place for being such a small country," says Elmes, who runs the center with assistant teaching professor Ingrid Shockey. "It's a great place to visit, and it's a great place to do interesting, challenging projects."

In those four years, IQP teams have been involved with more than two dozen such initiatives—among them, researching endangered dolphins, investigating prospects for hydrogen fuel, studying the food rituals of native birthday parties, raising awareness of tsunamis, and examining flood and climate change.

Mechanical engineering major Paige Myatt '17, who spent the winter of 2016 at the center, said of the experience, "I felt like I'd found another home." Students are very often struck by what Elmes calls the starkly beautiful natural environment, plus the country's high happiness index and quality of life. "They do have some kind of secret formula there," he says.

The center works with diverse sponsors, from the Māori communities, to the Greater Wellington Regional Council, to the Museum of New Zealand Te Papa Tongarewa. Elmes says it's a mutually beneficial relationship, and a way to show off WPI's excellence. "We have so many repeat project sponsors because they're so impressed with the quality of the work that our students do. I can't tell you how many times people over there say, 'Your students are just great.'"

Myatt was in a group that created a feasibility report for a hydroponic greenhouse that would tap excess electricity from a micro-hydro power system operated by Māori in the rural town of Horohoro. The experience had such a profound impact on her life and career path (she intends to go on to study renewable energy) that she'll be going back in winter 2017 for her MQP. Her plan is to work with that Māori community again to help them design the greenhouse for which she and her IQP teammates created the feasibility study.

She recalls a Māori proverb: "What is the most important thing in the world? It is people, it is people, it is people." Not, she emphasized, that people are more important than the natural world and its creatures, but that they are ultimately responsible for taking care of it.

"The Māori try to be very aware of how they're impacting their environment. They're efficient with their resources," Myatt says of the Māori and of kiwis at large. "It's a very refreshing viewpoint to experience."

—*Taryn Plumb*

THE ROBOTS WERE RIGHT

A decade ago WPI was the first university to allow robot-obsessed teenagers to engage with the passion as an academic discipline. In 2016 the university received the ABET* Innovation Award for developing and implementing the first ABET-accredited undergraduate robotics engineering (RBE) program in the United States.

"The program incorporates an innovative, project-based curriculum that integrates computer science, engineering, and entrepreneurship," reads the citation. "It is producing large numbers of successful graduates, while serving as a model for robotics engineering programs at other institutions."

The award "recognizes vision and commitment that challenge the status-quo in technical education. ... True innovation is hard to define, but easy to identify." It further notes that recipients are chosen for breaking new ground and bringing a new dimension to education.

The first introductory robotics courses offered at WPI filled up before students arrived on campus. Even when extra sections were added, there was still a waiting list. There are now more than 20 RBE courses offered, and the program has 11 labs; it has grown every year for 10 years running, and now boasts 340 undergraduate majors and 160 graduate students.

"Robotics engineering truly exemplifies what WPI can do so well," says program head Mike Gennert. "A diverse set of faculty worked together, pursuing a vision to create an innovative, challenging, and highly respected degree program where nothing like it existed before. Our students have gone on to win awards, create companies, push the boundaries of knowledge, and take leading roles in the Robotics Revolution. And we're just getting started!"

*Accreditation Board for Engineering and Technology

PHOTO MATTHEW BURGOS

Michael Vaudreuil proves an old motto obsolete.

NEVER UNDERESTIMATE, NEVER GIVE UP

For years, Michael Vaudreuil '16 juggled a full schedule of classes with a full-time, second-shift custodial job. He sometime picked up the occasional plastering gig on top of that. Most of the time in between (what little of it he had) was spent on coursework and his MQP.

But WPI's custodian-turned-engineer finally got his payoff. Vaudreuil, whose story went viral after he received his BS in mechanical engineering at WPI's 2016 commencement ceremony, is now employed in the Hot Section Engineering division of Pratt & Whitney, on the aerospace manufacturer's Production Integrated Product Team.

Vaudreuil's story—of enduring setback after professional setback, losing his home, his life's savings, and, for a while, his hope—has resonated with millions. Media outlets around the world picked up the story about the custodian who graduated from the university he cleaned at night. One video of him at Commencement garnered more than 11 million views.

After a segment about him aired on *NBC Nightly News*, four people from Pratt & Whitney reached out to him on the same day, independently of each other. He was soon hired, and now spends his days working on jet engine combustion chambers and turbine and exhaust systems.

"My wife, Joyce, was key in seeing to it that nothing derailed me from the ultimate goal of graduating," he says. "My job at WPI gave us the stability that we so desperately needed in our darkest hours. But it was the educational benefit that came with the job that was a life changer."

Although he has a full plate right now, Vaudreuil has been contacted on Facebook and LinkedIn by others traveling the same path, and has given some thought to how he might help. "Recently, a person from Chile contacted me to suggest I write a book or start a blog to discuss how I accomplished my goal," he says.

His hope is that the media attention will help change the perception of older graduates and job candidates, and dispel the stereotype that their better days are behind them and they're just riding it out to retirement. As is clear in Vaudreuil's case, one should never assume, never underestimate—and never give up.

– Taryn Plumb

▶ STATS

91.7%

The percentage of 2015 graduates who were employed, entering graduate school, serving in the military, or participating in volunteer service.

▶ QUOTABLE

"WE DIDN'T LET OUT GASPS OF SHOCK WHEN WE SAW WHICH SCHOOL SECURED THE TOP STARTING SALARY SPOT: MIT. BUT THE SECOND PLACE, WORCESTER POLYTECHNIC INSTITUTE (WPI), WAS MORE SURPRISING, ESPECIALLY BECAUSE IT TRUMPED HARVARD."

— **Olivia Vanni, Staff Writer, Education, for *BostInno*,** *reporting on a recent "Best Value College Study" by SmartAsset that ranked the average starting salaries of Massachusetts tech grads.*

GROTESQUES LIVE ON

After standing for a century, lending both dignity and a quirky charm to the campus Quad, Alumni Gymnasium is no more. Before demolition of the brick walls began, the building's most distinctive features were carefully removed for historic preservation.

Special attention was given to the 34 hand-carved limestone grotesques, which were carefully loosened from their perch by skilled masons, then lowered by a crane onto wooden pallets. University archivist Jessica Colati has been researching the meaning and origins of these beloved icons. She reports that they represent not only athletic pursuits, but also the Glee Club, the student newspaper, and the *Journal*. Several grotesques give a nod to sporting teams not officially sanctioned on campus at the time, such as bowling, fencing, and gymnastics. One, with a tennis racket, is believed to honor mathematics professor Levi Conant, who, as interim president from 1911 to 1913, oversaw fundraising for tennis courts on campus.

A time capsule housed in the building's cornerstone was also preserved. The sealed copper box is presently being examined, says Colati, and the capsule's contents will be revealed at a later date. (Only a partial list had been held by Gordon Library's Archives.) "When we do open it, it will be really exciting to see if the items are intact," she says, "and to see if there is something else included."

When the Foisie Innovation Studio and Messenger Residence Hall rises on the site, a number of the grotesques will be incorporated in the new building. Several others will be displayed near the athletic fields as a motivator to WPI's student athletes. Six grotesques—chosen by popular vote—were memorialized on a T-shirt, with a portion of proceeds funding student scholarships.

To order, go to wpi.edu/+grotesques.

—Barry Hamlette

IMAGE COURTESY OF WGBH

President Laurie Leshin works with a student group on WGBH's American Graduate Champion.

AMERICAN CHAMPION

President Laurie Leshin was selected by WGBH as a 2016 American Graduate Champion, as part of a PBS initiative to address the nation's drop-out crisis. The champions are role models in the community whose stories have the potential to inspire others to take action. On Sept. 17, American Graduate Day was broadcast live on WGBH and other public broadcasting stations to celebrate nationwide efforts being made by individuals and organizations to keep students on the path to graduation.

Leshin and Martha Cyr, executive director of WPI's STEM Education Center, were interviewed for the program. In a "Stories of Champions" segment promoting the program, they spoke of WPI's commitment to K-12 STEM education efforts, noting that more than 1,000 teachers benefitted from professional development at WPI this year.

"A STEM education can offer a pathway to doing good in the world," Leshin said, adding that project-based curriculums have been shown to lead to higher persistence and graduation rates.

The program is part of American Graduate: Let's Make It Happen, which harnesses the power of public television to help communities understand the challenges and community-driven solutions associated with the dropout crisis. Along with ongoing reporting on the issues, public forums and community conversations are activating discussions between community leaders, educators, and others.

Learn more about the dropout crisis at americangraduate.org

CAMP REACH TURNS TWENTY

"I could be an engineer if I wanted to."

What does it take to move the needle on the number of girls who "Strongly Agree" with that statement? Over the course of 20 summers, Camp Reach has changed the lives of 600 girls by immersing them in hands-on projects, surrounding them with like-minded mentors, and treating them to a taste of college dorm life for two fun-filled weeks during the summer before they start 7th grade.

Camp Reach, launched in 1997, grew out of conversations between two WPI professors about how they'd been encouraged, as girls, to go into a predominantly male profession. "I grew up around WPI and its students," says co-founder Chrys Demetry '88, director of the Morgan Teaching and Learning Center, and associate professor of mechanical engineering. "My dad (ECE professor Jim Demetry '58) helped me get access to people and equipment here to help with my science projects."

Her friend and colleague, the late Denise Nicoletti—who taught as the only female faculty member in WPI's ECE department—had been inspired by an unusually enlightened high school teacher. "There's still a perception that engineering is primarily for boys," says Demetry. "Girls don't always get good information about what engineering is and what the opportunities are.

"Denise and I took what we knew is really effective about the WPI Plan and project-based learning at the college level, and sought to apply that at the middle school level," Demetry relates. "We co-advised an IQP team that did the bulk of the background research and program design. That initial IQP fed into a successful NSF grant proposal that funded the first two years of Camp Reach." Each summer, the campers work in teams to complete a real-world project for a Worcester nonprofit.

Two decades later, Demetry continues to follow Camp Reach alumnae through longitudinal studies to assess impact. She notes that continued contact through the middle school and high school years has been shown to make a difference. Over the years, numerous alumnae have returned to serve as camp counselors, speakers, and mentors, showing younger girls a path that is open to them.

BERT LaVALLEY

LaValley at Worcester restaurant Deadhorse Hill, which he co-owns.

PHOTO STEVEN KING

BERT LaVALLEY '07 is CFO of Deadhorse Hill, in partnership with chef Jared Forman and beverage director Sean Woods. The downtown restaurant/café is named for a steep incline that that challenged horses—and then motorcars—in bygone centuries. His is also founder of Sustainable Comfort Inc., specializing in energy efficient multifamily homes. *WPI Journal* asked him to share his thoughts on revitalizing Worcester's culinary scene.

WHERE DID YOU LIKE TO EAT WHEN YOU WERE AT WPI? I have always loved Corner Grille up near Tatnuck Square—I used to get their "Aloha Pie" once a week. The Boynton and Tortilla Sam's were also favorite meeting places.

WHAT DREW YOU INTO THE DEADHORSE ENTERPRISE? Sean and I have lived across the hall from each other for a number of years. Our building has a great outdoor patio—a lot of people like to cook outside when the weather is nice, particularly on Saturday and Sunday afternoons. Sean would always come out with something to share—a really well-balanced cocktail, or a dish he had been preparing all day. What he produced was unique and interesting, but what always stood out about Sean was how much he cared about taking care of people. When he teamed up with Jared and began planning a restaurant in downtown Worcester, I was excited as a consumer and offered to help anyway I could. I mostly had in mind a conversation or two over a beer. As they walked further down that path, that offer turned into many conversations and eventually a partnership.

Prior to this, my experience in the restaurant industry was the same as most people's—I had eaten at one. WPI taught me how valuable project partners and mentors can be. I am incredibly lucky to work with these people—I am consistently amazed by their work ethic, creativity, and raw talent. This project would fall flat without them. I am motivated daily to try and keep up.

ANY COMMON GROUND BETWEEN YOUR RESTAURANT WORK AND YOUR SUSTAINABLE CONSTRUCTION BUSINESS? A lot, actually. In both businesses we have a philosophy around taking the long-term view. In the restaurant, that means we source from the local area, focus a lot on the sustainability of the products we use, and try to create an environment where everyone—staff and guests—feels welcome and taken care of. At Sustainable Comfort, we are working to make buildings more resilient, efficient, and healthy for their occupants. Both things directly impact the quality of people's lives in a, hopefully, very positive way.

SO MANY SAY WORCESTER IS ON THE RISE WHEN IT COMES TO FOOD AND CULTURE. WHAT'S YOUR TAKE ON THIS? Worcester has a stated goal of having more young professionals educated at the local colleges and universities live and work in the area. One element I think is necessary for that is a robust and diverse culinary scene, and Worcester is growing in that regard. That said, diversity means there should be options at different price ranges and cuisine types—so different people can look for an experience that provides the best value to them.

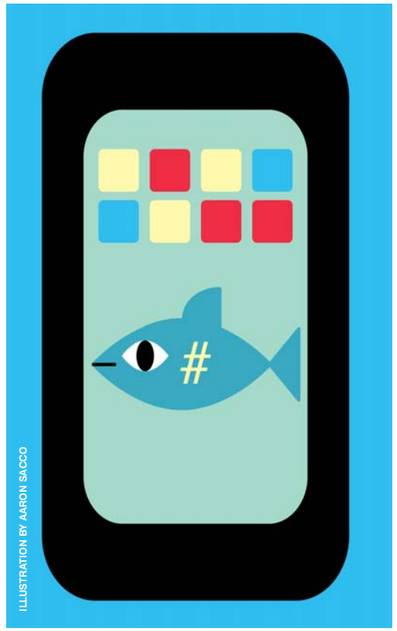


ILLUSTRATION BY AARON SACCO

#CODEFORFISH

Fish hackers? Wait... does that mean cybersleuthing a fisherman's home computer? Au contraire, it's about WPI students using mobile tech to help sustain fisheries.

Last April (during Earth Day weekend at WPI), Fishackathon united coders, graphic designers, and project managers for an intensive two-day programming session to devise cutting-edge solutions to the most pressing industrial and environmental issues plaguing aquaculture and aquatic life.

Hosted by the U.S. Department of State since 2014, Fishackathon tasks teams with creating a mobile smartphone app to address one of nine problems fishery experts define as the most critical to making the global fishing industry sustainable.

In the largest Fishackathon to date, teams participating simultaneously from more than 40 locations all over the world tackled issues related to fish identification and tracking, monitoring systems for lost fishing gear, fishing vessel data, and compliance with marine laws and regulations.

Of hundreds of submissions, SUSHEE—short for "Scraping Unsearchable Sources to Halt Environmental Exploitation"—an app created at WPI by Jonathan Leitschuh '16, Maryann O'Connell '17, and UMass-Lowell student Darrien Glasser, was recognized as a global finalist. It is designed to agglomerate a wide range of data on fishing vessels, to allow law enforcement officials to combat illegal and unregulated fishing, and to prevent rampant overfishing from destroying marine ecosystems.

"Prior to the event, I was unaware of the complex issues we are facing globally in regards to fishing," O'Connell says. "By participating in Fishackathon, I was able to have fun developing software while contributing to a worthwhile cause."

—Kerry O'Brien

ALUMINUM: A GRAVE-TO-GATE ANALYSIS

Though your car won't fit into your curbside recycling bin, a significant number of its parts—from radiator and engine block to wheels and bumpers—are highly recyclable and endlessly reusable. WPI's Center for Resource Recovery and Recycling (CR^3), part of the Metal Processing Institute (MPI), recently confirmed that 91 percent of automotive aluminum gets recycled at the end of a vehicle's life—keeping it in use and out of landfills.

A study commissioned by the Aluminum Association and conducted by the CR^3 looked into three processes where aluminum is most often lost during automotive recycling: shredding, downstream separation, and scrap melting. Working with a representative sampling of dismantling yards, recyclers, and manufacturers, MPI founding director Diran Apelian and graduate student Sean Kelly tracked the full process to assess the percentage of aluminum captured and the opportunity for further improvement.

In the report "Automotive aluminum recycling at end of life: a grave-to-gate analysis," Kelly writes, "Recycling is a critical step for the sustainability of a man-made metal like aluminum since it significantly saves both energy and scarce natural resources." According to Apelian, the results confirm that aluminum—which is lightweight and, pound for pound, stronger than steel—"helps reduce energy consumption, lower carbon emissions, and increase fuel economy."

The CR^3, a National Science Foundation Industry/University Cooperative Research Center, is a multi-university, member-driven collaborative focused on helping industry create a sustainable future through advances in technologies that recover, recycle, and reuse materials throughout manufacturing processes. Partner organizations are WPI, Colorado School of Mines, and KU (Katholieke Universiteit) Leuven, along with the University of Tokyo, which joined in August.

**Look for a feature story on CR^3's diverse research in the next* WPI Journal *(the new annual research issue).*

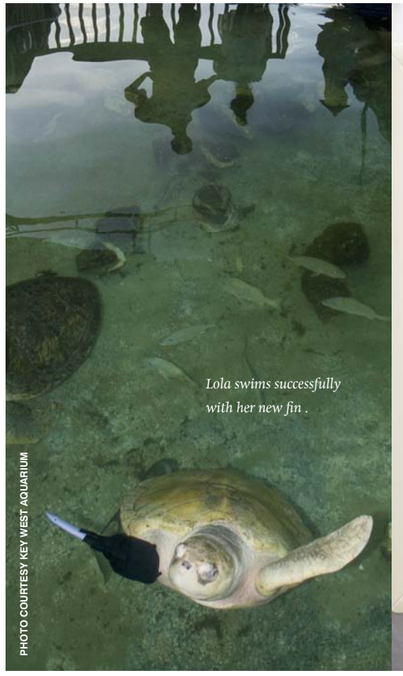


PHOTO COURTESY KEY WEST AQUARIUM

Lola swims successfully with her new fin .

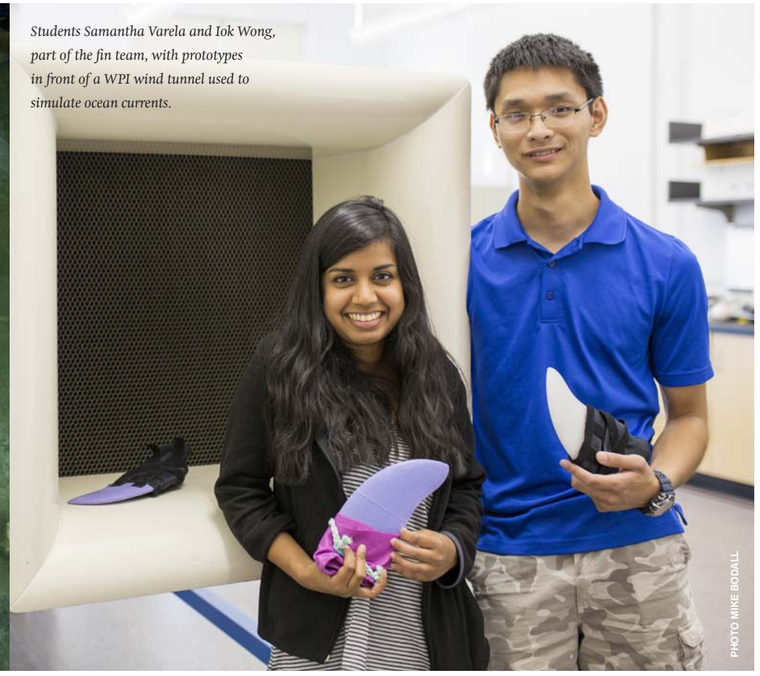


PHOTO MIKE BODALL

Students Samantha Varela and Iok Wong, part of the fin team, with prototypes in front of a WPI wind tunnel used to simulate ocean currents.

FINDING LOLA

What do engineering and aeronautics have to do with helping endangered sea turtles?

It's a classic tale of WPI students on a mission to find a topic for their MQP that would have a lasting impact.

It all began when 2016 graduates Iok Wong, a mechanical engineering major and aerospace engineering minor; Samantha Varela, a biomedical engineering major; and Vivian Liang, a double major in biomedical engineering and mechanical engineering, found Lola.

A Kemp's ridley sea turtle living at the Key West Aquarium, Lola was struggling without her right front flipper. It had to be amputated after she was found in the wild with fishing line wrapped around it so tightly that it was cutting off circulation. Without her flipper she was barely able get around and would often injure herself swimming into the edges of the pool.

Unfortunately, it's common for sea turtles to lose limbs if they're entangled in fishing gear, hit by boats, or attacked by predators. It's a threat to these already critically endangered creatures, as the disabled turtles are unable to feed themselves, mate, or reproduce.

By creating a biomimetic prosthetic flipper for Lola—the first of its kind—the group hopes to inspire the creation of an adaptable version to help more sea turtles.

The students' respective majors, while seemingly unrelated to sea turtle anatomy, provided an optimal combination of skills for the project. Wong perfected the aerodynamics of the fin; Varela designed a way to attach the prosthetic; and Liang ensured that Lola could generate enough force to operate the prosthetic in water. They used low-cost materials and 3D printing to create the fin with silicone.

Wong and Varela traveled to Key West in September to fit Lola with her new flipper. Lola adapted to it amost immediately, swimming swiftly and smoothly. Greg Gerwin, curator at Key West Aquarium, says, "With her flipper missing, Lola would only swim in circles, which caused her a lot of discomfort during feeding. And it was sad to watch her not moving around much or just sitting at the bottom of the exhibit, because sea turtles normally can move so gracefully. Now, with her prosthetic, we have hope for Lola."

ELECTION 2016:

HACKS, AUDITS, AND OTHER WORRIES

Amid one of the strangest and most contentious presidential elections in recent memory, there is widespread concern about electronic voting machines being "rigged," malfunctioning, or falling under cyberattack by domestic or foreign bad guys. How can the public trust that their ballots are counted correctly—or at all?

That question is always on the mind of Suzanne Mello-Stark, a forensic computer scientist at WPI who studies voting technology and has served as technical advisor to the election boards in Rhode Island and Connecticut. Mello-Stark, associate teaching professor of computer science, says her interest was piqued during the 2000 presidential election, when the hotly contested result of the tally in Florida (remember the "hanging chads"?) had to be decided by the Supreme Court.

Although not terribly concerned about a full-blown hijacking of the election—Americans vote on an apples-and-oranges hodgepodge of different types of machines managed state by state with no networked, centralized system for cyberattackers to successfully target—Mello-Stark is worried about audits, recounts, and public trust.

With funding to improve election processes provided by the Help America Vote Act of 2002, many states bought electronic voting machines. While they seem like reliable and familiar technology to voters, many have not been fully vetted or secured, cautions Mello-Stark, and some provide no audit trail, making a recount all but impossible. And because most new machines are built and maintained by private companies whose proprietary interests in their software limit outside oversight, it's possible that code errors or tampering, for example, could go undetected. Old paper ballot machines may be more reliable, after all.

It's clear that voting technology needs further study, and the system needs a strategic overhaul that provides strict security and transparent auditing capabilities. That's not going to happen before the 2016 presidential election, and then, says Mello-Stark, "it'll be off people's radar for another four years. Nobody worries about election technology until something goes wrong."

A KEEN IDEA

How do you teach an engineer to think like an entrepreneur? It starts with a mindset that focuses on innovation and impact—two words often heard on campus. Get ready to hear them more. WPI is now one of 24 universities in the Kern Entrepreneurial Engineering Network (KEEN). Thanks to more than $2 million in grants from The Kern Family Foundation, which created KEEN, programs are being developed to help students adopt an entrepreneurial mindset. This means our engineers will be able to identify, investigate, and innovate something that will have lasting value for society, not just a quick fix.

So far, WPI has added a full-time professor of practice to help the faculty develop entrepreneurially minded learning approaches to their teachings. Outside the classroom, the university has introduced "Innovation to Impact" challenges—timed team competitions in which students define a problem, develop an idea on how to solve it, and create a prototype. Over the next three years, WPI will continue professional and leadership development for its faculty, develop a curriculum for 100 courses that will instill the entrepreneurial mindset, and host 10 extracurricular activities a year with the goal of exposing all students, not just engineering majors, to KEEN.

"KEEN programs provide a platform for WPI to modernize our project-based education," says Glenn Gaudette, professor of biomedical engineering, who was named 2015 KEEN outstanding faculty member of the year. "Together with solid technical knowledge and communication skills, students are encouraged to think beyond short-term results and focus on broad-impact, long-term initiatives."

PHOTO CAROL OLIVETO

[TURNING*point*]

36%

That was her one-year survival prognosis when **DARA ZUCKERNICK '91, '97 (MBA)** was diagnosed with stage 3 breast cancer in 2011, and it gave her inspiration to transform her future.

The child of an artist, Zuckernick had a great eye for creativity early on. Yet her mother urged her to pursue her analytical—and potentially more financially stable—strengths.

The summer before her high school senior year, she attended the WPI Frontiers program, which led her to apply to WPI. "Before you knew it, I was becoming a scientist," she admits.

Upon earning her BS in biotechnology, it was apparent to Zuckernick that the best way to get ahead in her field was with a PhD, but the routine lab work fizzled her passion rather than ignite it.

"A friend of mine had completed her MBA in the WPI program and I thought that might provide an avenue for me to stay in a technical field—but on the business side rather than the technical side. My employer offered a tuition assistance program, so the decision to pursue the MBA was pretty easy."

Fast forward to her role as North American sales manager at Molecular Devices: It was during this time Zuckernick was diagnosed with cancer, and suddenly she felt her priorities shift.

She promised to get back to her creative roots and open an art gallery—and in the summer of 2013, she did just that with Blank Canvas Gallery. For two years she balanced her corporate life and the gallery 24/7, but when she realized her bigger joy came from the most mundane work at the gallery—even just refurbishing the gallery walls—she was finally convinced to leave the corporate life behind.

She now gets more of a thrill selling small works of art than she ever received closing big capital equipment deals. "The personal connection with both the art and the artist can be very intense, and so many of my artists are now my very good friends," she explains.

Despite the change in direction, Zuckernick still feels her WPI education guiding her.

"A lot of that questioning—analytical work that you learn as a scientist—I now employ toward evaluating art. And just like science, a lot of art is built on the work that came before, so the volume of reading and researching and learning is just like you would do in science." And her MBA background has helped her navigate her new role of entrepreneur in establishing a gallery and helping the artist community.

Flash to today: Zuckernick is set to launch an art concierge service in the Philadelphia area. She is also on the board of a nonprofit group called The Art Trust, with a gallery in downtown West Chester and a list of shows set for 2017.

With her cancer now in remission, her schedule is just as busy as it was in her corporate role, but with a soul fulfillment missing early in her career. Filling her iCal with pursuits she's passionate about, from Olympic lifting to paddleboarding, Zuckernick admits she's never been as happy as she is now.

THE RIPPLE EFFECT

Anne Cheung ’99 (MS)

BY KATE SILVER | PHOTOGRAPHY KATHLEEN DOOHER

Cheung in her Biogen lab in Cambridge.

In 2005 Anne (Zichittella) Cheung was losing sleep. Anne Rapin, a close friend, had just returned from Cameroon, where she'd taught science to upper-level students as a Peace Corps volunteer. Rapin had brought home some unsettling stories from the West African country. For Cheung, one stuck out.

"She'd said something in her classroom one day about how girls can do anything that boys can do," Cheung recalls. "And one of the girls in her class actually said, 'No, you're wrong, Madam, we can't.'"

Rapin explained that in Cameroon girls are far less likely to get an education than boys because they're often thought to have less potential. Also, they're frequently married off at a young age and, therefore, they stop going to school, teachers sometimes approach girls for sex in exchange for good grades, and girls are kicked out of school if they become pregnant.

Cheung couldn't stop thinking about it. As a senior associate scientist with the biopharmaceutical company Biogen, she was acutely aware of how education and opportunity had shaped her life. So had helping people. Through her volunteer work and her job she's helped discover new treatments for neurodegenerative diseases, such as Alzheimer's.

The more she learned about the disparities facing girls in Cameroon, the more Cheung felt compelled to do something. After talking with Peace Corps volunteers working in that country, she and Rapin decided start a scholarship program for girls there. With a recruiting bonus from work, Cheung was able to pay for a year of schooling for 17 students, at about $75 each. Soon after, she and Rapin launched a nonprofit, A2Empowerment (A2 is for the two Annes), to continue the program. To date, they've funded more than 980 scholarships.

IMPACT

The first thing you should know about Anne Cheung is that she's humble. She'd much rather talk about other people—and about doing things for other people—than discuss herself. That quality helps make her "an inspiration to almost everyone who knows her," Rapin says.

Cheung grew up in a family of educators. Her mother, who returned to school to become a high school chemistry teacher [and who went on to earn a PhD at age 50], would often bring 5-year-old Anne to the lab to look through microscopes. Cheung says she was the best role model a girl could ask for. Her father, a grammar school teacher, would take her on nature walks and science museum outings. Because their parents hadn't had the benefit of a college degree, she says her own parents were especially passionate about the value of education. With education, they taught her, life could be better; doors could open. "I think that's been a theme throughout all the extra work I've done," she says.

From the moment she first peered through those microscopes, Cheung was drawn to science; a job fair in high school solidified her path. She talked with a biochemist from Roswell Park Cancer Institute who told her about a cancer patient who was given a poor prognosis. When the biochemist tested the tumor, he found that the cancer wasn't life threatening, after all.

"He excitedly described how awesome it was to be able to give such wonderful news to that patient, and how it helped in other ways," says Cheung. "That conversation had a huge impact on me." She'd seen family members battle diseases like Alzheimer's and cancer, and she felt helpless watching them suffer. Now, she'd discovered a way that she could make a difference. Science meant hope.

After completing her BS in molecular biology at SUNY Fredonia, Cheung came to WPI to earn an MS in biochemistry. A teaching assistantship covered her tuition and provided a stipend for living expenses. "It was such a gift to have that opportunity," she says. She went on to become a research assistant in the lab of José Argüello, where she, studied the form and function relationship between enzymes and cells.

That lab was the setting for two life-changing moments. It's where she first became interested in the structure/function relationship of proteins and intrigued by the possibility of using that knowledge to target proteins associated with disease. It's also where she met an undergraduate named Man Ching Cheung, who she'd go on to marry.

She says she picked up a lot of new technical skills in the Argüello lab, though the most important takeaway was learning to think like a scientist: being inquisitive, studying background information to make informed choices, and then solving problems as they arise. "Being able to adapt and not be afraid of change would be the most important thing I learned in his lab," she says.

After they graduated, Anne and Man Ching moved to Boston, where she accepted a job with Biogen. Working in the protein biochemistry group, she took on the challenge of producing and characterizing several complex recombinant proteins. Paul Weinreb, director of Biologics Drug Discovery, says Cheung's education made her a great fit. "Anne's training and education at WPI spanned a wide range of scientific areas—from molecular biology to cell biology to biochemistry—and her work in Professor Argüello's lab gave her a skill set that she could apply to nearly any biochemical system," he says. "Most important, she learned how to design and troubleshoot experiments; she developed the types of problem-solving skills that are fundamental to being a successful scientist."

Sixteen years later, she's still in Biogen's biochemistry department, as part of a team developing an antibody that targets one of the misfolded proteins associated with Alzheimer's. If it's successful, it could help slow the progression of the disease. She's also worked on projects aimed at slowing the progression of certain types of breast cancer, and is developing a diagnostic test for a latent virus that can cause severe debilitation or death in patients with suppressed immune systems.

PHILANTHROPY

Cheung takes a measured approach to her projects, knowing that testing can take years, and that a high percentage of research won't ultimately lead to a commercial product since so many things can go wrong along the way. At Biogen, she's found that the success rate for drugs entering Phase I clinical trials is about 10 percent.

That, in part, drove her to find new areas where she could make a difference—as a volunteer. "I got into science because I wanted to help people—and it seemed so interesting, and I had that push from my mom," she says. But once she began working in the field, she says, "it seemed not as hands-on as I wanted, so I found new avenues."

Cheung is a frequent presence at the Biogen Community Lab, where she teaches school kids about science and mentors them on their science fair projects. In her early days at Biogen, she got involved with the Big Sister Association of

Greater Boston, and met Lois Contreras. Cheung became the 9-year-old's mentor, taking her bowling and to the theatre—pursuits the young girl had never experienced. Through Contreras's years in grammar school and then high school and college, and through Cheung's marriage and the birth of her two sons, their friendship grew. Now 25, Contreras says Cheung inspired her to take school more seriously, and helped her see that education could open doors. "She makes you want to be a good person in this world, to do something meaningful," says Contreras, who works as an educator at Roca, a Boston-area nonprofit, where she teaches young mothers who didn't complete high school. She tells them that education can open doors for them, too. "I can talk about Anne forever," says Contreras. "She's one of the most awesome people I've ever met in my life."

Biogen's Weinreb is also effusive about Cheung. "Whether it is her scientific contributions to discovering new treatments for neurodegenerative disease, such as multiple sclerosis or Alzheimer's, her volunteer work with the Community Lab, or, perhaps most notably, her efforts to establish and run a charitable foundation to help girls and women in Cameroon, Anne has always demonstrated that she truly cares. She is truly passionate about empowering women in science, and these causes all are consistent with that goal."

In fact, *Fortune* magazine in 2015 named Cheung one of the "Heroes of the 500," highlighting her work with A2Empowerment. The annual list spotlights extraordinary people working for Fortune 500 companies.

EMPOWERMENT

In 2011, a few years after starting A2Empowerment, Cheung flew to Cameroon. It was the first time she'd been to Africa, or to a developing country, and it made her appreciate, immensely, how easy her life had been and the educational opportunities she's had.

In a small rural village she met 14 scholarship recipients who threw a party to thank her. A father of one girl told Cheung how grateful he was that the scholarship made it possible for his daughter to go back to school. "He said he didn't cry for her because she can buy her own bread and buy her own soap," Cheung recalls, her voice growing soft. "And I just thought about how hard it must be to not be able to send your kid to school if you wanted to."

While the trip inspired her, she's not sure she'll make a habit of it. "What I paid for the whole trip, it could have been a lot of scholarships," she says.

Lately, Cheung has been pondering how to do even more. She thinks the scholarship program in Cameroon is a good start, but she'd love to find a way to help the girls gain skills and jobs so they can support themselves. She's considering completing her MBA through WPI to help guide her. Because she's seen the doors education can open, she's determined to keep knocking.

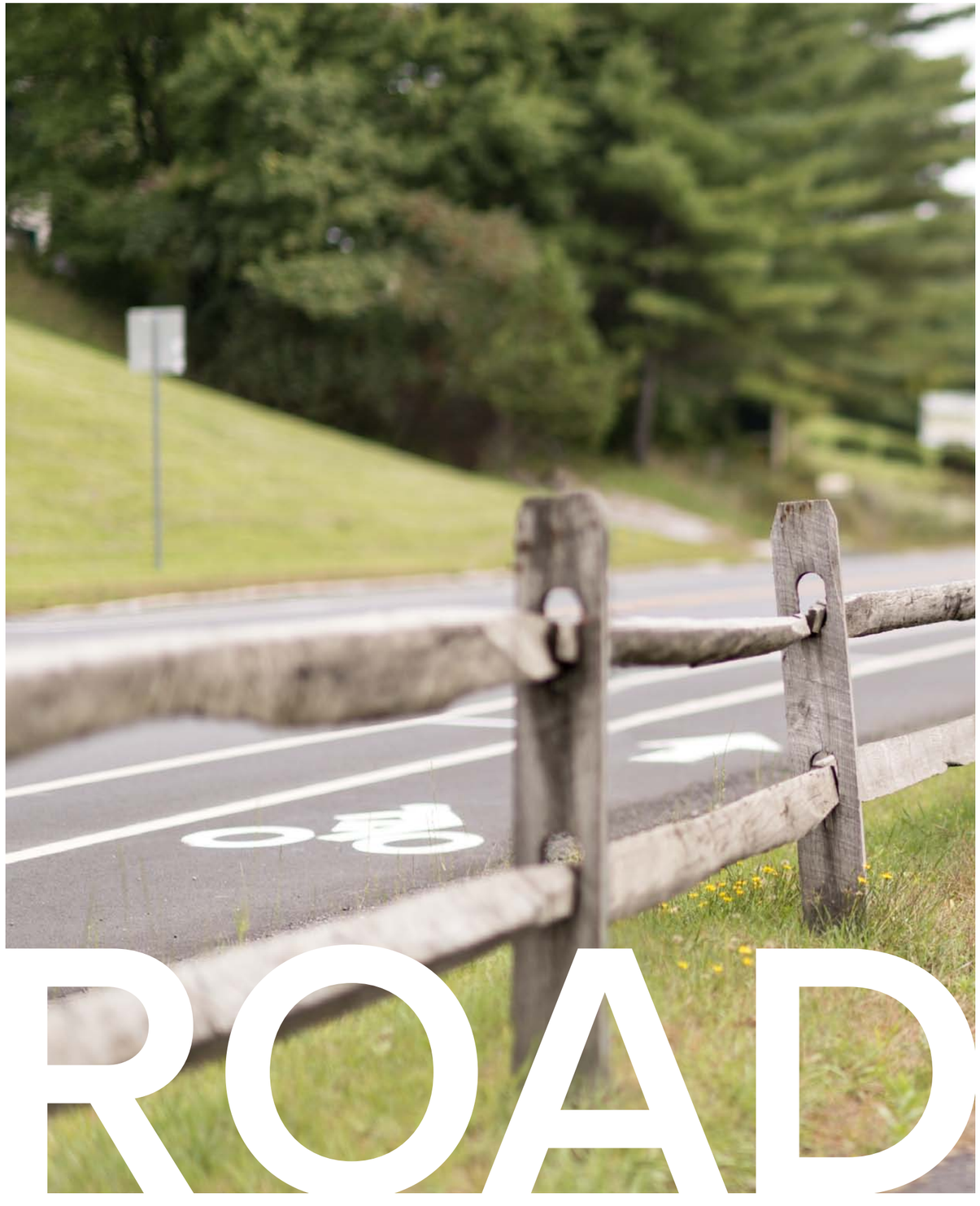
"I decided I'm just going to keep working toward helping those girls, no matter what. There's more I can always do, until I'm done. I feel so passionate about how important education is and the ripple effect it can have. And I don't want to ever stop." J

In 2011 Cheung visited Meiganga, Cameroon for a soirée with local scholarship recipients.

A2Empowerment at a Glance

- Founded in 2008, this nonprofit company is dedicated to empowering women through education.
- So far, it has awarded more than 980 educational scholarships to young women in Cameroon (234 recipients, in seven of the country's 10 regions, were selected in 2016).
- Recipients are expected to meet monthly with their mentors and other scholarship recipients in their areas to report on their academic progress and to discuss topics like health and wellness. They must also serve as role models by volunteering in their communities.
- About $75 will cover tuition, fees, and books for a year of school.
- All company overhead costs have been covered by the company co-founders, so the full amount of all donations is put toward scholarships.
- Since the project is set up as a Peace Corps Partnership Project, all funding is strictly monitored by the Peace Corps and A2Empowerment.
- Plans for 2017 include sustaining support for current recipients who qualify, and expanding the program to additional students.

For more info, visit a2empowerment.org



ROAD DIET

Jon Kaplan '85

MAPS A NEW APPROACH TO TRANSPORTATION PLANNING

BY AMY CRAWFORD | PHOTOGRAPHY RICK LEVINSON

Kaplan rides his bike along one of his Road Diet projects outside Montpelier.

A two-lane highway in most sections, U.S. 302 follows a series of rivers—the Jail Branch, the Winooski, the Presumpscot—from Vermont's capital of Montpelier, 171 miles east to Portland, Maine. This area of northern New England, known for forested peaks, pristine lakes, and quaint villages, also has its share of less-than-bucolic spots. One is the stretch of 302 from the town of Berlin to the historic city of Barre.

"It's a typical commercial strip with lots of chain stores and shopping plazas," says Jon Kaplan, who manages bicycle and pedestrian programs at VTrans (Vermont Agency of Transportation).

The four-lane boulevard, lined with drive-through restaurants, gas stations, and auto supply stores—each fronted by a generously sized parking lot—has long served as a reminder that the United States developed its highways for the automobile, not for people who walk or bike. But when Berlin announced a paving project last summer, Kaplan and his VTrans colleagues saw an opportunity to make the road work for a wider swath of the population: They would put Route 302 on a diet.

Transportation planners are the first to admit it's an amusing description, but the "road diet" is actually one of the most important elements of a new approach to transportation planning—a philosophy that prioritizes safety for all, putting pedestrians and bicycles on equal footing (so to speak) with cars and trucks. While its goal is not to reduce the volume of traffic, a road diet usually cuts the number of travel lanes, creating space for bicycles, pedestrians, and buses. Car traffic may slow down a bit, but it flows more smoothly. According to the Federal Highway Administration, the approach—which is recommended for roads with a traffic volume of fewer than 20,000 cars per day—has the potential to cut automobile accidents nearly in half, something Vermont authorities welcomed on a stretch that had become notorious for rear-end and sideswipe crashes.

"This is about trying to get the road to function more safely for everybody," Kaplan asserts, in effect summing up the mission of his entire department, and much of his career so far.

MEANDERING PATH

Appropriately enough for someone whose work focuses on more leisurely modes of transportation, Kaplan's life has taken a meandering course since his days as a civil engineering major at WPI.

"I remember taking light steel design, reinforced concrete design—a lot of specialized classes," Kaplan says, adding with a laugh, "but I actually never ended up doing any structural

"THIS IS ABOUT TRYING TO GET THE ROAD TO FUNCTION MORE SAFELY FOR EVERYBODY."

engineering once I graduated. Still, WPI prepared me in terms of all the basics of engineering, and learning how to work hard to get things done. Like a lot of life, it's just the luck of the draw in terms of where I ended up."

After graduation, Kaplan accepted an offer at a Boston consulting firm. After that came a job on Cape Cod reviewing development plans as an assistant engineer for the Town of Yarmouth. "There was a lot of growth on the Cape at that point," Kaplan says, recalling how the town became less quiet and rural as the population boomed. "I guess, looking back on it, that was my first exposure to how development can change a place."

From the Cape, Kaplan headed north, spending five years as a cook in New Hampshire and Vermont before he and his soon-to-be-wife, Anne, decided to move to Oregon. "We just wanted to live somewhere different," Kaplan says. "We had been in Vermont for a while, so we did a big trip across country. At first we thought we'd like Virginia or, possibly, Colorado, but nothing really struck us as the place to be. We did like Oregon, though."

The couple settled in Salem, the state's capital, and Kaplan found work at a restaurant. But he began to crave the more stable working hours of an office job. "I thought, 'Well, I have this engineering degree …,'" he says. He wound up at the Oregon Department of Transportation, at first on a survey crew, and then as a roadway designer—a job that focused, like most transportation planning still did at the tail end of the 20th century, on cars. But that was beginning to change, and Oregon, one of the more progressive states when it comes to alternative modes of transportation, would lead the way.

Since 1971 Oregon has had a law on the books that requires the state transportation budget to include funding for bicycling and walking. Kaplan became familiar with this law as he worked on roadways—it meant many of his projects required bike lanes and sidewalks. Then, in 1993, he was promoted to a position in the state's bicycle and pedestrian program, working with state coordinator Michael Ronkin, one of the biggest names in the field.

"He is very well known nationally," Kaplan says. "He was one of the innovators around bike and pedestrian planning and design in the U.S. I was really lucky to work for him. He took me to a conference where there were 500 planners and engineers from around North America who were working on bike and pedestrian stuff. I was like, 'Wow, this is a real thing—it's not just this little niche.' It really headed me off in that direction, and that's what I've been doing ever since."

MULTIMODAL

Ronkin, Kaplan, and their colleagues at the DOT were among the first state officials to place bicycles and pedestrians on par with automobile traffic. It was a philosophy that continued to inform Kaplan's work after he and Anne

moved back to Vermont in 1995 to be closer to their families, and today it has filtered through much of the field. The current buzzword is "multimodal," and transportation planners now hope to make roads work for everyone.

Despite this shift, Kaplan laments that many Americans are still biased against bikes. "We got a lot of negative comments on the public survey we did before the road diet," he says. "I can't really explain this other than to say that we in the U.S. are still, for now, a car culture. Many people don't take biking seriously as a mode of transportation, even though it is very efficient, especially for short trips in areas with traffic congestion."

Still, perspectives can change. In this, Kaplan draws inspiration from a Federal Highway Administration–sponsored tour of Europe he took several years ago, which opened his eyes to the possibility that one day Americans might embrace biking and walking as valid ways to get around.

"It was all about visiting countries that had good records of bike and pedestrian safety and good infrastructure for biking and walking," Kaplan says. "Copenhagen, in particular, was just incredible. There were as many people biking as there were driving in the center city—just streams of bicyclists: women wearing high heels, men in suits, little kids on the backs of bikes, postal service people delivering mail. It's just how people get around. I think once you're exposed to that, you see what's possible."

Stateside, a lack of infrastructure for bikes and pedestrians may be partly to blame, and Kaplan is excited about several efforts he and his team are making to change that. In village centers, they have worked with towns to install Rectangular Rapid Flash Beacons, which pedestrians can activate at a crosswalk to emphasize that drivers are required to yield. Kaplan's office also administers a grant program to help towns improve bike and pedestrian safety and access, including laying sidewalks, installing intersection signals, and widening shoulders on rural roads.

While Vermont has a population smaller than the city of Boston, it can be a challenge to coordinate efforts among the state's 255 municipalities, each with different needs. But Kaplan has found that, in the eight years since he took over bike and pedestrian projects at the state level, the values he has worked for since his days in Oregon have become more widely accepted. "I no longer have to advocate as strongly as I did in the past," he says. "People see me as a resource on incorporating biking and walking into projects and we work collaboratively most of the time."

BREAKING THE CYCLE

Kaplan's life may have taken an indirect course, but looking back, his destination—working on bicycle and pedestrian safety—makes perfect sense.

"You know, thinking about it now," he says, "how do you get around when you're a kid? I rode my bike a mile down the street to my best friend's house. In Worcester I didn't own a car until my senior year of college. I remember walking downtown with friends all the time." On Cape Cod, Kaplan biked the three miles to work all summer, whizzing by vacation travelers in bumper-to-bumper traffic. Later, he and his wife biked for fun in Oregon. And today, the entire Kaplan family—Jon, Anne, and their three teenagers—spend weekends biking around their small town of Randolph.

"It's not uncommon for all five of us to bike downtown for ice cream cones during the summer," he says. "If I have to go out to the hardware store or to get groceries, I use my bike. I never lock it, partly because we're in Vermont, but also because it's a real beater—it doesn't look like much, but it's a great bike, totally dependable."

It's a lifestyle Kaplan hopes he can help more Vermonters adopt. He's fond of citing surveys that show as many as 60 percent of Americans would like to bicycle, but are prevented from doing so because of safety concerns. It was with these people in mind that Kaplan and his team planned the Route 302 road diet, the most high-profile bike and pedestrian project Vermont has launched to date.

After extensive studies, the diet began last June. First, VTrans reduced the number of travel lanes from two to one in each direction, adding a turn lane in the middle for drivers turning left. That discouraged speeding and freed up room for a bike lane on either side, as well as space for a buffer zone between cyclists and automobile traffic. [The buffer was Kaplan's concept, and one that has been shown to make cycling even safer and more comfortable.] Kaplan worked with consultants and with the town of Berlin to coordinate and refine the design; he developed an evaluation plan and worked with the media to get the word out and answer local residents' questions. The diet seems to have paid off—shortly after the project was completed in August, a video traffic count showed the number of cyclists expanded nearly eight-fold, even as the travel time by car remained roughly the same.

"It's an exciting thing," Kaplan says. "There is still a lot to do, but we definitely have made a lot of progress, especially in a place that's not a big urban center. I've heard from colleagues around the country, and a lot of them face some similar challenges—sprawl, car culture. I think what we're doing could serve as a model for how we can make our streets work for everybody." **J**

HOMELAND FPE

SCOTT AYERS '99, '01 PUTS OUT FIRES BEFORE THEY START

BY TED FLANAGAN | PHOTOGRAPHY MATT FURMAN

This Consumer Product Safety Commission (CPSC) fire lab is where Ayers does most of his fire testing.

HIS WORK HAS ALWAYS FOCUSED ON

PROTECTING PEOPLE FROM FLAMES.

Early in his career in the private sector, Scott Ayers sought better ways to safeguard the Navy's newest supercarrier from fire. Later, he earned four patents for his innovative work miniaturizing fire suppression components during the design phase of what would become the world's largest jumbo jet, shrinking crucial sensors into a package small enough to fit inside the engines they protect.

But now, as a manager in the federal Consumer Product Safety Commission (CPSC), Ayers is devising rules for the safe operation of open-flame, fuel-filled devices used at home by ordinary people. In addition to collaborating with industry and safety groups, he works directly with consumers whose children have been harmed by some of the devices under his portfolio—such as alcohol-burning patio fire pots. That face-to-face contact has given his life's work its clearest sense of meaning, and mission.

The CPSC has an ambitious agenda. Backed by a trillion dollar budget, its charge is to protect American consumers against injury and property damage from consumer products. Virtually every product bought, sold, and used in this country falls under its purview.

It's a tall order, but Ayers describes the work he does in his own corner of the CPSC as the most satisfying professional experience of his career. Working directly with consumers to reduce the incidence of burns, he's moved out from behind the scenes, and he can now put names and faces on his life's work.

THE SPARK

Ayers's career, like many fires, began with a spark. As a high school senior in his hometown of Plymouth, Mass., he received a flier describing WPI's fire protection engineering program. "I was already leaning in WPI's direction, so this interested me," he says.

A work-study job doing data entry and other mundane tasks for FPE associate professor Jonathan Barnett gave Ayers his first taste of the field. "It was all a process," he recalls. "And that was a really big step in the process. It was busywork, but the kind that allows you to see the expanse of a profession even while orbiting its outermost reaches."

Barnett eventually became his advisor and helped him settle on mechanical engineering as his undergraduate major. [FPE, then a graduate program within ME, did not become an academic department until 2005.] By his sophomore year he was working as a technician in the department's fire science lab and already on course for graduate work in FPE. "Working in that lab is where it all came together," Ayers says. He quickly developed a fascination with fire: how it worked, how it could be controlled, and—most important—how it could be stopped.

"For a while, I told people I was a professional pyromaniac," he quips about these formative years. "I frankly enjoyed working with fire in the lab and the insights it gave me. I liked this idea that we were playing with fire, but also trying to make the world a safer place."

After completing his master's in FPE, he accepted a position researching fire suppression systems for the U.S. Naval Research Laboratory (NRL).

AGENT OF CHANGE

As would prove true at several points in his career, Ayers began his new job at a time of significant change in the industry. Designers were looking for a new "clean agent" for fire suppression systems (the National Fire Protection Agency describes clean agents as electrically non-conducting gases that extinguish fires by interrupting the process of combustion while leaving no residue). Halon, long the tried-and-true clean agent, was a CFC (chlorofluorocarbon) whose production was halted in 1994 due to environmental concerns.

Eventually, alternative agents were developed, and Ayers worked with a team for three years helping design systems for massive ship projects like the supercarrier USS *Ronald Reagan*. It was fascinating work, he says, but, as a contract worker, he never intended to make the NRL a permanent home.

He then spent 18 months performing fire suppression R&D on buildings for a company in Wisconsin before landing at Kidde Aerospace & Defense in North Carolina. Battling the limitations of weight and space demanded of engineers working on aircraft fire suppression systems presented the greatest design challenge he'd yet faced. "Weight and space are always at a premium," he says.

Ayers discovered that he loved the challenge of engineering large, complex systems into small packages. One project, in particular, designing a system to extinguish engine fires on a new model jumbo jet—one of the largest and most complex commercial aircraft ever built—stretched him in new ways.

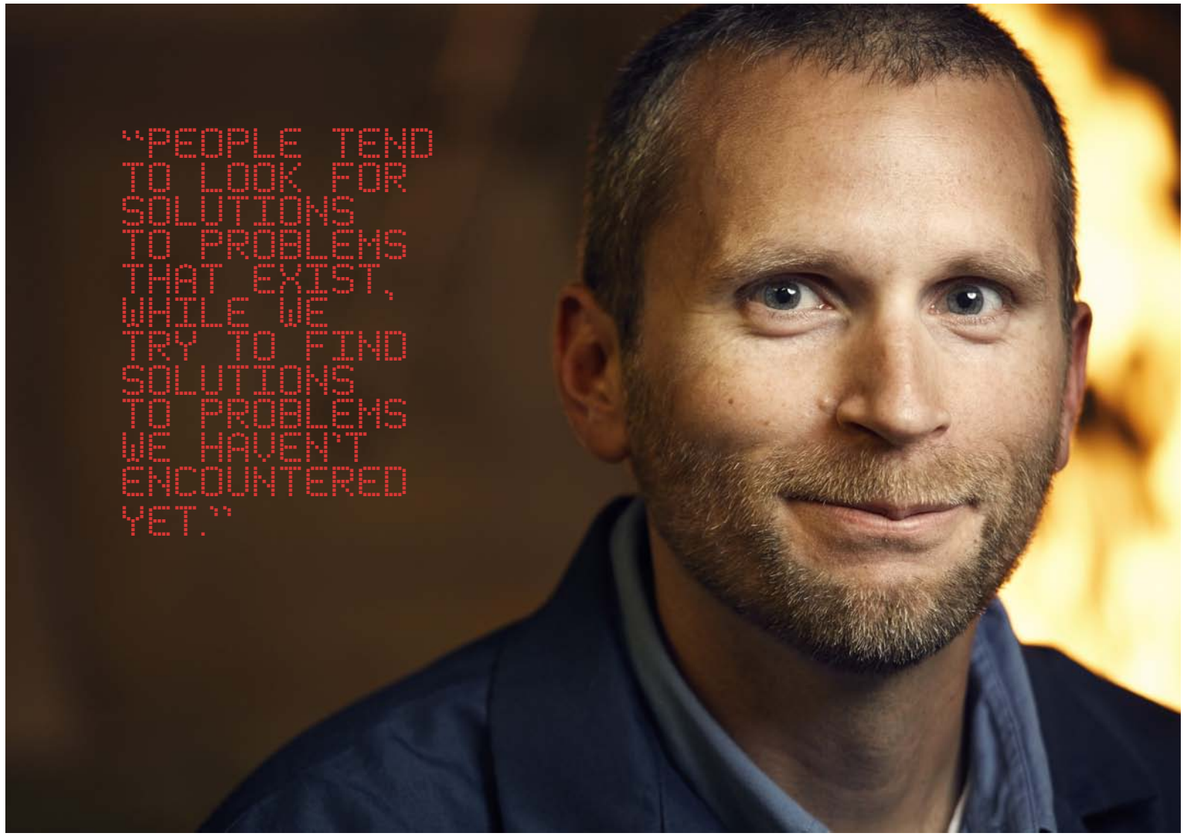
That stretching resulted in four patents, including one for an analyzer that ensures that a sufficient concentration of clean agent is injected into an engine in the event of a fire. Although his design didn't make it into the finished airplane, it did pass muster with the Federal Aviation Administration.

A NEW BALANCE

When Ayers left the aerospace industry for his current job with the CPSC, he initially saw his move to the public sector mainly as a way to achieve some work-life balance. Coaching his daughter's soccer team, serving as president of the local PTO—these were desirable perks of his new line of work. He felt it was a trade-off between the professional rewards of his aerospace work and his desire for a more family-friendly schedule. But he wondered if his best work was behind him.

At the CPSC, he began working on the safety of propane appliances (outdoor grills, for example) —a role that soon expanded to include fireplaces, fire pots, and other flame sources. The work, he says, involves studying "products that are purposely on fire, to ensure that the fires don't get out of hand."

At a gut level, Ayers knew his work was important even though he couldn't exactly define how, at least not in ways that were readily



apparent to a layperson.

"A firefighter enters a building, extinguishes the fire, rescues some people, or prevents a burning building from destroying the house next to it—it's easy to recognize the result of that work," he says. "You're making a difference, and you see that happening right in front of you."

With fire protection engineers, it's sometimes hard to see the worth in work whose ultimate and best expression is in what doesn't happen, he says. Firefighters might appreciate that a small fire didn't become a conflagration thanks to a well-designed sprinkler system, but that's the respect one artist has for another. It's not something a layperson might consider.

"We usually don't see [the positive results]," he says. "We're on the proactive side. People tend to look for solutions to problems that exist, while we try to find solutions to problems we haven't encountered yet."

Seeking to reduce one source of potential harm, Ayers initiated a CSPC program that brings parents of children injured in fire pot accidents into the process. Working with the manufacturers, they are looking for ways to ensure such incidents never happen again.

For his part, Ayers is astounded by these mothers' resolve.

"They're amazing," he says. "They want to be part of the solution. They're not looking to assign blame, they're not looking to sue, they just want to find solutions so the next kid doesn't get burned."

He takes great pains to ensure that this work is done with utter transparency. Meetings are open to the public (citizens who can't be there in person may join in electronically), and manufacturers and industry groups are welcomed to the table. Ayers says this openness has made the process more collaborative and cooperative.

He is careful to stress that when it comes to product safety, there are no sides. "Everyone is a stakeholder and should be involved."

For the first time, he says, he was able to look into the faces of accident victims and their mothers and speak a truth he'd always known about his work but hadn't been able to see so clearly. The truth is, each day that Scott Ayers goes to work, he has a chance to lower the odds that an accident will scar another child.

"I wasn't able to help these mothers' kids, but they know what I'm trying to do, and to see the look in their eyes, and see the satisfaction they clearly get from my wanting to do my job," Ayers says, before pausing. "It was a huge mental boost for me. I finally get to put a face to the job. It's been the most rewarding aspect of my professional career." J

wpi.edu/+journal

GMO gatekeeper

Melinda Belisle ’08

BY ANDREW FAUGHT | PHOTOGRAPHY MATT FURMAN

Several nights each week, Melinda Belisle takes the train to a 1.5-acre lot bordering the Fort Totten Metro Station in Washington, D.C. There, the Mamie D. Lee Community Garden teems with a cornucopia of squash, melons, leafy greens, and herbs.

She tends a 625-square-foot patch of earth, taking what she needs and donating some of the bounty—most recently several batches of homemade zucchini pasta—to a local food bank. On a hot and humid night in August, Belisle casts a gimlet eye at her five beefsteak and grape tomato plants.

"They're really struggling," she laments. "They have early blight."

Belisle's tomato tribulations serve as a pointed reminder of her day job. As a science and technology fellow with the U.S. Department of Agriculture, she works in the office that regulates genetically modified organisms, or GMOs, which include engineered plants made to flourish in parts of the world beset by drought, climate change, and pest infestations.

And even, possibly, in a tiny corner of the nation's capitol.

"If I had a genetically engineered tomato," Belisle laughs, "I would totally plant an early-blight resistant variety."

While scorn has been heaped on some agribusinesses' GMO corporate practices, many scientists—fending off accusations that modified food is unsafe or that modified crops harm the environment—have rallied behind GMOs.

This past June more than 100 Nobel laureates signed a letter to Greenpeace that urged the environmental organization to stop its opposition to a genetically engineered rice variety designed to prevent Vitamin A deficiencies that can cause childhood blindness and death in the world's poorest countries.

Born in Jamaica and raised in Guyana, Belisle at various points has also called Belize and Panama home. She knows well the deprivations facing underdeveloped countries, and it's why she's driven to make a difference in some of the world's neediest regions. Agriculture, she says, plays no small role in a nation's well-being.

"I came into my current job a little bit doe-eyed about the way science is used in policymaking," she admits. "When you think of science, it's hard, objective facts. In graduate school I learned not to put my own desires on top of that. There's no moral duty in what your data are telling you. But being here at the USDA and seeing policy get made, there really is a moral value placed on top of it."

Belisle's own values were forged in the great outdoors. She grew up in Georgetown, Guyana, the lone metropolis in a South American nation where 80 percent of the land is covered by unspoiled rain forest. She roamed the family's verdant back yard, often perching on the limbs of a five-finger apple (or star fruit) tree with her beloved cat, Rosemary.

"In the Caribbean, it's so warm and your parents would kick you out of the house to go play," she says. "I spent a lot of time just being in nature. I found it very comforting then, and I find it comforting now.

"I'm a very sensitive person, in general," she adds. "I can pick up on social cues and things in my environment very easily. Living in big cities can be overstimulating. There's always music and different smells; there are always miscellaneous people walking around. It can be overwhelming. But when I'm in nature, those things kind of fade away. There are stimuli, of course, but it's just not as intense. I really appreciate that."

She was 12 when her mother died, after which Belisle, an older sister, and her father (a Methodist minister) moved to Oxford, Mass., in large part to be near American colleges and universities. Her oldest sister was already in the U.S. studying political science at the University of Pittsburgh.

The culture shock was immediate, and, at times, humorous.

"I remember that a friend had to show me how to use a vending machine," she says.

She took refuge in her high school studies, and running track when she wasn't "drowning" herself in academics. She always did well in math and physics, "but ultimately," she says, "it was the pull of nature and the environment that won out over the other sciences."

With graduation looming, Belisle had to settle on a college. Her mind was made up: she'd enroll at the University of Hawaii, lured by the islands' "super exciting" biological diversity. She ultimately demurred and enrolled at WPI to be closer to family.

It was a fortuitous choice.

"I loved it so much," she says. "I wouldn't trade it for the world. WPI was where I flourished."

She praises the university's "good sense of community," its project-based learning, and the ready access students have to professors.

Just before the start of her first year, Belisle took part in WPI's Excellence in Mathematics and Science Engineering Program (EMSEP). Now known as Connections, the program is designed to help acclimate minority students to college life. "It was a very welcoming and supportive group," she says. "It helped me a lot."

As a biology major, she wasted little time making her presence felt on campus. She was a member of the Student Government Association, performed with the WPI Dance Team, and helped launch the campus chapter of Alpha Xi Delta sorority, which she served as president. "It took over my life," she says.

Belinda Barbagallo '07 met Belisle when the pair worked at the Campus Center information desk. They helped charter the sorority, along with a third classmate, Linda Papaargjir '08. The trio soon became known as "The Three Lindas."

"We'd go to networking events and, quite often, people thought we were messing with them," says Barbagallo, now a biology lecturer and researcher at Brandeis University.

The two, who remain close friends, did research assignments together and bonded over "weeks of failed experiments and dealing with the expectations of our professors."

Belisle, according to Barbagallo, has one particularly enviable aptitude. "You can put her in a room with anybody," she explains, "and she

"When you think of science, it's hard, objective facts. In graduate school I learned not to put my own desires on top of that. There's no moral duty in what your data are telling you. But being here at the USDA (located across from the Washington Monument, seen here) and seeing policy get made, there really is a moral value placed on top of it."

Belisle at the Mamie D. Lee Community Garden in Washington, D.C., where you can find her many weeknights tending her 625-square-foot patch of earth.

will get them to share what they're doing. That's helpful for the work *she*'s doing—she has to talk with scientists, politicians, and everyday people. There aren't too many scientists who can work comfortably in so many different environments. Melinda is a rare person to come across."

The talent serves Belisle well in her current role. In 2015 she traveled to Paris for a meeting of the Organization for Economic Cooperation Development, a group that was formed after World War II to help prevent another world war while also facilitating trade. She is part of a team writing a consensus document that "harmonizes" regulatory oversight in biotechnology among participating countries. Such papers are used to weigh the risks between modified and unmodified plants. The papers frequently are consulted by bureaucrats and agriculture ministers.

GMOs aren't without controversy. "I think it's definitely up for discussion," Belisle says. "You can have arguments on either side." More than half of the European Union's 28 member nations ban the cultivation of genetically modified foods, in part because of concerns about their safety. In the United States, meanwhile, more than 90 percent of soybean and corn crops are genetically engineered. Supporters say GMOs reduce the need for harmful pesticides, while detractors say they've expanded the use of herbicides, which can kill non-crop plants like the milkweed that monarch butterflies consume during their annual migration.

"I think for a lot of people, the corporate practices are what really upsets them," Belisle says. "You're going from farmers being able to save their seeds from year to year, but now those seeds are patented, so they have to buy them again. What does that mean, especially for farmers who can't afford it? That's a big part of the conversation, but I think the attacks on safety may be more unjustified."

Some major benefactors have cast their lot with GMOs. The Bill & Melinda Gates Foundation, for example, is leading a fight to further develop and evaluate genetically modified golden rice, a variety enriched with beta carotene, a source of Vitamin A. Other crops (including corn, eggplant, casaba, and bananas) are being genetically modified for people in the developing world.

For her part, Belisle serves as a gatekeeper.

"We try to evaluate whether the things that companies would like to plant—or move interstate or import or export—are safe," she says. "Is it safe for the environment and is it safe for agriculture? Our partners at the FDA and EPA focus on whether there are pesticide use issues or whether it's safe for human consumption and feed."

Sally McCammon, a science advisor for the USDA, says Belisle has a knack for analyzing and processing complex information.

"This allows her to take on and deliver upon a variety of intellectual challenges," McCammon says. "With her extensive scientific training, she is able to distinguish the important aspects of a problem and organize them into discreet and addressable components."

These were skills Belisle nurtured at WPI. During her senior year, she spent six months at the Arkansas Biosciences Institute working on her MQP, "Researching a Novel Pathway to Vitamin C Synthesis." Increasing Vitamin C levels in crops can create more nutritious foods and result in higher crop yields, she notes.

Leading the research was Argelia Lorence, professor of metabolic engineering at Arkansas State University. But Belisle didn't just benefit from her mentor's scientific acumen. Lorence was born and raised in Mexico City; she was a real-life example of what Belisle could accomplish.

While women are often subject to gender bias in STEM fields, the problems are worse among women of color, according to research by the University of California Hastings College of Law. One hundred percent of racial minorities (compared to 93 percent of white women) surveyed said they have experienced gender bias.

Before Belisle enrolled at Stanford to pursue her doctorate in ecology and evolutionary biology, Lorence, who says she encountered biases during her own journey, imparted some advice to her young charge: "I told her to work with someone who's going to be a good, nurturing mentor, one who'll help you get to where you want to be."

Lorence did her part, writing a letter of recommendation for Belisle, who won a graduate research fellowship in 2011 from the National Science Foundation. Lorence calls her protégé bright and committed. Moreover, she was struck by one particular skill.

"Something that is unusual is how well she wrote, even back then," Lorence says. "That's not easy to find in an undergraduate."

While still a student at WPI, Belisle worked at Pepperdine University in California, where she studied the ability of various plants to withstand drought. After graduating from WPI, she served research stints with the Environmental Defense Fund's Oceans Program.

Belisle already has her eyes on the future. She'll complete her USDA fellowship (which is sponsored by the American Association for the Advancement of Science) in September 2017, after which she will consider going to work for a nonprofit organization in the international sector—possibly in the area of agricultural biotechnology.

"I wouldn't put it past myself to start my own biotech company in the future," she says.

> "My work is having an impact on lives, and I can see it happening in real time.

I'm just really interested in new kinds of technology and agriculture and how those can be applied to help people."

Including, perhaps, solving the mystery of a blight-free tomato. J

LINDSAY LOZEAU
PHD CANDIDATE

PHOTO STEVEN KING

HONORABLE MENTIONS: NSF IGERT FELLOW • HITCHCOCK INNOVATION FELLOW • CO-FOUNDER & CTO, AMPROTECTION, LLC • CO-FOUNDER OF CEGO (2016) • SYIS POSTER COMPETITION 1ST PLACE TERMIS-AM WASHINGTON, DC (2014) • AMERICAN INSTITUTE OF CHEMISTS GRADUATE AWARD (2014) •BEST CONCEPT PRIZE (GRIE, 2014) • BEST OVERALL PRESENTATION (GRIE, 2016) • PEOPLE'S CHOICE AWARD (GRIE, 2016) • VENTUREFORUM 5-MINUTE PITCH CONTEST WINNER (2016) • VENTUREWELL E-TEAM COMPANY, STAGES 1, 2; AND 3 • WOMEN'S PROGRAMMING COMMITTEE MEMBER • WPI-NSF IGERT COMPETITIVE INNOVATION FUND AWARDEE 2014 AND 2015

IGERT, for those unfamiliar with the acronym, stands for Integrative Graduate Education and Research Traineeship. This NSF-funded program at WPI focuses on helping PhD students whose research falls under the umbrella of biofabrication, recognizing the commercial aspects of their projects, and establishing an entrepreneurial mindset. For Lindsay Lozeau, it was the instrument that brought her to WPI and her pursuit of a PhD in chemical engineering.

Armed with a BS in chemical engineering from the University of Rhode Island, the 26-year-old says the fellowship was an offer she simply couldn't refuse. "I didn't think I wanted to be entrepreneurial originally—or that I had it in me to be entrepreneurial," says Lozeau, "but I'd never explored it and this seemed to give me that opportunity."

With one first author publication and another under review, she has given several presentations at academic conferences and has mentored more than 20 students in developing their own projects in the lab. She's a recipient of two fellowships (IGERT, Hitchcock) and an E-Team grant, and a co-founder of the student-led Chemical Engineering Graduate Organization (CEGO).

If her academic achievements aren't enough to make her a prime WPI Insider, her entrepreneurial highlights will surely secure her in the role. She is co-founder and CTO of AMProtection, LLC, a spinout of dean of graduate studies Terri Camesano's lab that focuses on unique antimicrobial coatings to prevent infections of medical devices. AMProtection has received all three stages of the E-team grant program from VentureWell (totaling $25,000) and another $20,000 as a 2016 winner of the Hitchcock Innovation Prize.

In 2014 Lozeau won the "Best Concept" and this year the "Best Overall" and "People's Choice" awards for her three-minute elevator pitches at i3 (Investing in Ideas with Impact). She also won the WPI Venture Forum's 5-Minute Pitch Competition.

Her winnings went toward AMProtection technology, of which she is co-inventor with a pending patent. She is also working on the early stages of a provisional patent application regarding another technology she helped develop. This company, QuadraCare Medical, is focusing on ways to help diabetic foot ulcers heal better.

She was funded under an NSF STTR for her PhD project. "This was a great experience, allowing funding for a commercially minded partnership between Histogen Inc. and WPI," she explains.

When asked what her highlight moment has been at WPI so far, Lozeau says, "I'm getting paid to do research in an area I love, explore my multifaceted interests in chemical engineering and entrepreneurship, mentor students in a way that makes a real difference in their lives, and discover new platforms that have actual commercial potential—how can it not be everything?"

FROM THE ALUMNI PRESIDENT

Dear Alumni:

The flurry of activity, possibility, and pride this fall has been incredible, to say the least. Over the summer we said goodbye to our beloved Alumni Gymnasium, a necessity that allows us to keep alive the tradition of alumni supporting current students. Just as Alumni Gym was funded by alumni to meet the need for an athletic space for the students of that time, the Foisie Innovation Studio and Messenger Residence Hall will meet the needs of today's students and many more in the future. The ceremonial groundbreaking for the new building was held Aug. 31, with attendees given the opportunity to take home a commemorative mason jar of groundbreaking sand and Alumni Gym debris. Those of us who wanted a bigger piece of WPI history took advantage of the opportunity to pre-reserve an original Alumni Gym brick that was carefully removed and preserved during the demolition process.

Our commemorative bricks were picked up Oct. 8, during Homecoming. It was great to see so many alumni come back home. With all the construction activity on the Quad, holding Homecoming on West Street was quite a different experience—how great was that?

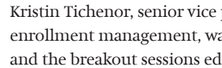
Also during Homecoming the Alumni Association posthumously honored trustee emeritus Steve Rubin '74 with the Goat's Head Award for Lifetime Commitment to WPI. We were privileged to have his wife, Tracy, there to accept the award, and many friends in attendance to help us celebrate Steve's commitment to WPI and the role model he provided as a proud, engaged, and dedicated alumnus. His commitment to the Institute is inspiring and will forever be remembered.

The Women of WPI came together on Nov. 12, for our annual conference to share and celebrate the diverse paths and experiences of our lives. Keynote speaker Kristin Tichenor, senior vice president, enrollment management, was inspiring and the breakout sessions educational. We couldn't have asked for a better day. I am proud to call these women my peers. I am excited by the possibilities that lie ahead for this talented group engaging more alumnae in the future.

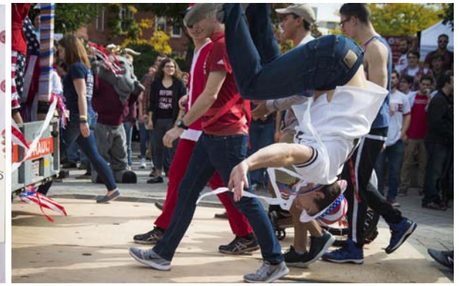
And, looking to the future, there are two events I'd like to bring to your attention. The first provides us the opportunity to continue the proud tradition and legacy that has been well established by all of us and by alumni before us—and, I anticipate, by alumni of the future. November 29 marks our second Giving Day. Our goal is to engage as many alums as possible with a target of 1,000 donors in 24 hours to secure an additional $125,000 for the WPI Fund. I am confident that the generosity of our alumni will be evident once again and we will crush that goal.

The second event is Alumni Weekend 2017. That's right! Mark your calendars for next June 1–4. It's never too early to plan for a great time with great people. I hope to see you there.

All the best—and with pride,



Rachel M. Delisle '96, '06 MBA



ONCE UPON A TECH

Hundreds of alumni and friends journeyed back to the Hill on Oct. 7 and 8 for Homecoming. With the theme "Once Upon a Tech," the campus was filled with princes and princesses, kings and queens, and other fairytale favorites. Steve Rubin '74 was honored posthumously with the Alumni Association's Goat's Head Award for Lifetime Commitment to the WPI Community (look for an article in the next Journal*)—a stirring ceremony that capped off a day of athletic competition, the Parade of Floats, the Rope Pull, and special gatherings of friends and classmates.*

PHOTOS JOE DOLEN, HEATHER FULLER, CHARLES STERNAIMOLO

WPI alumni and students at a tour of the Panama Canal Expansion Project.

PANAMA ALUMNI CHAPTER DECADES IN THE MAKING

If a prototype exists for a strong and effective college alumni group, it can be found in Panama. Though formalized as the WPI Panama Alumni Chapter only a year ago, its members have long served as unofficial ambassadors for the university and were instrumental in creating a project center in their country's capital.

The alumni chapter's stirrings began in the early 1980s when the first wave of Panamanian students graduated from WPI. Graduates stayed in touch over the decades, drawn together by the shared experience of traveling to a college far from home, then returning with a unique education and a desire to help advance their country. Roughly 50 Panamanians have graduated from WPI since Irvin Halman '80 initiated this wave.

At first, the alumni socialized, supported one another professionally, and promoted their alma mater to high schoolers. But over time and as they rose in their government and private sector careers, they wanted to etch a deeper role for WPI in their country. With the Panama Canal expansion and a high-rise construction boom, among other developments, Panama offered hands-on learning opportunities that seemed tailor-made for WPI students.

"We saw that the school was running projects in the region, but not in Panama," says chapter president Fernando Motta '83. "It's a country that's developing very rapidly and we thought there were great opportunities to make a difference in Panama. It was a dream of ours to have WPI students helping Panama and also to have more students from Panama go to WPI." Motta is CEO of Felipe Motta, a food, wine, and spirits retailer and distributor.

In promoting a project center to WPI, the group cited Panama's diversity, stability, development opportunities, and, just as important, "the many alumni now residing in Panama to support and advise WPI in this endeavor," recalls Halman, who currently serves in the public sector in a five-year post as general administrator of his country's National Authority for Government Innovation (the agency in charge of digital transformation).

In 2007 the alumni hosted WPI senior administrators and helped identify potential projects in civil engineering, water management, and operations management. Two years later, professor Tahar El-Korchi and former professor Jeanine Plummer of the Civil and Environmental Engineering Department established the Panama Project Center in Panama City. To date, WPI students and faculty have spent over 10,000 hours of project activity to benefit the Panama Canal Authority, and another 12,000 hours to benefit other partners, including Copa Airlines.

With encouragement from WPI, the alumni adopted a charter and in 2015 it became the Institute's first international alumni chapter. This October WPI graduates in Hong Kong followed suit, and a Beijing alumni chapter is in the works, according to Karen Bean, executive director of advancement for global strategies and special projects.

"They're the ideal model for an alumni chapter. If we could just replicate the enthusiasm and the structure around the globe, it would be wonderful," Bean says of the Panama group.

International graduates have firsthand knowledge of both WPI's curriculum and critical needs in their home nations. Their willingness to help students apply their education to these challenges make them integral to advancing the global initiatives laid out in President Leshin's strategic plan, *Elevate Impact*.

"The alumni group has opened a lot of doors for us," El-Korchi says of the Panama alumni. "They've been our networking champions."

For Motta and Halman, WPI's presence in their country has stoked pride in their alma mater, in their country, and in the strength of their chapter. WPI alumni have served in leadership positions in the Chamber of Commerce, Industry and Agriculture of Panama (three as its president), Panama Canal Authority, National Private Sector Council, and other governmental and private agencies. All of this has translated into greater philanthropic support for WPI, as well; last year the Panama Alumni Chapter presented a check for $50,000 to WPI to support students and faculty.

"This is no coincidence," Halman says. "This is the work of the WPI Plan, which instills and develops a leadership interested in giving back and contributing for a better society."

—Sharron Kahn Luttrell

WPI BREAKS GROUND FOR FOISIE INNOVATION STUDIO

On Aug. 31, more than 250 WPI and Worcester community members gathered on the Quad near the site where Alumni Gymnasium once stood for a ceremonial ground-breaking for the Foisie Innovation Studio.

"Alumni Gym was 100 years old, a project initiated by alumni from the late 19th and early 20th centuries, who wanted to create a space for the students—all men at that time—to create healthy bodies as well as healthy minds," President Laurie Leshin reminded the audience.

The Foisie Innovation Studio builds on that spirit of innovation and the legacy of the WPI Plan "to create a space to take the contributions of our students, faculty, and staff to new levels of impact," President Leshin said. The state-of-the-art facility is central to the goals first laid out in her inaugural address in November 2014, and subsequently expanded upon in the strategic plan, *Elevate Impact*.

"Through new constructs like the Global Impact Lab and the Innovation and Entrepreneurship Center that will be housed in "the Foisie" [the nickname the president predicted the community would give the building], through creating dedicated space for the Great Problems Seminar and global projects and our own maker movement," she said, "we envision a place that will animate and expand the ideal of the WPI Plan for decades to come, and will lead to positive impact in our home community of Worcester and in communities around the world."

A PIECE OF WPI HISTORY

Francesca Maltese, vice-chair of the WPI Board of Trustees and chair of the Facilities and Campus Infrastructure Committee, described the community involvement that went into the decision to take down Alumni Gym and rebuild. While a difficult decision, she said, it was "absolutely the correct decision."

"Now, it's time to bring a new face to the Quad," Maltese added. "The Foisie Innovation Studio is the embodiment of the WPI Plan's spirit of collaboration and how many minds can be inspired by coming together."

The day was also a celebration of the Alden Trust Challenge, a pledge from the Alden Trust in October 2014 that if alumni raised $9 million for the Foisie Innovation Studio, the Trust would contribute another $3 million to the project. At the groundbreaking, Leshin announced that 1,300 generous alumni successfully met the challenge. All told, $18 million has been raised to make the new facility a reality.

The name of the residence hall—the two upper floors of the Foisie Innovation Studio—was also unveiled at the groundbreaking. Messenger Residence Hall is named in honor of Priscilla and George Messenger Jr. '51 and their lifetime support of WPI students. George is widely known for his pioneering work on the hardening of electronic systems, including contributions to the development of the EKG and the hardening of the circuits for the atomic clock in the Global Positioning Satellite.

"It is with tremendous gratitude and affection that we name this residence hall for Priscilla and George Messenger," said President Leshin. "Their support for WPI students has been inspirational, and it is fitting that the students who will live in Messenger Hall will be at the heart of this campus community."

THE FOISIE INNOVATION STUDIO IS NAMED FOR ROBERT A. FOISIE '56, THE UNIVERSITY'S MOST GENEROUS INDIVIDUAL DONOR.

Also speaking at the event was Jennifer Chandler, chief of staff for Congressman James McGovern (D-MA), who credited WPI and the education it delivers with helping to create a stronger and more vibrant city. In his remarks, Worcester Mayor Joseph Petty applauded the university for creating spaces like the Foisie Innovation Studio where WPI students can exchange ideas and move them forward. He also thanked the Alden Trust and Warner Fletcher for their generous support of institutions like WPI.

At the close of the ceremony, after the "turning of the dirt" with the official shovels, the more than 250 in attendance were invited to take up shovels of their own to fill jars with the ceremonial red sand and ground-up debris from Alumni Gym and take home their piece of WPI history.

GPS TURNS 10
STARTING WITH IMPACT

WPI's innovative, big-picture, first-year learning process known as the Great Problems Seminar is 10 years old.

It's been a decade of ushering new students through the theoretical and into the practical. A decade of introducing them to the complexity of global problems, group collaborations, and WPI's hands-on, project-based problem solving aimed at improving the world around us.

"It really forces you to stretch your mind to the social context of engineering," says Sam Flibbert '16 in a GPS presentation video. "The ethics of fair trade, examinations of energy sources, and climate change considerations are all part of GPS."

"Our team started as total strangers," says Heather Lavoie '16 in a video interview. "It's amazing how far we've come."

The issues considered in GPS are human, complex, and relevant, such as food sustainability, says Kris Wobbe, associate dean of undergraduate studies, and an inaugural GPS instructor.

"The projects are theoretical, but many students take it well beyond that, especially when the topic sparks a passion. We've had students get provisional patents for project work, design a fundraiser to build two wells in Africa … and get unserved food in the dining hall to a local shelter."

Wobbe personally finds the GPS invigorating on at least two fronts: there is no shortage of topics to fold into the curriculum, and she collaborates with instructors in disciplines she normally never would (such as management and English literature) in presenting the seminar. Team teaching, she says, allows her to model to the students how people with differing perspectives and training each provide information and knowledge necessary for the development of effective solutions.

Eric Hahn '80 and Fred Molinari '63 helped ensure the launch and subsequent expansion of the GPS. Their generosity and vision has had a significant positive impact on countless WPI students and alumni.

A partner in a high-tech startup investment firm, Hahn gave $100,000 to get GPS off the ground in the 2006–07 academic year and has generously supported the program since then. "Years ago, I gave the WPI Commencement address," he says. "I challenged the graduates to use the rare and valuable gift of a college education to help figure out our collective future. I saw GPS as a way to make that challenge more actionable."

Molinari gifted $150,000 to fund visiting scholars for the GPS program. He wishes the GPS approach had been around when he was at WPI. "I had no idea what an engineer did," he says. "With physics, you would get so into the bowels of what you were doing with equations—how it related to big problems was unfathomable. It makes so much sense to help kids understand where *they* come in."

— *Susan Shalhoub*

EDGAR "LEO" DOUVILLE '39, a generous supporter of WPI scholarship, died Aug. 23, 2016, at the age of 99. A longtime resident of Wilmington, Del., he was predeceased by his wife, Sara. He is survived by his son, Leo E. Douville.

A career design engineer, Douville got his start in the aircraft industry after graduation. With engineering jobs scarce in New England, he moved to Maryland to work for Glenn L. Martin, where he was responsible for plant layout and power systems. In 1946 he joined the DuPont Company, where he remained for the rest of his career. His work took him around the world, designing and building textile and fiber plants. His overseas postings included long-term assignments overseeing plants in Germany, Northern Ireland, Brazil, and Iran. He retired from DuPont in 1981, with 35 years of service.

In 2009, Douville made a bequest of $3.5 million to establish the Sara and Leo Douville Endowed Scholarship at WPI. In a profile in *WPI Ideas*, the newsletter of the Alden Society, he said, "I struggled through financing my education, working all year round to earn money for my WPI education. I want to make it easier for students to get a college education." He also noted that his world travels had enlarged his understanding. He praised the "real world" experiences that WPI offers students and expressed his intent to "help educate students more than through books alone."

RUTH (SHONYO) TRASK, who chronicled the achievements and diverse career paths of WPI's graduates for more than two decades as alumni editor for the *WPI Journal* and *The Wire*, passed away in Northborough, Mass., on July 26, 2016. She was 86.

A graduate of Colby Junior College, where she won a campus correspondent award from the former *Mademoiselle* magazine, she went on to earn her bachelor's degree from Middlebury College, then attended Katharine Gibbs School in Boston. She wrote for Vermont newspapers and also won an honorary short story writing award from *Writer's Digest* and poetry awards from *Ideals*. She would go on to publish many short stories in women's magazines and win numerous writing awards over the years.

Trask joined the staff of WPI's University Relations Department in 1971 as alumni editor for the *Journal*. Her "Final Word" essays uncovered diverse tales of alumni who were using their WPI degrees in unexpected professions. She also wrote for its companion tabloid publication, *The Wire*. When she retired in 1993, she continued to write articles for WPI publications and kept up friendships with colleagues and alumni she'd met in the course of her work.

She is survived by her ex-husband, William F. "Tuna" Trask, longtime director of WPI's Office of Graduate and Career Plans, sons Jeff and Terry, daughters Carrie and Laurie, and three grandchildren.

GEORGE CONLEY '46 EE, MS EE, PHI KAPPA THETA
BOB HAMILTON '46 ME, SIGMA ALPHA EPSILON
JIM MALONEY '46 ME, ALPHA TAU OMEGA
RAYMOND BRANDOLI '49 ME, PHI KAPPA THETA
PHIL BUFFINTON '49 ME, THETA CHI
RAY COSTINE '50 CHE, PHI SIGMA KAPPA
WALT FINNERAN '51 CHE
FRANK GAMARI '54 CHE, PHI KAPPA THETA
PETER MORGAN '55 SIM
REY SANSOUCY '55 ME
ALEX PRATT '59 ME, LAMBDA CHI ALPHA
MICHAEL KAUFMANN '62 ME, ALPHA EPSILON PI
JOE WRIGHT '66 ME, SIGMA ALPHA EPSILON
JAMES NARDI '68
JOHN SUOMU '78 CS
CHRISTINE INGALLS '79
BRENDA BOUCHER-PUPUTTI'80 CH
KEVIN NUTE '82 EE
CHRIS HIRST '87 CHE
SUSAN (LINDBERG) SHANAHAN '87 EE
ROBERT DEMILIA '90 EE
MICHAEL WROBLESKI '91
JASON BENNETT '96 ME, PHI KAPPA THETA

THE WPI COMMUNITY ALSO NOTES THE PASSING OF **MARCIA HILL,** A FRIEND OF THE UNIVERSITY.

Complete obituaries can usually be found online, by searching legacy.com or newspaper websites. WPI Journal will share information from our files and assist classmates in contacting surviving family members. Contact jkmiller@wpi.edu or call 508-831-5998 to request further information.

1955

The Lock 15 East blog site posted a tribute to the late **Bob Stempel**, with photos from his high school yearbook and other memorabilia. It was noted that he earned his college tuition fixing cars and went on to become chairman and CEO of General Motors.

1959

Robert Pill's wife, Cynthia, shares the sad news of his passing on Feb. 27, 2016. He was owner of Robert Pill Electrical Supply, and a member of Alpha Epsilon Pi.

1961

Phil O'Reilly is retired and living in Pennsylvania, after working for APCI, headquartered in Allentown, until the late 1990s. He started his career in chemical engineering at Air Products, then moved into business and marketing positions. "Working in the United States, Europe, and Great Britain and traveling just about everywhere in the world has been enlightening, challenging, and fulfilling," he writes. After leaving APCI he went into real estate management. "My wife, Mary, and I travel extensively, with homes in Pennsylvania, outside Hilton Head in South Carolina, and the Gulf Coast in Texas. Between us, we have eight children and many grandchildren all over the United States—in those states, and in Georgia. Even in retirement we work at our business and real estate interests. Life consistently is a challenge, fun and at times exasperating but always interesting. Even now I wonder what tomorrow will bring. I hope all at WPI realize what the school offers: a future and the opportunity to achieve all that can be dreamed!"

1966

Pete Kudless and his wife, Karen, have six children, all of whom have jobs, he reports. He served 26 years (active duty and reserve) in the Navy Civil Engineering Corps, including one year on the ground in the Republic of South Vietnam. He made his career as a project manager at Leidos, working on electrical power projects. He recalls Bob Fitzgerald as "a sincere teacher, mentor, coach, fraternity brother, and overall human being." From WPI, he values, "learning how to solve problems, process wise."

Dan Maguire and his wife, Beth, marked their 37th year in the Chicago area. "Started teaching part-time at Northwestern 21 years ago and continue today," he writes. He has fond memories of graduating and then doing alumni work with **Steve Hebert**. As vice chairman of Executive Construction Inc., he notes that he was able to make the world a better place "by giving people jobs." Favorite professor? "Carl Koontz. Carl never brought a note to class, and you needed to only take one page home." The Maguires have two children, Kevin (48) and Elyse (44).

Steve Smith sends this message: "Thanks for the wonderful time at our 50th class reunion this year. Best wishes to WPI for continued success!" Now retired, he says, "My hope is to live a good life with the guidance and grace of our creator. I've tried to help make the world a place of peace, love, and justice." He and his wife, Kristine, have a son, Oliver, who is 41. Steve's favorite memory is "…President Harry P. Storke walking over from Boynton Hall and helping me to get into orientation class after being locked out of Alden auditorium in October 1962. (I was late for class!)" His favorite professor: "Frank DeFalco—good guy."

Leonard Weckel writes, "Had a fulfilling career in environmental engineering. I was a soccer referee for 37 years (also coach and league administrator). This year I was inducted into the 2016 Eastern Pennsylvania Soccer Association Hall of Fame. I'm also a dedicated blood donor, which began at WPI. Just donated my 250th pint!" His civic work includes leadership in Knights of Columbus, Miller Keystone Blood Bank, Eastern PA Soccer Association, and the German cultural group Reading Liederkranz. Len and his wife, Bryn, have three sons and six grandchildren. His WPI memories include the huge bonfire he helped build freshman year, and physics professor Louis Granath.

1967

Curt Carlson was the 2016 Commencement speaker for James Madison University's spring commencement ceremonies. As founder and CEO of Practice of Innovation, he is known as a thought leader on the subject.

1968

Worcester's North High School dedicated its library to **Deirdre Loughlin (MNS)**, in recognition of her longtime service teaching science in the local school system. Newspaper coverage paid tribute to her dedication, and to her talent for bringing realism and humor into the classroom. Loughlin taught in the Worcester schools for 33 years, then served as an administrator, focusing on staff training and curriculum development. She retired in 2002, but returned in 2008 to serve as interim superintendent of the Worcester school system for several years.

1971

Trustee Emeritus **Claude Mancel (MSCE, '74 PhD)** received the P&G Alumni Network Business Innovation Award, honoring his career of almost three decades at Procter & Gamble (1973–2001). Among his notable achievements are developing innovative liquid detergents for the European markets, creating the Swiffer product, and introducing Pampers baby wipes into a worldwide market. The award recognizes "creativity that has been translated into business success," according to a company press release; it will be presented at the 2017 Global Conference in Cincinnati.

1973

Tighe & Bond recently hired **Joel Loitherstein** to manage the company's environmental site assessment and remediation practice. He brings more than 40 years of experience to his appointment, including expertise in groundwater hydrology and soil mechanics, and 20 as manager of his own environmental services firm. Joel is founder of the LSP (Licensed Site Professionals) Association and participates in numerous charity bike rides, including the Pan-Mass Challenge to Provincetown and the Livestrong Ride in Austin, Texas. He lives in Ashland, Mass.

Jay Schnitzer was appointed vice president and chief technology officer of MITRE Corp. He was previously director of biomedical sciences, overseeing the organization's internal health transformation R&D program. "Jay brings an impressive R&D background to the leadership team and MITRE as a whole," said MITRE president and CEO **Alfred Grasso '93 (MS CS)**. "He is a truly brilliant individual. His technical and life sciences expertise offers an invaluable perspective as we look for new and innovative ways to solve complex challenges, particularly in the international and healthcare domains." Before joining MITRE, Schnitzer was the director of the Defense Sciences Office at the Defense Advanced Research Projects Agency (DARPA).

1974

Stephen Page was named to the 2016 Florida "Super Lawyers" list in the practice area of business litigation. He is a shareholder in the Stuart, Fla., office of Gunster, one of the state's oldest and largest full-service business law firms. His practice focuses on business and intellectual property litigation, as well as probate, environmental, land use, and securities litigation. He earned his law degree at Stetson University in Gulfport (cum laude) and was admitted to the Florida Bar in 1977.

1976

Mark Johnson has retired after 40 years in the water utility business. "After earning a master's in environmental engineering from the University of Maine, Orono, I worked for the Bridgeport Hydraulic Company in Connecticut for 15 years, becoming an officer at age 33, and president of its Stamford Water Company subsidiary at age 37. My career took us to Illinois in 1992, where I worked for the Northern Illinois Water Corporation in Champaign. We moved to Belleville in 1999, where I became VP Engineering for Illinois American Water. In late 2004, I moved to La Quinta, Calif, where I have served as director of engineering for the Coachella Valley Water District for the last 12 years. I am also an expert on the Colorado River and the California State Water Project. My wife and I have two children—Erika (27), and Kurt (24)." See Mark's Letter to the Editor on page 2 for more on the profession of civil engineering and being "on-call, responding to hurricanes, floods, tornadoes, and earthquakes—always making sure the water services keep flowing."

Phil Suomu writes with the sad news of the death of his brother, **John Suomu '78,** in July. John worked at Chester Blackburn and Alamo Rent A Car. He and his wife, Faith, raised a family in Orlando before moving to Windermere, Fla. Phil adds that their father, the late **Elmer Suomo**, was a 1974 graduate of WPI's School of Industrial Management.

1979

Lisa Maurath was appointed area manager of the Los Angeles transportation and infrastructure office of WSP | Parsons Brinckerhoff. Her responsibilities include oversight of Phase 2 of the city's Expo Line light rail, its Regional Connector subway, and the Westside subway extension. She rejoined the LA office in 2009, after eight years in Minneapolis and Chicago.

Mary Farren McDonald and her husband, Bill, recently caught up with classmates **Al** and **Diane (McConnell) Cormier** over dinner in Nashua, N.H., when the McDonalds were on vacation. "We had a great time!" she writes.

Phil Rubin has recently taken a leadership role as vice president, supply chain operations, at the private equity held Icynene Inc., a supplier of spray foam insulation. "I was considering retirement, but was so impressed with the Icynene product that I elected to join their team, he writes. Phil and his wife, Lynn, live in Park City, Utah, where they just completed the construction of their new home. He can be reached rubinpj@yahoo.com.

1980

Jim DeCarlo is an intellectual property shareholder at Greenberg Traurig. A registered patent attorney, he works with WPI's entrepreneurship programs to educate prospective entrepreneurs on IP issues. "The written and spoken word is your currency as an attorney," he advises those thinking about a career in law. "The ability to write in crisp and precise prose and to be a compelling speaker will serve you well both in law school and in your subsequent legal career."

Jim Lafferty joined Rapid Micro Biosystems as vice president of quality. He has been in quality control for more than 30 years, most recently at American Science & Engineering.

1981

Ron Cortese is IT program director at the Office of the Director of National Intelligence (ODNI), where he has worked as an IT consultant for more than 30 years. In addition to his career in IT, he is founder and president of Legends Sports Leagues Inc.

Lee Hevey Kellett and **Stephen Kellett '91 (MS BME)** have relocated to West Seattle, Wash. Lee is general manager for Light Brigade, a fiber-optic–based training and certification company. Steve continues his physical therapy practice. Their daughters, Amanda and Jillian, are located in nearby Oregon. "We love to reconnect with WPI friends and colleagues, so let us know when you are in our beautiful city/area," they add.

1982

Phil Guerin, director of water and sewer operations in the Worcester Water Department, was in the news this summer, speaking about drought conditions that forced tighter water restriction on the region. He spoke of the importance of raising awareness of the severity of the situation, and he urged residents and business to heed water use restrictions, fix leaks, and limit non-critical water. "Even a return to normal rainfall, at this point, wouldn't be all that helpful," he said in the *Telegram & Gazette*.

Tyco International CEO **George Oliver** made IFSEC Global's list of Top 50 Most Influential People in Security and Fire for 2016. He was praised for overseeing the world's largest fire protection and security company, with 57,000 employees in 50 countries and over $10 billion in annual revenue. "Since the spinoff of two companies to create a more focused fire and security company in 2012, Mr. Oliver has led the transformation of Tyco from a holding company to an operating company with a sharp focus on leveraging technology and innovation to advance its leadership position in the industry," according to the award announcement. George is also a member of WPI's Board of Trustees.

1983

Joel Kearns ('13 MS ME) is now working on his PhD. He presented his doctoral proposal, "Origin of twinning during Czochralski growth of heavily doped, dislocation-free single crystal silicon," at WPI this summer.

'88

Joe Pisano at WPI's annual Summer Band Concert

1984

Brian Meacham received a Fulbright Global Scholar award to pursue his project, "Understanding and Advancing Performance-Based Building Regulatory Systems." He says, "I am in the inaugural group of awardees for this particular Fulbright award (just launched last year), and there are only a total of 19 awardees." The award will allow him to conduct research in Japan, Spain, and Sweden, where he will investigate gaps and challenges with existing systems; explore the potential for establishing tolerable levels of risk as a basis for establishing regulated levels of safety and performance in buildings; develop the foundation for a risk-informed performance-based building regulatory system framework that addresses gaps and better anticipates and adapts to emerging needs; and test specific components of the framework. "I have already conducted similar work in four other countries as part of my sabbatical—Australia, New Zealand, the Netherlands, and Scotland, with support from a previous Fulbright award. I am also benchmarking the state of practice of fire safety engineering in all seven countries, and looking at what is needed to implement a risk-informed performance-based approach to fire safety engineering."

1987

Scott Flaherty joined Willis Lease Finance as senior vice president and chief financial officer in June. His previous employers include Colt Defense, Banc of America Securities, and Credit Suisse First Boston.

1988

Joe Pisano was among a dozen alums who turned out for WPI's annual Summer Band Concert, which featured show tunes, pop music, and other lighter musical fare—"music we'd be less likely to play in an academic program," according to conductor Doug Weeks. This year's program included a tribute to the late musician Prince. "Joe was very active for both Rich Falco and myself and is still a very active player," says Weeks.

David Polcari was elected international director of the American Water Works Association. He is an associate and New England client-service manager for CDM Smith, an international consulting engineering firm based in Boston.

1989

Jeffrey Goldmeer writes, "It's been a hectic and rewarding year. I was an invited speaker at the Platts Caribbean Energy Conference in Trinidad, and at a Future Fuels Workshop hosted by the King Abdullah University of Science and Technology (KAUST) in Saudi Arabia. In late March I presented a seminar on campus at WPI entitled "Power Generation in Today's Complex World" as part of the Sustainable Energy Project Center speaker series. Since then, I've spoken at the Power-Gen Europe Conference (Milan, Italy), and the Power-Gen Africa Conference (Johannesburg, South Africa). In August I presented at the Power-Gen Natural Gas conference in Columbus, Ohio. While traveling around the globe I've been writing a blog about trends in gas turbine fuel flexibility for the GE Powergen website.

"I had the opportunity to meet President Laurie Leshin at a reception hosted by WPI at the FIRST Robotics International Championships in St. Louis. I attended the Championships as a GE representative and as an FRC judge. I also was asked to mentor two WPI students interning at GE Power this summer. In my spare time, I continue to be an active scout leader, and became a member of the Executive Committee for my local Boy Scout Council (Twin Rivers)."

1990

Michael Pace has completed 15 years of service with Wells Fargo Advisors. He holds the post of associate vice president, investments, and financial advisor, with his office in Tempe, Ariz.

1991

Anup Ghosh, co-founder and CEO of Invincea, was the subject of a *Forbes* "Insights" profile in the series "Thought Leaders Changing the Business Landscape." Anup called most cyber attacks "imminently solvable," and said, "Don't allow them to take the beaches. It's the business's obligation to defend its network, their customer's data, and their own proprietary information."

Shawn Markham's career with Corning Inc. was the subject of a newspaper profile in her hometown paper, the *Advocate Messenger*. The Harrodsburg, Ky., resident spoke about gender stereotypes as well as stereotypes about engineering. "It's a lot more … in-depth thinking and evaluation of data. I still apply the equations I learned in college," she told the reporter. "Engineering—compared to other jobs, we can calculate what the right answer is. I like that part." Shawn was recently named a Corning engineering fellow—the first woman to receive the honor in the company's 165-year history.

'94

"Turned a family vacation into an excuse to see one of the greatest Depression era engineering projects."

Yael Schwartz, founder and CEO of Or-Genix Therapeutics, was appointed Coleman Entrepreneur-in-Residence for the 2016–17 academic year at WPI. "Yael Schwartz's knowledge and skills will be an exceptional asset for our community," said Michael Ginzberg, dean of WPI's Foisie School of Business. "There is tremendous talent and innovation on campus," she says. "I look forward to working with entrepreneurs and sharing my experiences to accelerate new ventures." [Yael was featured in the Winter 2015 issue of the *WPI Journal*.]

1992

Rich Burgess returned to WPI in 2015 to coach women's lacrosse. "The women's lacrosse team has made significant improvements in the last two years," he writes, "winning the New England Women's Lacrosse League and going to the Northeast Conference Tournament. **Amy Misera '16** recently charted the progress of WPI's team vs. other women's club teams and the improvement is phenomenal!"

Diana Hart is senior vice president of environmental, health, safety, and security for GE Hitachi Nuclear Energy.

1993

Jeff Jorczak (writing as Cody Leet) has published a science fiction thriller titled *Spheria*. He describes himself as "a writer who likes to code, or a coder who likes to write. You be the judge." His novel opens with the invention of the "Qube"—a Quantum Binary Uncertainty Engine the size of a sugar cube, with 3,840 quantum bits. Readers are soon transported to a virtual world with a sinister secret, where powerful technology might be used for good—or evil. Jeff lives in Connecticut with his wife, four kids, a dog, a cat, and 20 fish. Find out more at codyleet.com.

AMETEK Electronic Systems Protection promoted **Dave Perrotta** to director and business manager. Since joining the company in 2004, he has served as director of operations and R&D.

1994

Jason Johnson sends this summary of his visit to the Hoover Dam:

"What started out as an IQP is now New Hampshire's largest makerspace," writes **Bill Schongar**. MakeIt Labs, a 501(c)(3) nonprofit in Nashua, N.H., opened its doors in 2010 and now has more than 150 members ("10 of which are WPI alumni, including myself," Bill notes.) "We recently moved to a 16,000-sq.-ft. facility and received a $250,000 grant from the NH CDFA to help fund an onsite technology incubator, STEM kids' projects, and community outreach." Bill's day job is technical leader/architect at Cisco Systems.

1995

After years of dreaming, **Suzanne LePage** and her husband, Jonathan Cook, have opened a business with a mission—keep local farmland in production, and serve as a model for how a local food economy can thrive. Homefield Brewing, located in Sturbridge, Mass., grew out of the research Jonathan conducted for his book, *Beer Terrain: Field to Glass from the Berkshires to the Maine Coast* —with contributions from Suzanne. Their goal was make beer with 100% local ingredients. "While many small brewers

in the region use the ingredients," she says, "all of them still import from other regions. Their beer is delicious, but Homefield has a higher goal than just good beer: that is, to support our food infrastructure and contribute to the resilience of our area." Their farm-to-table food menu includes a seasonal cheeseboard selection, salami from Vermont-raised pigs, beef jerky smoked locally, and local vegetables—plus wine and cider selections that feature products made locally, with locally grown ingredients.

"Yes, I will still keep teaching at WPI," promises Suzanne, who has been with the Civil, Environmental, and Architectural Engineering Department since 2007. "But, after teaching students about how to plan better, more sustainable communities, I thought it would be a good idea to practice what I preach."

Scott Stoddard works for Buffalo-based Calamar as regional project manager for the construction division.

1997

Marni Hall is the new senior vice president of research and policy for PatientsLikeMe, an online network that connects patients with others who have the same disease or condition to share experiences. In the process, they generate data about the real-world nature of disease that can help researchers, pharmaceutical companies, regulators, providers, and nonprofits develop more effective products, services, and care. "My goal is to extend its impact, so that the patient experience drives a future where healthcare is able to emphasize individual needs and preferences," she says. Marni joins the company from the U.S. Food and Drug Administration, where she was most recently director of regulatory science within the Office of Surveillance and Epidemiology for the FDA's Center for Drug Evaluation and Research. Her background includes a master's degree in public health from Columbia University Mailman School of Public Health, as well as an MS in biochemistry and a PhD in toxicology from Columbia's Graduate School of Arts and Sciences.

1998

Richard Formato (MENGR) was promoted to the newly created position of principal technologist at Cold Chain Technologies, a global manufacturer and distributor of temperature-controlled packaging solutions.

2000

David Levine is an assistant professor at Penn Vet (the University of Pennsylvania's veterinary school), and a staff surgeon at Penn Vet's New Bolton Center. His research is focused on diagnosis and treatment of postoperative orthopedic implant infection. He's also the inventor of Punch N Plant Weed Block, a pre-punched fabric for gardeners that reduces weeds and allows for easy planting. He introduced his product on the QVC shopping network this spring, after two years of development. He lives on a farm in Pocopson Township with his wife, Meagan (also a vet), where he gardens with their daughters, Ella and Torrin. Watch Dave's TV spot at punchnplant.com.

Benson Li holds the post of project team leader at Orient Handbag Manufacture Co. Ltd. In the last 10 years he has developed more than 300 products for industries ranging from fashion to law enforcement and sporting goods, working with clientele from all over the world. His expertise includes thorough knowledge of use of materials such as Cordura, polyester, canvas, and leather.

Chris Shoemaker ('01 MS CS) is chief technology officer for MojoTech. He joined the company eight years ago. In the write-up for his 2016 *Providence Business News* C-Suite award, Chris shared his rationale for majoring in physics at WPI, even though he had an early history of tinkering with computers. "I think it was a mix of foolish local hubris thinking that I had learned everything there was to learn about computers," he said. "But it was also an interest in getting a good value out of my college education."

"It's official. My new book, The Art of Relevance, is now available."

— NINA SIMON

'03

James Valis was one of *Worcester Business Journal*'s "40 under 40" this year. A former financial advisor at Fidelity Investments, he left the corporate world in 2013 to co-found Blackstone Valley Wealth Management, representing businesses, nonprofits, trusts, and individuals. "He remembers those who helped pave the way for his success," *WBJ* notes.

2002

Craig Daniels writes, "We have spent a great two years living in Lyon, France. My wife and two little girls traveled here with me in 2014 for my job with Alstom Transportation, as director of tenders (proposals). We will be moving back to the U.S. in July 2016 and relocating from our previous home in Rochester, N.Y., down to the Alstom office in Melbourne, Fla. If anyone is in the area, please get in touch!"

2003

Nina Simon writes, "It's official. My new book, *The Art of Relevance*, is now available and ready to move from my computer to your hands." Author of *The Participatory Museum* and the popular Museum 2.0 blog, Nina now extends her vision to other mission-driven organizations—including libraries, the National Parks, churches, and afterschool programs—offering advice on making their work more vital to the communities they serve. "Relevance is not something an institution can assign by fiat," she writes. "Your work matters when it matters to people—when THEY deem it relevant, not you." Nina is executive director of the Santa Cruz Museum of Art & History.

2004

Joe Bush, executive director of Worcester CleanTech Incubator, made the *Worcester Business Journal* "40 Under 40" list this year. He was cited for bringing together a community of entrepreneurs, mentors, and investors, and for his continued work in developing the incubator's physical and network resources. His previous work in the solar sector and the green chemical industry was also noted.

Crystal Caron writes, "On August 6 and 7, I completed my second Pan-Mass Challenge, the 192-mile charity bike ride from Sturbridge to Provincetown. As one of 48 members of Team Kinetic Karma, I rode to raise funds for the compassionate care and groundbreaking research taking place at Dana-Farber Cancer Institute in Boston. Thank you to all WPI alumni and staff who made generous contributions! So far I have raised more than $5,100 (more than $9,600 cumulatively over two years). To celebrate, remember, and honor the loved ones of my donors and myself, I included their names on ribbons on my jersey."

Team Kinetic Karma completes the Pan-Mass Challenge

'04

Cody Harrop, a manufacturing engineer at Pratt & Whitney, recently graduated from P&W's Manufacturing Engineering Development (MED) program, a two-year rotational program of six-month rotations offered to new hires. "It really instills confidence in you that you can do the job here," he said in a promotional video on the company website, "and then all the rotations and the mentoring just further all the knowledge that you'll do great things."

"It's a boy," writes **Krystal Tam**, whose son TinHo Yong was born Jan. 22, 2016. "We couldn't be more happy!"

2005

Sam Michalka joined the faculty of Olin College in September as assistant professor of computational neuroscience and engineering. The school's announcement listed her dual major in mechanical engineering and psychological science, also noting that she was the first psychology major at WPI.

2006

Justin Mattern and **Katrina Van de Berg Mattern** welcomed their son, Arthur Robert Renier, to the world on Feb. 10, 2016. He is the nephew of **Rebecca Mattern '10** and the grandson of **Hans Van de Berg '79**. "Arthur's 3-year-old sister is already planning to build him a robot to entertain him," writes Katrina, "so I think we may be having another WPI grad in the family. Tuition is free after the fourth one, right?"

Ashley Poulin ('10 MS FPE) works for Code Red Consultants, an FPE firm founded by WPI alums **Chris Lynch, Carl Nelson,** and **Nate Birmingham** from the Class of 2006, and **Peter Harrod '97**. "In a few short years, Code Red Consultants has become a national name and has provided fire protection and life safety consulting services on some of the most complex projects around. I am extremely proud to be part of this young, dynamic team, backed by a number of WPI-trained engineers."

2007

Ryan Cain was appointed head coach of the Keene State men's basketball team, after serving as interim for the 2015–16 season. During the season, he led the Owls to a 20–11 record. An all-time leading scorer at WPI, Ryan also coached the Engineers to victory.

Michael McManus (MS CE) is the new city engineer for Easthampton, Mass. He previously worked for Tighe & Bond in Westfield, specializing in water and wastewater engineering.

2008

Correction: **Jeremy Lebowitz** is the director of development for the industrial, manufacturing, and laboratory markets at Jensen Hughes (formerly Rolf Jensen & Associates), the largest fire protection engineering company in the world. His employment information in the previous issue of the *WPI Journal* was outdated. We apologize for the error.

Lynn Worobey graduated with a doctorate in physical therapy and has accepted a position as a research assistant professor in the Department of Physical Medicine & Rehabilitation at the University of Pittsburgh.

Chase Johnson ('10 MS AM) sends his first-ever class note. "I am celebrating five years at AIR Worldwide in Boston's Back Bay, where I've been reunited with classmate **Seth Baker**, who recently joined the company. I am thrilled to be entering my second season (seventh overall) as a volunteer assistant coach for Brandeis Swimming and Diving. The Judges will be visiting WPI twice this season, on Nov. 4 and Dec. 2-4. I look forward to being back on campus."

Nicole Zea (MS ODL) is plant manager at Saint Gobain Superabrasives. She made the "40 Under 40" list in *Worcester Business Journal*, with praise for raising the bar on testing and helping launch two new products that generated $3.4 million in sales. She was responsible for annual sales of more than $40 million and 145 employees, *WBJ* reports.

2009

Michael Diamant writes, "I co-authored a book in May on using the Scala programming language and the functional programming paradigm to build high-performance software. *Scala High Performance Programming* can be found on Amazon.

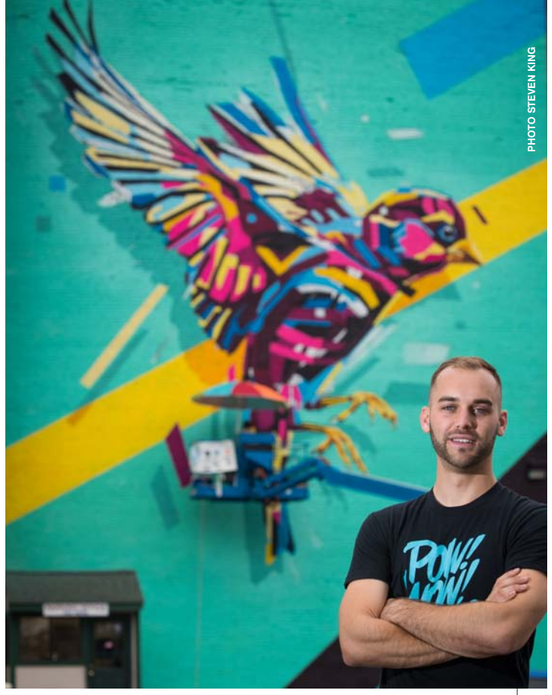


PHOTO STEVEN KING

Alex Schwartz reports big news from Owlchemy Labs. "We just successfully closed a 5MM Series A-round led by Qualcomm Ventures and followed by HTC and other strategic investors. We also just announced that Owlchemy will be building the VR game for the massive Cartoon Network/Adult Swim show *Rick and Morty*, which is arguably the #1 cartoon for adults today." *Wired* reports that Owlchemy presented the first demo at Adult Swim's carnival-themed Comic-Con installation outside the San Diego Convention Center. "We've solved some of the toughest design and development challenges in this new medium, and with this investment we'll apply these lessons to a portfolio of full games," says Schwartz.

Shengshi Zhao is a senior consultant at NuLegal in Sydney, Australia. Her article, "An Australian Perspective on Avoiding Hidden E-Discovery Costs," recently appeared in *Image & Data Manager (IDM)* magazine.

2010

Roseann Gammal writes, "**Sunny Manivannan '07** and I shared some WPI pride at the wedding of my brother, **Charles ("Chuck") Gammal '08** on Sept. 3, 2016."

2011

Victor Brisan is senior test engineer for VPT Rad in Chelmsford, Mass.

Melanie Donahue, a third-year student at UMass Medical School, received the 2016 Physician-Scientist Career Development Award from the American Society of Hematology. She will spend a year studying novel proteins with genetic mutations that have been implicated in the development of blood cancers, using cutting-edge techniques such as CRISPR gene editing, RNA sequencing, and mass spectrometry. "It is plausible that these studies will identify new opportunities for therapeutic intervention that target novel transcriptional and/or epigenetic mechanisms in leukemia and other cancers," she says.

Greg Hovagim (MS ECE) is co-founder of Heat Oracle Technologies in Bedford, N.H. "Heat Oracle addresses a common problem: managing heating fuel," he writes. "Our vision transforms the way you purchase heating fuels. Check out my Kickstarter at kck.st/2avUZMS."

Lily (Clark) Jeznach writes, "My husband, **Chris Jeznach '10**, and I recently moved to the Providence, R.I., area after a busy year completing our graduate degrees at UMass Amherst. Chris received his MBA in February and continues to work as a sales manager at Spirol International Corp. I completed my PhD in civil engineering in September and accepted a job as an assistant professor of engineering at Roger Williams University starting in the fall 2016 semester."

José Molina was a recent guest on *The Space Show* (thespaceshow.com). He is president of the Puerto Rico National Space Society Chapter Inc., and a volunteer at the Arecibo Observatory Space Academy, serving as a professor and mentor. He has also worked at NASA, UTC Aerospace, and Infotech Aerospace Services, and holds an MS in space studies from the International Space University in Strasbourg, France.

POW! WOW! Worcester shook up the Woo this summer '14

Daniel Savastino is president of The Smiths Museum, a nonprofit organization dedicated to illustrating and preserving the history and sociocultural significance of The Smiths. He traces his passion back to WPI, where he took up guitar, chaired the Music and Comedy Committee, and was introduced to The Smiths. In his webpage bio, Daniel explains the inspiration for The Smiths Museum, Theatre, and Café. "People always say to do what you love, but most never follow their own advice. So one day I wrote out everything that I love and narrowed it down to three things: The Smiths, live performance, and coffee." In June, on the 30th anniversary of the band's third studio album, *The Queen Is Dead*, the museum staged a pop-up exhibit at the Middlesex Lounge in Cambridge, Mass.

2013

Joseph Gasparino (MBA) was the 2016 commencement speaker for Asnuntuck Community College, where he earned an associate's degree in 2003. He's currently working toward a DBA, with a focus on Lean Six Sigma Implementation within aerospace, from Walden University, Minneapolis, Minn. He and his wife have established a scholarship for Asnuntuck students.

2014

POW! WOW! Worcester shook up the Woo this summer, drawing internationally renowned muralists and thousands of spectators to downtown Worcester to witness the creation of 15 outdoor murals over 10 days, plus artist talks, local arts events, and outdoor celebrations. The event was coordinated and operated by Action! Worcester and a committee of community partners. **Joshua Croke '14**, executive director of Action! Worcester says, "POW! WOW! Worldwide partnered with us to bring this event to Worcester because of our mutual passion for using art to revitalize communities. We've already started planning next year's festival and are looking forward to bringing more artists, events, and color to Worcester for years to come."

Christopher Sontag began working as a physical designer for substations and other electrical equipment at Black & Veatch earlier this year. In his free time he enjoys helping out the WPI chapter of Engineers Without Borders as a professional mentor, and planning his next trips and adventures worldwide.

Paul Ventimiglia (@paulsrobotics) competed in Season 2 of ABC's *BattleBots* as captain of the Aptyx Designs team (co-sponsored by WPI), along with software engineer **Jeremiah Jinno '07**. Although Bite Force was defeated by a robot named Chomp, the team stands at seven wins for eight games over the show's two seasons. #wewantseason3, anyone?