

WINTER

JOURNAL

# INVINCIBLE FORCE

ANUP GHOSH '91 FIGHTS A NEW  
GENERATION OF CYBER THREAT

Standing a snowy guard over the traffic circle between the parking garage and the Sports & Recreation Center, the Charging Goat was unveiled in time for Homecoming. The bronze sculpture created by artist Robert Shure is a gift from the Class of 2013.



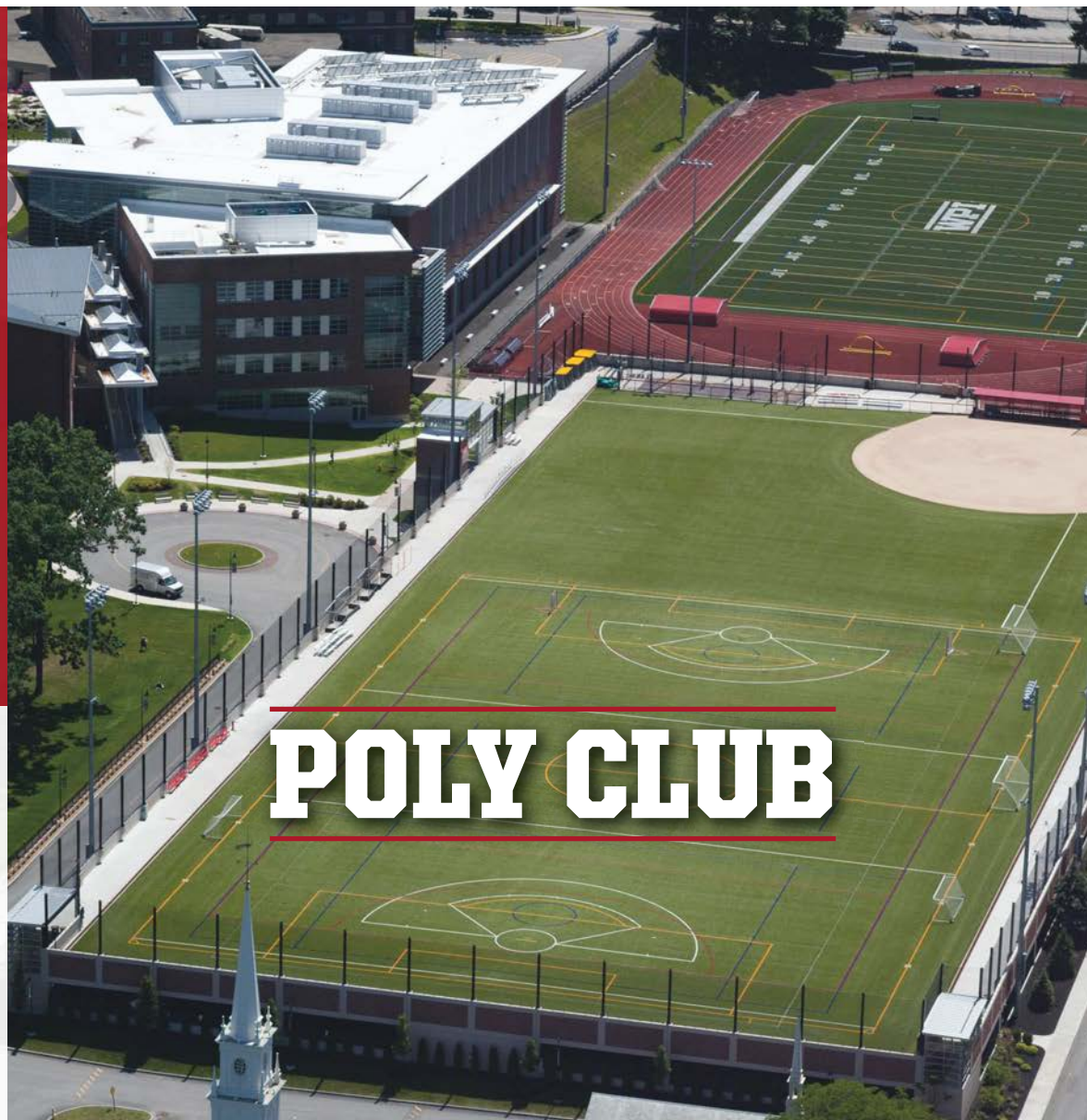


## **Become a member of the team again. Support WPI Athletics by joining the Poly Club.**

The Poly Club assists the varsity athletics program through direct funding and athletics alumni event coordination.

### **2013-14 WPI Athletics Achievements**

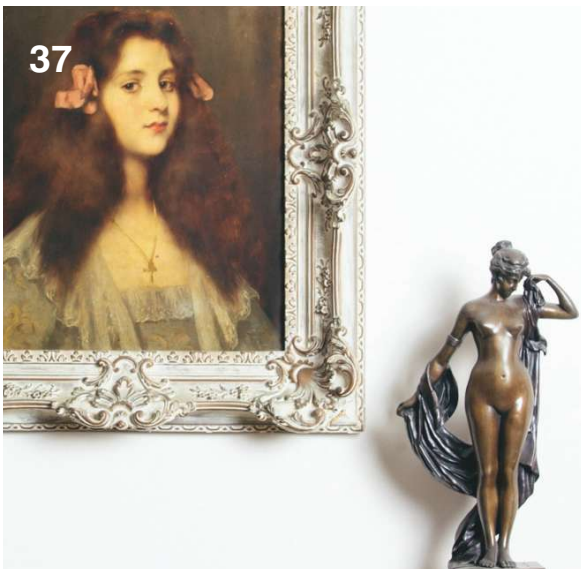
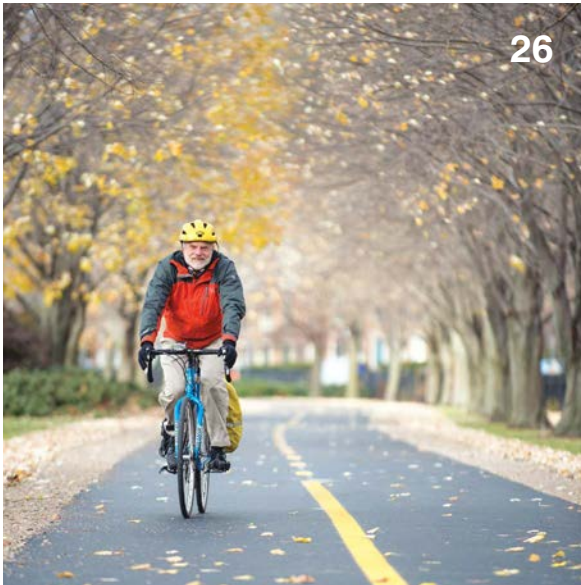
- 139** academic All-Conference athletes
- 16** academic All-District athletes
- 6** academic All-America athletes
- 52** All-Conference selections
- 43** All-Region selections
- 6** NCAA participants
- 3** All-America athletes



# **POLY CLUB**

Learn more at  
[wpi.edu/+polyclubgiftform](http://wpi.edu/+polyclubgiftform)

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WPI alumni do a lot of cool things once they step off campus. Don't believe us? See what your former study mates are doing in our Class Notes section.

WORCESTER POLYTECHNIC INSTITUTE  
150 YEARS: IMAGINE MORE

# 150

## REASONS TO SUPPORT WPI

*When you give to the **Annual Fund** you support the innovators, the exploration of new frontiers, and the global impact for which WPI has been known for the last 150 years and for which it will be known well into the future.*

*Mark WPI's Sesquicentennial Year with a gift to the Annual Fund.*

***Every Gift Counts***

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## The View from Here

**DEAR FRIENDS,**

**HAPPY 2015 TO ALL!**

Over the holidays I had the opportunity to reflect on my first six months at WPI and on my recent inauguration. During the course of that weekend, which you'll read about in this issue, our community came together to showcase the Institute's vibrant past, ongoing excellence, and promising future. It was a professional high point for me and an incredibly personal moment. Whether exchanging ideas with international leaders, such as former Intel CEO Craig Barrett and Carnegie Mellon President Subra Suresh, or having the opportunity to show my closest family members our beautiful campus, it was an extraordinary experience that I will always cherish. To everyone who participated, in person or online, a sincere thank you.

During my inaugural address I laid out a vision for WPI. It's a vision that builds upon our strengths and traditions, like the Two Towers—the balance of theory and practice that has guided us for nearly 150 years. We'll always stay true to those principles and to the mission laid out by founders John Boynton and Ichabod Washburn. But at the same time,

a changing world—one full of challenges and opportunities, and one focused on outcomes and results—invites us to broaden our thinking and imagine more.

My vision revolves around the belief that WPI should commit itself to achieving the goal of becoming the premier global polytechnic. It will require that we dramatically expand our focus on *impact*—the impact that our students, our faculty, our staff, and our alumni have on the world. This new standard of measure is so critical to our future success that I believe we should consider it as WPI's third tower. Theory, practice, and impact.

With this in mind, I have launched a strategic planning process that will advance us toward that goal of becoming the premier global polytechnic. I have chartered six planning teams that will help the university map its future direction. Each team will focus on a core area for examination and planning—I call them our six *pillars*. WPI's next strategic plan will rest solidly upon these pillars.

To become the premier global polytechnic, we must expand **WPI's global reach and impact** in communities locally, nationally, and worldwide. We intend to train the next generation's science, technology, engineering, and math (STEM) leaders by making off-campus projects possible for every undergraduate. We will elevate our already **distinctive undergraduate program** by increasing integration across our many projects, enabling students to get the most value for their time at WPI, and smartly incorporating technology into the teaching and learning experience. We will sharpen our focus on our **research enterprise and PhD programs** to ensure that they are more substantial, more robust, and more distinctively WPI. We will seek to expand and enhance our lifelong learning opportunities, with a special focus on **online graduate and professional opportunities**. We will work to build a thriving engine of **innovation and entrepreneurship** that helps us create value and impact across all we do. Finally, we will strive to ensure that WPI has the **capacity**—from staffing to technology—to support our efforts in a positive, productive work environment.

In future issues of the *Journal*, I look forward to sharing the results of these planning efforts, which will build upon WPI's rock-solid foundation.

Sincerely,

**Laurie A. Leshin**  
President



# ALUMNI WEEKEND 2015

*Return to the hill and make more memories*

Save the Dates for Your Reunion!

*May 28–31, 2015*

During WPI's 150th Anniversary Year

*Golf Tournament*

*50 Year Associates Dinner*

*Alumni Awards Luncheon*

*Alden Society Luncheon*

*Reunion Celebrations for classes  
ending in 5 and 0*



## From the National Campaign Chair

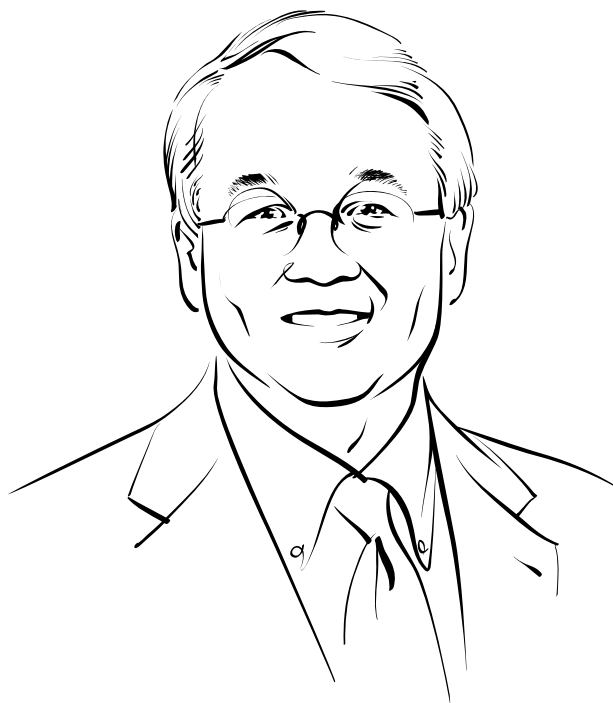
### DEAR ALUMNI:

I have always been proud to call myself a WPI alumnus and have taken special pride in my work as a WPI trustee and as the national campaign chair. Like you, I have experienced many inspiring moments associated with WPI. However, I have never been more proud or more inspired than at the inauguration of President Leshin on Nov. 8. The positive momentum was palpable as the president asked the WPI community to join her in a commitment to making WPI the premier global polytechnic. Students, faculty, staff, alumni, and our distinguished guests left with a renewed sense of purpose and an even stronger dedication to WPI and the work pursued here.

President Leshin delivered a key message about not only continuing our founding tradition of theory and practice, but advancing that tradition to greater impact. This was a high point of her address, as she recognized the many areas where students, faculty, and alumni are already making an impact, especially through WPI's project-based curriculum and at our more than 40 project centers around the world. Impact—described by the president as “our third tower”—is a theme continued in this academic year, with teams of faculty and staff developing ways to expand WPI's reach in critical areas: global engagement, undergraduate programs, PhD and research enterprise, online and continuing education, and innovation and entrepreneurship.

Impact also serves as a major component of the Foisie Innovation Studio. This first state-of-the-art home for WPI's distinctive project-based curriculum will be the physical expression of impact. Whether in the Collaborative Workshop for Student Projects, the Robotics Laboratory, the Business Development Incubator and Center for Innovation and Entrepreneurship, the Maker Space, or the Great Problems Seminar classrooms, you will find students and faculty seeking solutions to some of the most challenging problems facing our society. Every floor, every room of the Foisie Innovation Studio will be dedicated to supporting students and faculty in their quest to use knowledge and expertise to make a positive impact on individuals and communities around the world.

Just as President Leshin challenged the WPI community to consider how this almost-150-year-old university can have greater impact on the world, the Alden Trust has challenged the worldwide

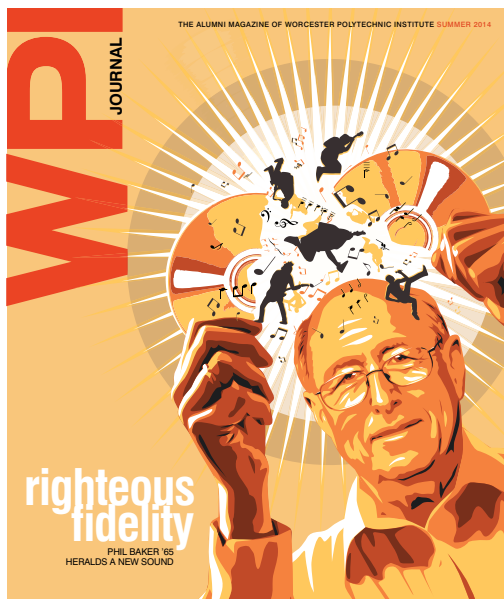


network of WPI alumni to have a greater impact on the Foisie Innovation Studio. The Trust, one of WPI's most generous benefactors, will fulfill a \$3 million pledge toward the Innovation Studio if WPI alumni collectively contribute \$9 million over 18 months to making it a reality. This is our opportunity to make a difference, to dramatically enhance the campus, and simultaneously change the lives of students, faculty, and those touched by their work. It will take many alumni making gifts of all sizes to meet this challenge.

Your enthusiastic support, loyalty, and generosity throughout *if...The Campaign to Advance WPI* has taken this university to a new level. In this our sesquicentennial year, be part of the next big thing to innovate WPI's future. I hope you will join me in rising to the Alden Trust Challenge and supporting the Foisie Innovation Studio..

**MICHAEL J. DOLAN '75**

Senior Vice President, Exxon Mobil Corporation  
WPI Trustee and National Campaign Chair



## ARTIST 411

The 2014 summer issue of the *Journal* was very interesting. I would have liked to have seen more examples of artist Erica Mason's work on molecular cells. It would have been nice if her website, [ericamasonink.com](http://ericamasonink.com), had been mentioned.

**SPIKE VRUSHO '57**

## VIABLE CHOICE

As an alumnus, I appreciate you asking for our input about the *Journal*. With regards to the Fall 2014 issue, I was saddened by the Sexual Assault notice (SAVE) on page 9 and would welcome more information about the extent of this very serious issue on the WPI campus.

On the positive side, I found the Woody Bradford story, entitled "Banking on Food," to be inspirational. I'm proud that Mr. Bradford is associated with WPI.

I would be interested in reading more articles about WPI alumni on their role in maintaining and improving our aging infrastructure. I would also like to know what percent of our students graduate as engineers today as opposed to 40 years ago when I attended the school, and how each engineering department is doing in terms of undergraduate student enrollment trends. My concern is that WPI remain a viable choice for students interested in a career as a Professional Engineer.

**BILL RUTHERFORD '73**

Dear reader,

Our Letters to the Editor section is missing something. *Your* letter! We want to hear from you about what resonated with you – what story did you like? What feature was your favorite? Did something you read trigger a memory that you'd like to share? We strive to produce an engaging magazine that shares the world of WPI with you, so drop us a line at [wpjournal@wpi.edu](mailto:wpjournal@wpi.edu) or directly to me, Doreen Manning, WPI Journal, 100 Institute Road, Worcester MA 01609. I'll share it with our staff and, potentially, with our readers on this page in the upcoming July issue.



# WPI

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## DEFICIENT CONCEPT

I should acknowledge that the [fall] *WPI Journal* was well illustrated, organized, and generally well done.

WPI was once a well-respected engineering institute. Now it is a diversified university like hundreds of others. On a student/parent tour about four years ago, the student-led tour skipped by Kaven Hall (Civil Engineering) without a word and lavished praise on the audio-visual building. Which is not engineering at all.

Engineering education is learning all the ropes used in the past by the greats. This is a tough brain expansion, not playing with robots. After four years the new undergrad is finally able to significantly innovate, usually after a few years of experience. To send an undergrad student to innovate in a third world country is humorous to consider.

I have about eight years of real engineering experience overseas as accumulated in Japan, Mexico, Puerto Rico, Dominican Republic, Bangladesh, India, Burma (Myanmar), Venezuela, and Peru.

These countries (except Japan) do not have the infrastructure to benefit by a wide-eyed beginner trying to innovate. Why is WPI trying to upstage the Peace Corps while someone is paying \$55,000 per year? True, a handful of villagers will think well of the American who tried to help.

Soldier on, as I realize you are hemmed in by the glitter and glamour of a watered-down educational experiment...project-based nonsense. There is a reason why most other colleges have not gone project-based.

Somewhere about 1970, Prof. Grogan of the EE Dept. had an epiphany. He decided that all upperclassmen would pursue projects overseen by faculty and at the end of four years a board of examiners would review the four-year effort for quality. Pass or fail. Only problem was a fail had no solution. Parents out \$100,000 plus, and no chance of transferring credits to a "normal school."

WPI was in a jam and escaped by toning down the project concept to more bite-sized pieces. Still, in my opinion, it is a deficient concept of educating a future engineer, but fine for music and art majors.

**DAVID SPENCER '66**

*Editor's note: While some may disagree with Mr. Spencer's opinions, we felt his point of view was worth sharing. What do you think? Tell us at [wpjournal@wpi.edu](mailto:wpjournal@wpi.edu).*

## COMPLETED CAREERS

First of all, I want to congratulate you on the fall 2014 issue of the *WPI Journal*. I read most of the articles and looked at all of the pictures, which were wonderful.

There is one section that I didn't think was wonderful, however. This is your "In Memory" section. A number of years ago this section was titled "Completed Careers," which I think is very appropriate and quite moving. The words describe quite well a final step in what President Leshin calls "the human condition" or the human experience. You also use this term in your website reference at the bottom of the page.

Also, it seems as if you could devote a little more space to this section and add the degree that the alumnus received: e.g., BS Civil Engineering. As one gets older, I believe that the importance of the section I am discussing increases a very great deal..

**DAVID T. VAN COVERN '53**



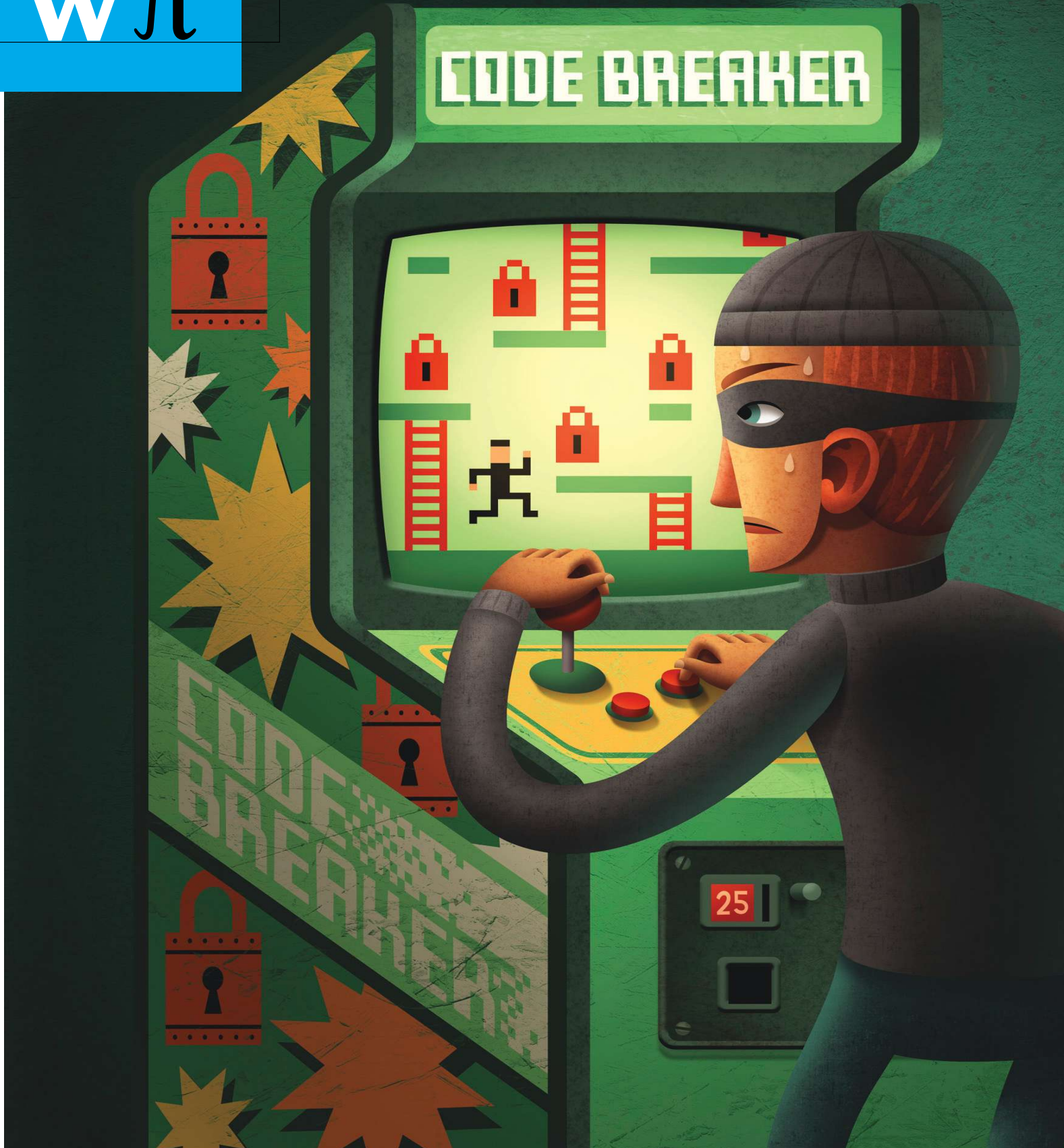
## ALS CHALLENGE

I was flipping through the latest issue of the *WPI Journal* and read the article on the ALS Challenge. I was surprised to notice that you did not mention the late Professor Russell Krackhardt, who retired from WPI in 1990. He was, in my opinion, one of the greatest professors at WPI during my four years, a great inspiration to thousands of students

over his extremely long tenure at WPI, and a wonderful man. He also had Lou Gehrig's disease, and it took him far too young. I would love to see a story about Professor Krackhardt sometime in the *Journal*. He is remembered fondly by many. That man could teach EE better than anyone I ever met. A natural-born teacher with a gift for explaining difficult concepts, and a kind soul.

**JONATHAN BIRD '90**

# CODE BREAKER



## ►GRANTS

## Cybercrime Calls For Game Strategy

**C**YBERSECURITY PROFESSIONALS aren't immune from cyber attacks. But Craig Shue, assistant professor of computer science, says many of them see cyber attacks in a way the rest of us do not. They see the stealthy attacks as a game.

"It's all about figuring out the next move," says Shue, who recently received several grants for cybersecurity research.

The Department of Homeland Security (DHS) awarded funds supporting Shue's cutting-edge work with Choreographer, a program that shuts out hackers who randomly "phish" to gain server access. Through the DHS, Shue also received venture capital funding from Percipient Networks, to test Choreographer at WPI and ready it for consumer launch this winter. Another grant from the National Science Foundation funds a system that alerts the network administrator to potential malware activity.

"It's like a shell game," says Shue of Choreographer's approach. "If an attacker is guessing and trying to connect to a server, this makes it hard for them." When hackers try to look up an IPS number, their speed, or lack thereof, triggers decoys, called "honeypots," to redirect the attacker.

"This stops an attack before it establishes connections," says Shue. "It's simple and really effective." Several WPI students have worked on Shue's projects, even as a base for an MQP.

Choreographer will block more than 90 percent of attacks, says Shue, although not the most sophisticated. "We can protect against adversaries who are phishing," he says. "We can stop that so security can focus on the bigger stuff, the real big bad guys."

Cybersecurity professionals ramp up their moves as attacks become increasingly sophisticated, and their focus shows the high stakes. "What's cool about cybersecurity is whoever is the nerdiest wins," says Shue, who also coaches the WPI Cyber Defense Competition Team and advises the Cybersecurity Club. "Whoever spends the most time figuring out how something works will be the first to do something the other guy can't."

## ►PEDAGOGY

## Teaching What We Do Best

**S**TARTING THIS SUMMER, WPI will be teaching the world to teach with projects. The first Institute on Project-Based Learning will take place on campus June 25–27, in partnership with the Association of American Colleges & Universities. With 40 years of experience—and more than 40 project centers on six continents—WPI has some serious expertise to offer to educators interested in advancing project-based learning on their own campuses. WPI faculty members and administrators will lead two-and-a-half days of interactive workshops, addressing everything from project design and assessment to the personal dynamics of student teams. The program also includes a keynote address by Georgetown University vice provost for education Randy Bass.

Participants will arrive with a proposal and leave with a plan. As part of the application process, they are required to submit a written statement of goals. During the sessions, they will refine their team's vision and develop action steps tailored for their institution.

Rick Vaz '79, dean of Interdisciplinary and Global Studies, says, "A recent study of the WPI Plan confirms that our project-based approach to learning conveys lifelong benefits to our alumni. We are eager to share our experience and expertise to help other institutions of higher education integrate project-based learning into their curricula to more effectively prepare the next generation of problem solvers and global citizens."

## ►ENABLING

## Learning for Good

Assistive Technology Resource Center projects have unique benefits for students and recipients

**WHAT IF YOU COULDN'T TURN A KEY IN A LOCK,** or put on your own socks? What if a simple device could enable you work, play, and get through the day with independence and dignity?

First year students in courses affiliated with WPI's Assistive Technology Resource Center (ATRC) spent A-Term learning standard engineering protocols while designing specialized devices for actual people with disabilities. The prototypes they produced and tested included a keyboard toy that teaches Braille and a ponytail elastic holder to help a girl fix her hair with only one arm.

In higher-level rehabilitative engineering classes and MQPs done through the ATRC, students take on more complex challenges—such as designing a foot-propelled mobility device to allow a young pupil to maneuver in all areas of his elementary school, or improving the functionality of prosthetic limbs. Small changes can alter lives: One

team designed a swing-away tray that enabled a wheelchair user to get to the toilet without asking for help. Another project allowed a carpenter who had lost parts of his fingers in a table-saw accident to apply aerosol finishes with a spray can.

"Instead of an academic exercise where they turn in the answer to a problem that some professor thought up, they see an end result that's useful," says Professor Allen Hoffman.

He and co-director Professor Holly Ault assert that engineers approach disability with a different perspective than teachers or therapists. In the case of the carpenter, the obvious solution was to come up with a mechanized device to control the spray button. But one student reframed the problem. Noticing that the carpenter could still push the button with the stump of his middle finger, the student designed a holder that enabled him to support the can with his thumb and pinky.

By focusing on what this man could do—rather than what he couldn't—the student created a simple, inexpensive device that the carpenter could even make for himself.

Hoffman observes that instead of pitying or being put off by severe disabilities, WPI students thrive on the challenge and work harder. As Ault puts it: "There's a big difference between 'What do I have to do to get an A?' and 'What do I have to do to make it right for that client?'"

See more projects at [wpi.edu/academics/me/ATRC](http://wpi.edu/academics/me/ATRC).





► ROLE MODEL

## Mentoring in Morocco

IQP team establishes volunteer program for Moroccan college students to assist orphans

**B**eyond food, clothing, and shelter—and computers—children in orphanages need concerned adults who can motivate them to strive for a better future. Four WPI sophomores spent A-Term at Al Akhawayn University (AUI) in Ifrane, Morocco, launching a mentoring program for student volunteers there to encourage and tutor children at the Rita Zniber Foundation Orphanage in nearby Meknes.

The project team learned about the challenges facing the 240 young people at the orphanage through visits and interviews. Their main objective was to establish a sustainable volunteer program in conjunction with AUI's student activities personnel. Outreach included newspaper articles, a Facebook page, and cam-

pus television advertisements. They developed a guidebook with tips for volunteers, and a GoFundMe web campaign that raised almost \$1,000 and will continue to channel donations to the Zniber Foundation to assist gifted students who could benefit from private education.

"Engaging in such a different culture and meeting children who have a significantly different living experience than anything we're familiar with really affected me," says Abigail DaBoll-LaVoie '16. "Instead of measuring results through numbers and tests, we saw the difference we were making through the smiles and excitement of the kids. The fact that we were able to make the slightest improvement for them, and especially the fact that our

project was able to continue after we left, is really the most significant, impactful thing I have ever done."

Jacquelyn Fanning '16 adds, "People can read and watch videos about anything in the world, but there is nothing that can compare to personal experience. Working with the orphanage in Morocco has opened my eyes to many things and made me much more grateful for everything that I have. I saw and interacted with over 200 of the sweetest children I've ever met. It breaks my heart knowing that they are growing up with no families. However, it does make me feel better knowing that so many people are reaching out to help these children in any way they can."

## ▶ GLOBAL OPPORTUNITY

## Five seniors will intern on Panama Canal project

**T**HANKS TO A RECENT \$248,000 GRANT from the National Science Foundation's International Research Experience for Students program, five senior women will embark on a 15-week internship next July to combine summer research and an MQP on the \$5.2 billion Panama Canal Expansion Project.

Working with the Panama Canal Authority (Autoridad del Canal de Panamá, or ACP), the students will delve into civil and environmental engineering issues surrounding the canal's addition of a third lock including erosion, dredging, design, construction, energy, and alternative energy while also immersing themselves in a foreign culture.

The opportunity to work on the 100-year old canal is significant for its historic value and

for the project's massive scope, which will trigger a global shift in transportation of goods. "It's a unique facility," says WPI's Panama City Project Center co-director, civil engineering professor and department head Tahar El-Korchi, who was awarded the grant with assistant CEE professor Aaron Sakulich. "There's no other canal like it in the world. The students will be exposed to this magnificent civil engineering marvel, and they can learn so much."

The grant also funds participation, research, and lesson plan development by a local K-12 educator. Continuing the five-year history of work at this project center, the undertaking will strengthen WPI's collaboration and research with ACP. Eventually, El-Korchi, who lauds Panama's active alumni, hopes to sup-

port IQP work in Panama and possibly develop a hub there.

"This is a multidisciplinary project with challenges in scale, size, and technical issues," says El-Korchi, and offers students tremendous opportunity for personal growth. "We want them to get out and experience the culture and travel, too," he says. "They grow and mature and get out of their cocoons. It's transformative."

The students gain essential professional skills, as well. "We are teaching them to be global engineers and global citizens," says El-Korchi. "As the world gets smaller, we want to make sure our students are equipped with that experience and are able to compete globally."

—Julia Quinn-Szcisuil







►Q&A

## Busting the (Asian) Beetles

WPI alumna takes on controversial questions about an epidemic that led to the loss of 34,297 trees in the Worcester area

**AS WORCESTER CELEBRATED** the planting of 30,000 trees to replace those cut down in response to infestation by the Asian Longhorned Beetle (ALB), author **Loree Griffin Burns '91** celebrated the publication of her fifth book, *Beetle Busters: A Rogue Insect and the People Who Track It*. Her previous topics include butterflies, honeybees, and ocean-borne clusters of trash. *Beetle Busters* informs young readers that “successful ALB eradication will depend heavily on people like you. (Yes, you!)”

Between her book-launch travels, Burns took time to share with *WPI Journal* readers her

belief that we can all play a part in conserving the natural world.

### Your mind must be buzzing with ideas for book topics. How do you choose?

The most important thing for me is passion. If I don't have it, I won't write a believable book. I am drawn to things I don't know a whole lot about. This makes dedicating a year or two of my life to learning about it super interesting, and it makes my experience with the topic very similar to that of most of my readers. A friend started me on *The Hive Detectives* journey by sending me a newspaper clipping about colony collapse disorder and a note that said,

“You should write about honey bees.” Turns out I am passionate about honey bees. I just didn't realize it until she gave me a nudge!

### You call on young people to become “citizen scientists” in their own back yards. What do you hope your books and school presentations can do?

Taking kids seriously is one of my missions. I want readers and the students I work with to see themselves exactly this way: as thoughtful citizens with the ability to do powerful and meaningful things in this world. Not later, when they are grown up, but now. Today. And the very first step, to me, is simple: pay attention to the world around you.

As for *Beetle Busters*, my best hope is that it encourages people on both sides of the ALB issue—those who support the eradication effort and those who despise it—to see the opposite point of view more clearly. There are no good guys and no bad guys; there are just a whole lot of people who love trees—really love them and want to protect them—who have different opinions on how to accomplish that. I hope readers will see those different opinions more objectively, and decide to become part of the conversation.

### What, from your WPI education, do you bring into this unique career?

If you had told me when I graduated from WPI in 1991 that I'd end up writing science books for young readers, I'd have been shocked. But even now, when I look back, there were signs. My Sufficiency, for example, was called “Realism in Contemporary Children's Literature.” Even when I was studying to be a biologist, I recognized that books that took children seriously were something to think about and pay attention to.

I would say the greatest gift of my WPI education was a true passion for hands-on experience. Book learning is one thing; plunging your hands into the dirt is quite another. I write books that I hope will inspire kids to get their hands dirty, to go out and find more information, to pick up frogs, to observe trees, to record what they learn, and to share what they discover. I think that's a lesson ingrained in me, at least in part, through the project work I did as an undergraduate at WPI.

*Learn more at [loreeburns.com](http://loreeburns.com)*



From left, David Cyganski, Kathy Crosby-Bell, and Boston Fire Commissioner Joe Finn at Sept. 26 grant award ceremony held at Engine 33/Ladder 15 Firehouse in Boston's Back Bay

► FPE

## Last Call's First Priority

WPI receives \$75,000 grant to develop fire-resistant hose for firefighters

Among the challenges facing firefighters in the 2014 house fire that took the lives of two Boston firefighters was an attack hose that burned through during the nine-alarm blaze. In response to this tragedy, WPI researchers are working to develop a fire-resistant hose. FPE faculty members Kathy Notarianni and research engineer Raymond Ranellone will serve as co-principal investigators on Phase 1 of the project. The team will assess current fire hose standards and performance and investigate materials used in high-temperature envi-

ronments. The goal is to lay the groundwork for the future production and widespread adoption of a fire-resistant attack hose that is flexible, lightweight, and rugged enough to withstand abrasion and high water pressure.

Funding for the project comes from the Last Call Foundation, a nonprofit established in memory of fallen firefighter Michael Kennedy. His mother, Kathy Crosby-Bell, founder and president of the Boston-based organization, says, "The Last Call Foundation is committed to providing seed and bridge funding for gifted

scientists and their graduate fellows who are the emerging leaders in the field of Fire Protection Engineering. WPI engineers and scientists work tirelessly to advance the field of fire safety, and we look forward to supporting them in their work." WPI is the first recipient of a research grant from the foundation. Other Last Call initiatives will fund a comfort and canteen truck for emergency responders and industrial washers and dryers to remove carcinogenic compounds released by smoke from the firefighters' gear.

## ►CRISIS

## Too Big to Fail

Can having a pork chop for dinner feed the potential for a massive economic, environmental, and health disaster? Elisabeth Stoddard, assistant teaching professor of social science and policy studies, wants students to understand how a mix of tax exemptions, weakened zoning authority, and reduced environmental oversight leaves communities adjacent to hog farms—and the nation—vulnerable to a complex threat. Regulations that currently allow the nation's hog industry to raise millions of hogs alongside residential communities are a recipe for enormous loss of animal and human life, she contends, not to mention the extended economic impact.

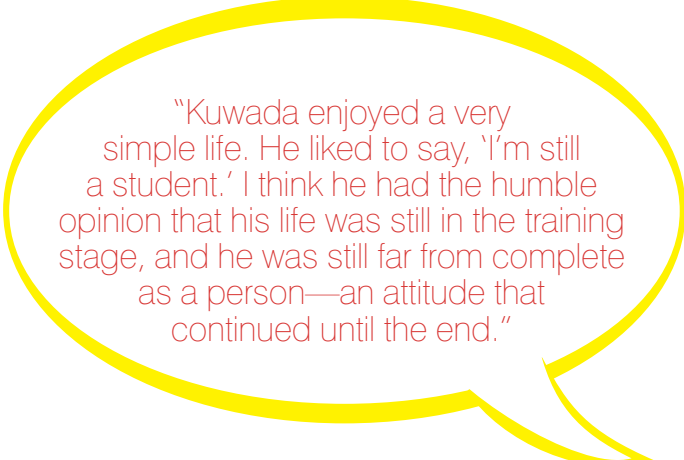
When Hurricane Floyd hit the North Carolina flood plain in 1999, Stoddard shared the nation's horror as millions of industry hogs drowned. "It was awful thinking of all these panicked animals," she says, "but for the people living nearby, it's what was in the water afterward that was causing problems."

The disaster was a glimpse into the devastating implications of large-scale hog deaths. It showed what would result from an outbreak of the most contagious disease in veterinary medicine: foot and mouth disease. "It's a huge waste problem," she says, noting that about nine million hogs reside on North Carolina's flood plain. Stoddard says effects of an outbreak would begin with the immediate economic loss of so many animals and extend to the months-long (or longer) ban on trading that would be imposed. Then there's the pressing need of carcass disposal in an area with almost no burial capacity that has particularly vulnerable groundwater supplies.

Stoddard projects that an outbreak would cripple an industry she says is "too big to fail" and spark a widespread public health catastrophe. "Public health officials say it's not a matter of *if*, but *when*," she says. "We need to rethink this entire system. We can't be saved by technology on this one. I tell my students: while you are building technology, consider the social, political, ethical world where lives are at stake and things are unpredictable."

—Julia Quinn-Szcesuil

## ►QUOTABLE



"Kuwada enjoyed a very simple life. He liked to say, 'I'm still a student.' I think he had the humble opinion that his life was still in the training stage, and he was still far from complete as a person—an attitude that continued until the end."

—Masako Kuwada,  
second wife of Gompei Kuwada, Class of 1893

## ►BOOKS

## Of Philosophy and Fiction

Professor takes on life's big questions through literature

"It is the genius of great fiction to reveal the way it feels to be another person," writes philosophy professor Roger Gottlieb in a recent "how-to" article in *The Writer* magazine called "The Big Questions." Great fiction, he contends, grapples with the fundamental philosophical questions that we all face.

Although he's better known for his writings on religion and environmentalism, Gottlieb turned to fiction in his Nautilus Book Award–winning 2011 short story collection, *Engaging Voices: Tales of Morality and Meaning in an Age of Global Warming*. He's now working on a novel called *The Sacrifice Zone*, which explores different meanings of what it means to sacrifice our connection to family, or the earth, or our own peace of mind.

Using dialogue as a device to dig deeply into philosophical questions is a time-honored technique that dates back to Socrates, says Gottlieb. "But mere 'talking heads' can be boring," he contends. In his own work, he began letting various voices talk back to the author in nonfiction writings. "One thing led to another," he says, "and they began to take on personalities and develop histories."

Gottlieb reminds us that some of the most esteemed novelists—from Sartre and Camus, to Tolstoy and Dostoyevsky—have used fiction as a vehicle to voice philosophical positions. Some novelists allow their characters to deliver lengthy monologues—he points to Ayn Rand as an obvious example. The trick, he tells aspiring writers, is make the characters feel real, so that readers get involved in their struggles and care about their fate.

"You've got to embody those ideas in the story," he says. "It's got to be organic to the character and come at a time, in a place, in a way, where the reader is ready to hear it. Philosophy is part of life. Everybody's got some kind of picture of what life is, and what's important. We all reflect on and argue about these. To act as if [all that] is not part of life ... is to forget an essential part of what makes us human."

▶COMING SOON

## Dr. Robot On Call

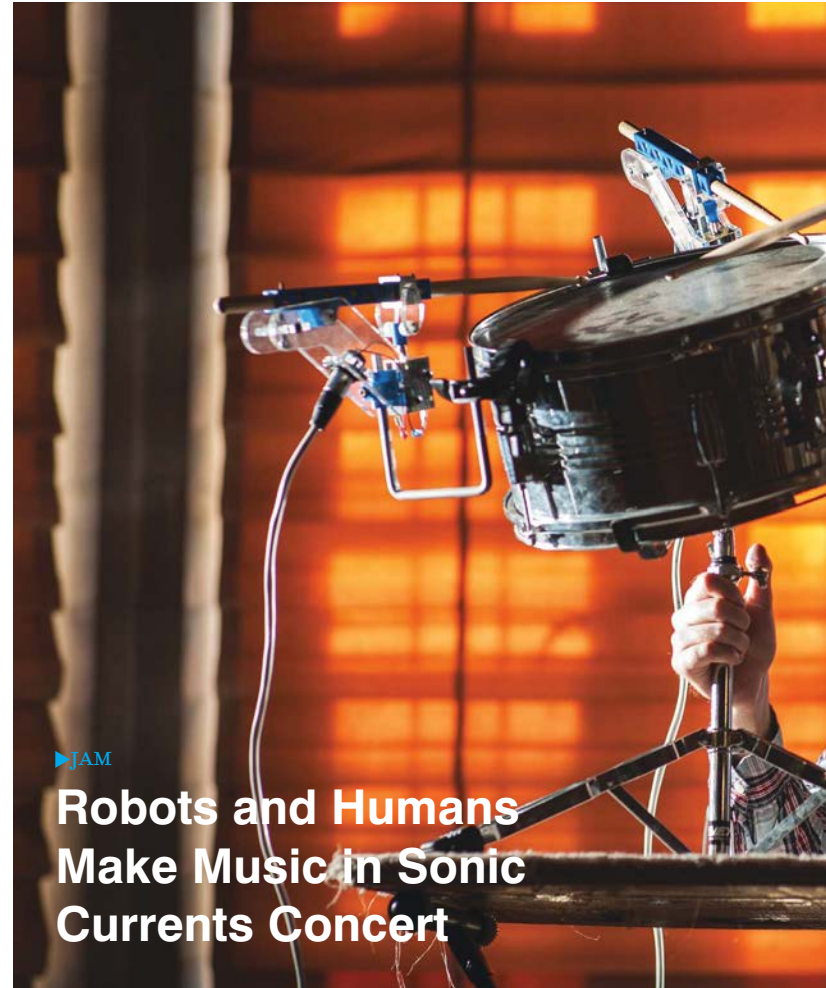
**A TEAM OF WPI ROBOTICS ENGINEERS**, in collaboration with colleagues at Johns Hopkins University, Brigham and Women's Hospital (BWH), and Acoustic MedSystems Inc. are developing a robotic system that can operate inside the bore of an MRI scanner.

The project is currently being tested as part of a biomedical research partnership program at BWH with the aim of determining if the robot, in conjunction with real-time MRI images, can make prostate cancer biopsies faster, more accurate, less costly, and less discomforting for the patient. The novel system also has the potential to deliver prostate cancer therapies with greater precision.

The "first-in-human" testing of the robotic system is the culmination of more than six years of research and development by Greg Fischer, associate professor of mechanical engineering and robotics engineering at WPI and director of WPI's Automation and Interventional Medicine (AIM) Robotics Research Laboratory. Fischer has also pioneered, along with his colleagues from the Laboratory for Computational Sensing and Robotics (LCSR) at Johns Hopkins University, electronic control systems and software needed to operate the robots.

"The robot gives the physician a great deal more choice about where to place the biopsy needle," Fischer said. "This technology should permit greater accuracy, and the odds of hitting the target on the first try should be higher. The anticipated result is fewer needle placements with higher sensitivity, a faster procedure, less need for repeated biopsies, lower overall cost, and reduced discomfort for the patient."

In Fischer's AIM lab ([aimlab.wpi.edu](http://aimlab.wpi.edu)), work is also under way on a next-generation robotic system that, in addition to positioning a needle guide, will also robotically actuate the insertion and help steer the needle to a target of interest. "We hope to be able to test that system with patients in a year or so," Fischer says. "We are also looking forward to collaborating with Brigham and Women's Hospital and other partners to test the use of our system not just in prostate cancer diagnosis, but to deliver therapy, whether brachytherapy or ablation therapy."



▶JAM

## Robots and Humans Make Music in Sonic Currents Concert

In his past November WPI offered a new twist for all live music aficionados who love to watch the improvisational and innovative ways musicians interact in a live concert. Sonic Currents, the brainchild of Scott Barton, assistant professor of music and director of WPI's Music Perception and Robotics Lab, debuted what he hopes will be one of many concerts that fuse human and electronic improv styles.

"This was a brand-new concert series, with a good turnout and all the technology worked—which was an accomplishment, considering the complexity and diversity of the pieces on the program," says Barton with a laugh. The music blended both human composers and musicians with robots that play composed music and responded musically and autonomously to the human's choices.

All performers and composers are professionals that Barton has worked with or has personal connections with; they include Ted Coffey, Aurie Hsu, Steven Kemper, Yuri Spitsyn, and Matt Malsky.



Barton, who also performed, creates software that allows human musicians to interact with robots. So while Barton played his guitar, the robot responded not only to the composition, but also to the improvisation.

One audience favorite combined a belly dancer with a musical robot. This captivating dance was juxtaposed with an electronically generated soundscape complete with mechanical movements, and, according to Barton, the pair was a perfect example of how humans and machines could interact. "In one sense, the fluidity of the belly dance contrasts with the exactness of the robots, but in another," he says, "the two are aligned as their movements each produce sound. The mix of contradiction and agreement is intellectually and aesthetically compelling."

Barton relishes the unpredictability of mixing humans and robots in a performance. "The thing I like about improv is the chance for surprise," he says. "I love that in music. The coolest thing when robots make their own choices is that they can do things that surprise you. Those are the moments in music I get most excited about."

## ► RESEARCH

# Making the World SAFER with Robots

Conference gathers experts to seek Ebola solutions

**WPI'S ROBOTS AND THEIR HANDLERS** have been in the spotlight as researchers explore the possibility of repurposing existing robots to assist with the Ebola epidemic in West Africa. In November experts came together for a Symposium on the Advancement of Field Robots for Ebola Response (SAFER) at WPI, followed by an invitation-only Safety Robotics for Ebola Workers workshop held in collaboration with the White House Office of Science and Technology Policy, Texas A&M University, and University of California, Berkeley. The focus was on incorporating telemedicine and surveillance, as well as decontamination and other technologies, into the current discussion about responding to the Ebola outbreak.

In an interview with the *New York Times*, robotics engineering professor Taskin Padir spoke of repurposing AERO, a campus robot developed for NASA, to safely perform decontamination tasks, such as spraying bleach solution on surfaces exposed to infected body fluids. Baxter, an industrial robot, has appeared on BBC television, demonstrating his potential to help health workers take off goggles and clumsy protective gear.

Padir says he was pleased with the diverse participation in the conference. "It was great to hear people's perspectives, and now it's time to think hard on problems and see if we can make things happen," he says. The group discussed short-term solutions that can be implemented in the Ebola crisis, which he will share with government leaders. "Participants were engaged and I think they appreciated that we provided a platform for discussion, and not only for Ebola. Toward the end of the day we started hearing about other disasters and talking about where we can use technology to be better prepared next time something like this happens."





► CONNECTIONS

## Catching Cancer Early

Grad student and professor share Kalenian Award for potential screening test for pre-cancerous cells

Sarah Hernandez, a fifth-year student in the biology and biotechnology doctoral program, and her advisor, Tanja Dominko, associate professor of biology and biotechnology, won a 2014 Kalenian Award and \$10,000 in prize money. Their discovery? An enzyme that appears to be involved in helping stem-like cells—or cancer cells that have characteristics like normal stem cells—stay alive and continue dividing.

“Sarah made a connection,” says Dominko of the enzyme discovery. “She speculated that the new enzyme could also be present, at the very early stages of cancer formation, helping those cells stay alive and divide. If so, then a blood

test to check for this biomarker could become an important early diagnostic tool.” Their research has a revolutionary potential to develop screens and treatments for a disease that patients have yet to develop.

“We have termed this change in phenotype ‘induced regeneration competence’, or iRC,” says Hernandez. Checking for the presence of the enzyme could potentially take the place of colonoscopies as a diagnostic procedure for cancer, she says, and change preventive medicine. Hernandez credits the National Science Foundation IGERT fellowship she received in 2012 for sparking connections between the biomarker and commercial potential.

The Kalenian Award—named for the late Aram Kalenian ’33, an inventor—evaluates the novelty of a competitor’s concept; its potential in the commercial market; how a business plan could evolve from the idea; and the likelihood of its success. With the foundations of the research already in place, Hernandez and Dominko applied for the award, looking at their lab findings from a different angle and incorporating them into a plan for commercialization.

The \$10,000 in prize money, says Dominko, will be used to continue with the research. “This is a potentially important discovery.”

— Susan Shaloub

# TOUCH TOMORROW

A FESTIVAL OF SCIENCE, TECHNOLOGY, AND ROBOTS AT WPI

June 13, 2015

Festivities begin at 10am

Free and open to the public

Rain or shine

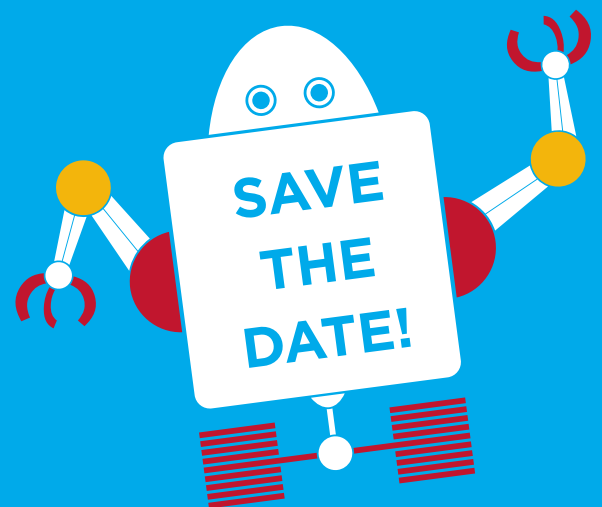
NASA returns for the **Sample Return Robot Centennial Challenge**, a national competition with a **\$1.5 million prize**.

In celebration, **WPI** will host the fourth annual **TouchTomorrow**—a popular family-friendly festival showcasing interactive exhibits by **WPI, NASA,** and friends.

Like us on **Facebook**

Follow us on **Twitter**

[touchtomorrow.wpi.edu](http://touchtomorrow.wpi.edu)



1. REUNITE WITH FRIENDS ON THE CAMPUS YOU CALL HOME. 2. MEET PRESIDENT LESHIN. 3. PLAY IN THE ALUMNI GOLF TOURNAMENT. 4. BUY SOME WPI SWAG IN THE BOOKSTORE. 5. ENJOY THE ALDEN SOCIETY LUNCHEON (FREE FOR ALDEN SOCIETY MEMBERS; FEE FOR NON-MEMBERS). 6. WORK OUT IN THE NEW SPORTS & RECREATION CENTER. 7. STAY IN EAST HALL (NOT THE NEWEST RESIDENCE HALL ANYMORE, BUT STILL PRETTY NEW AND STATE-OF-THE-ART). 8. RELAX IN THE CLASS OF 1971 LIBRARY CAFÉ. 9. PERSONALIZE YOUR ALUMNI WEEKEND FAVOR AT THE WASHBURN SHOPS. 10. CHECK OUT THE RENOVATED QUAD—NO CARS! 11. TALK WITH SOME STUDENTS ABOUT THEIR PROJECTS. 12. GET YOUR PICTURE TAKEN WITH GOMPEI, WPI'S FAVORITE MASCOT. 13. VISIT THE REGISTRATION DESK TO GET YOUR ALUMNI WEEKEND REGISTRATION PACKET AND PICK UP WPI GIVEAWAYS. 14. TAKE A CAMPUS TOUR AND SEE WHAT'S CHANGED AND WHAT HAS STAYED THE SAME. 15. VISIT THE PROUD GOAT STATUE ON THE QUAD. 16. GO TO THE PROVOST'S BREAKFAST AND HEAR FROM DISTINGUISHED FACULTY MEMBERS. 17. HAVE COFFEE WITH FRIENDS AT THE RUBIN CAMPUS CENTER. 18. GRAB A LATE-NIGHT PIZZA AT THE BOYNTON. 19. SWIM IN THE NEW POOL. 20. STROLL BY GORDON LIBRARY IN THE EVENING AND SEE THE SPECULAR LIGHT PAINTING. 21. ENJOY THE SPLENDOR OF THE HIGGINS HOUSE GARDENS. 22. VISIT THE EXHIBIT IN THE LIBRARY ARCHIVES. 23. CROSS EARLE BRIDGE WITH YOUR FRIENDS. 24. ASK A WPI STAFF MEMBER FOR HER WPI LAPEL PIN—SHE'LL GIVE IT TO YOU! 25. SPREE NIGHT—NEED WE SAY MORE? 26. THE PRESIDENT'S BREAKFAST AND BE MISSED. 27. CHECK OUT THE CHARGING GOAT STATUE ON THE SIDE THE GARAGE. 28. PARADE. 29. IF YOU'RE NOT MARCHING, VIEW THE REUNION PARADE. 30. VISIT YOUR OLD DORM ROOM. 31. WALK THROUGH HIGGINS HOUSE—ESPECIALLY MRS. HIGGINS'S DRESSING ROOM. 32. STROLL THE NEW PATH THROUGH INSTITUTE PARK. 33. APPLAUD YOUR FELLOW GRADUATES AT THE ALUMNI LUNCHEON & RECOGNITION CEREMONY. 34. BE AMAZED AT THE ROBOTICS DEMONSTRATION. 35. VISIT YOUR FRATERNITY OR SORORITY. 36. ENJOY THE COMPANY OF FRIENDS AT YOUR CLASS RECEPTION AND BANQUET. 37. CLASS PHOTO—SAY GOAT CHEESE! 38. SEE "KNIGHTS!" AND THE IMPRESSIVE COLLECTIONS AT THE WORCESTER ART MUSEUM. 39. RIDE THE TROLLEY TO YOUR ALUMNI WEEKEND DESTINATIONS. 40. TALK WITH SOME ALUMS YOU DON'T KNOW ABOUT THEIR LIVES AFTER WPI. 41. HAVE A PICNIC LUNCH ON THE QUAD WITH FELLOW ALUMNI, THE STUDENT ALUMNI SOCIETY, AND TECH OLD TIMERS. 42. SHOW YOUR KIDS YOUR OLD STOMPING GROUNDS. 43. ENJOY SOME FROZEN YOGURT AT WOO-BERRY. 44. AND CUPCAKES AT THE BEAN COUNTER. 45. SIT WITH YOUR SWEETHEART ON THE NEW SWINGS IN THE HIGGINS HOUSE GARDENS. 46. BE DARING—RUN THROUGH THE FOUNTAIN AT REUNION PLAZA. 47. WEAR YOUR OLD BEANIE TO CAMPUS. 48. SING THE ALMA MATER. 49. ROC THE REC. 50. CELEBRATE WPI'S 150TH BIRTHDAY WITH CAKE!



## ALUMNI WEEKEND 2015, MAY 28-31

**WILL MARK THE SESQUICENTENNIAL EDITION OF THIS ALUMNI TRADITION**

IN HONOR OF THE 150TH ANNIVERSARY OF WPI'S FOUNDING YEAR,  
WE'RE DEVELOPING A LIST OF 150 WAYS TO HAVE FUN AT ALUMNI WEEKEND,  
BUT WE NEED YOUR INSPIRATION TO FINISH IT!

WE'VE STARTED WITH THE FIRST 50... CAN YOU ADD TO THE LIST?





# The Sky's no Limit

**THE INAUGURAL FESTIVITIES FOR LAURIE A. LESHIN** began Nov. 7, with Inspired to Innovate: A Future-Focused Conversation, a moderated dialogue among special guests from academia and industry. The installation ceremony was held Saturday, Nov. 8. That evening, the WPI community came together at The Intergalactic Inaugural Ball, celebrating WPI's place in the universe.

More than 1,200 people gathered for the installation ceremony. Attendees included U.S. Senator Edward M. Markey (D-Mass.) and government officials at the state and local levels; presidents and other academic and administrative leaders from colleges and universities around the nation; representatives from the business, nonprofit, and civic communities; as well as WPI students, faculty and staff members, alumni, parents, and other friends of the university.

The inauguration events brought together two powerful forces: President Leshin, with more than 20 years of experience as a leader in academia and government service and with an accomplished record as a space scientist; and WPI, with its distinctive approach to STEM education, accomplished alumni, students, and faculty, and a longstanding record of imagining more. The pomp and circumstance, symbolism, and celebration bridged the university with its leader in meaningful ways for the WPI community and guests. To see a little of what you may have missed, or to relive a little of what you may have experienced, visit [leshin16.wpi.edu](mailto:leshin16.wpi.edu).



“WHAT AN INCREDIBLE MESSAGE IT WILL SEND TO ALL OF OUR PROMISING YOUNG WOMEN TO SEE THIS ENGINEERING AND TECHNOLOGY POWERHOUSE LED BY A BRILLIANT WOMAN.”

—Edward J. Markey, U.S. Senator, Massachusetts



PANELISTS FOR "INSPIRED TO INNOVATE" — SUBRA SURESH, PRESIDENT, CARNEGIE MELLON UNIVERSITY; MARIKO SILVER, PRESIDENT, BENNINGTON COLLEGE; LAURIE LESHIN; WANDA AUSTIN, PRESIDENT AND CEO, THE AEROSPACE CORPORATION; AND CRAIG BARRETT, RETIRED CHAIRMAN AND CEO, INTEL CORPORATION



THE INTERGALACTIC BALL ROCKED HARRINGTON AUDITORIUM

“MADAM PRESIDENT, WE KNOW THAT UNDER YOUR LEADERSHIP WPI WILL ... CONTINUE TO CONTRIBUTE TO THE GLOBAL REPUTATION OF MASSACHUSETTS AS THE PLACE WHERE REVOLUTIONARY IDEAS ARE BORN.”

—Gregory Bialecki,  
Massachusetts Secretary  
of Housing and  
Economic Development



"INSPIRED TO INNOVATE" PANEL DISCUSSION



PRESIDENT LESHIN WITH MARIKO SILVER AND PHIL RYAN '65, CHAIR, WPI BOARD OF TRUSTEES



ERICA MASON '96, TRUSTEE

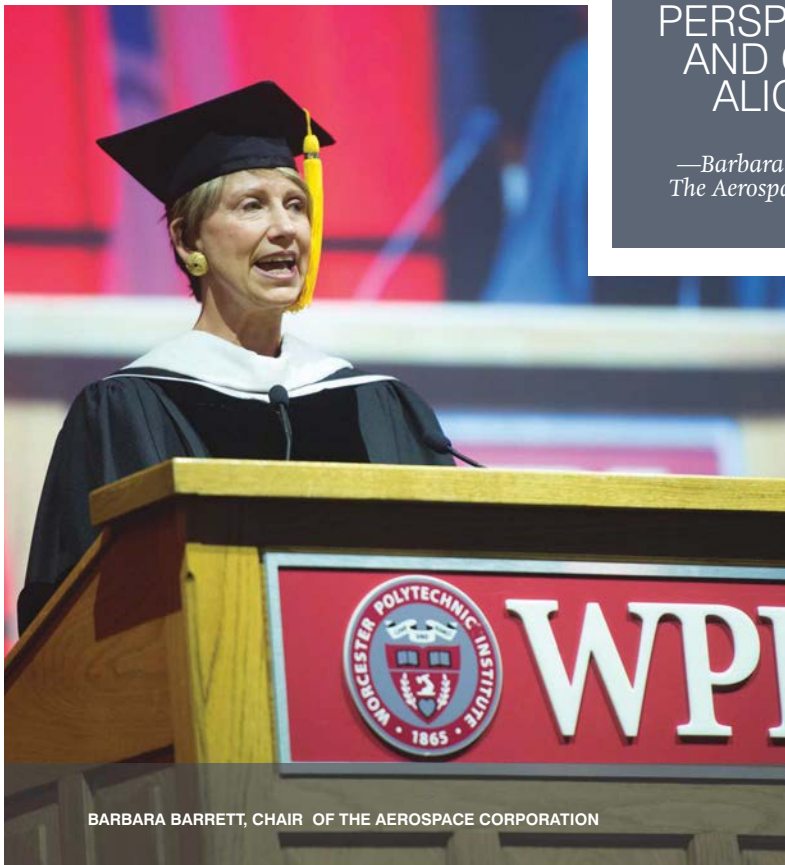


Laurie Leshin shares her day with WPI mascot Gompei the Goat



Debora Jackson '89, Trustee, delivered the invocation

“PRESIDENT LESHIN AND WPI ARE A PERFECT FIT. THEIR PERSPECTIVES AND ORBITS ALIGN.”  
—Barbara Barrett, Chair, The Aerospace Corporation



Barbara Barrett, Chair of The Aerospace Corporation



Full house in the Sports and Recreation Center for the installation ceremony

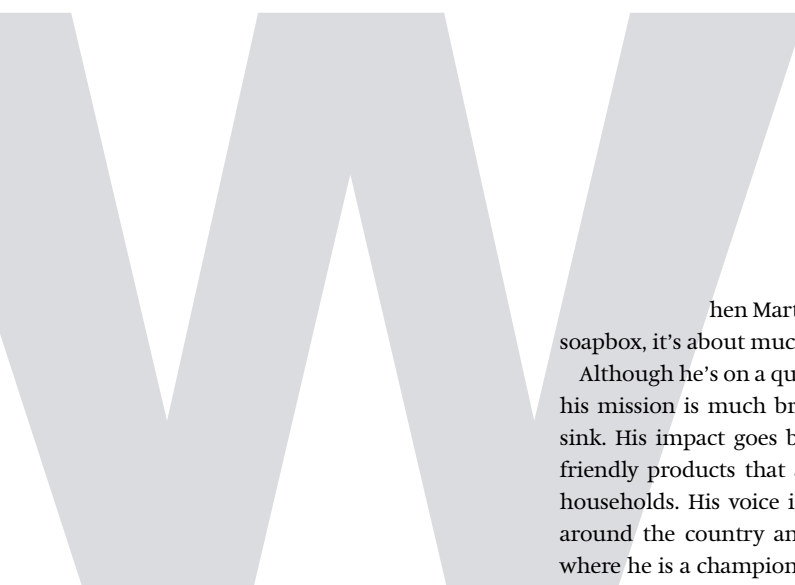




The **WOLF**  
of clean street

SEVENTH GENERATION'S  
**MARTIN WOLF**  
TAKES SUSTAINABILITY  
OUTSIDE THE BOTTLE

BY JOAN KILLOUGH-MILLER | PHOTOGRAPHY BY RICK LEVINSON



When Martin Wolf '71 gets up on a soapbox, it's about much more than soap.

Although he's on a quest for greener cleaners, his mission is much broader than the kitchen sink. His impact goes beyond designing earth-friendly products that are used in millions of households. His voice is heard in state houses around the country and in Washington, D.C., where he is a champion for environmental regulation and corporate responsibility.

For more than two decades, Wolf has been helping Seventh Generation fulfill its promise to "nurture nature," with household products free of "chemicals of concern." The brand name derives from an Iroquois law that calls on us to "consider the impact of our decisions on the next seven generations." The company shuns toxicants and carcinogens, but embraces "honesty, responsibility, and radical transparency."

What does that mean to Martin Wolf?

"I believe that we are all in this together, and therefore need to see that everyone is doing well,

not just that we, individually, are doing well," he states. Doing right by Mother Earth also means doing right by the community of employees at the Burlington, Vt., headquarters—and its ingredient suppliers in all corners of the world.

"I see the environment as a shared resource that needs to be protected, and not just as an input into an economic system," Wolf elaborates. While he's pleased with double-digit growth of Seventh Generation, he's also pleased to see more mainstream competitors, such as Clorox and Procter & Gamble, jumping on the green bandwagon. "We don't want to just be a successful company," he explains. "We certainly want that, but we also want to transform the way

commerce is done, in order to create a more sustainable economy and a more sustainable world."

#### A QUIET LIBERAL

That worldview wasn't formed overnight. At WPI, in the turbulent '60s, Wolf describes himself as a serious student and a loner who spent long nights in the chemistry lab finishing assignments. (Those who cheated were done in half the time. "However, I have excellent, excellent laboratory skills," he says.) The Vietnam War was a turning point: his approval turned to opposition as he learned that leaders could be fallible. To this day, he calls himself "a quiet liberal" who only occasionally joined demonstrations.

Out in the world of analytical chemistry, with a bachelor's degree from WPI and a master's from Yeshiva University (bolstered by graduate work in electrical engineering, which enabled him to work on monitoring instrumentation), Wolf still believed that companies could be trusted to ensure the safety of the pesticides, industrial chemicals, and other chemicals he was tracking. Later, as co-owner of Cambridge Analytical Associates, a small consulting laboratory, he got to see "ethics in action" firsthand. His firm worked on two pivotal environmental contamination cases of the 1980s—W. R. Grace, in Woburn, Mass., (the basis of the book and film *A Civil Action*), and Love Canal. In the latter, he was called on to validate analyses of soil and water samples and he testified as an expert witness for the EPA. "That launched me into a more active stance on the environment—but I was still, for the most part, a defender of industrial chemistry as it was practiced. I saw the problems as unique to specific companies, and not systemic."

Later, as a self-employed consultant, his consciousness was raised even further by some of his clients. One was the Good Housekeeping Research Institute—he worked on environmental standards for the GH Seal. Another was a small start-up with a funny name drawn from Native American lore.



#### BAD NEWS AND GOOD INTENTIONS

There's a reason that Martin is dubbed "Sciemceman" on the Seventh Generation website. Today the company has 131 employees and is one of the top-selling national brands of environmentally friendly products. But at its founding in 1988, it was just six idealists doing mail order sales out of a Manhattan office, trying to save trees and keep chlorine bleach out of baby products. In the early 1990s, they were starting to realize that the composition of paper goods and cleaning products involved a lot more science than they had on board.

"We were absolutely hippies," says founder and former CEO Jeffrey Hollender. "We had an office with no chairs or conference tables—but we did have a nap room. We provided an employee benefit of all the Ben & Jerry's ice cream you could eat." Hollender, who is no longer connected with Seventh Generation, is quick to label himself an atypical leader for a consumer products enterprise. A college dropout and former chairperson of Greenpeace,

"I was always out getting arrested," he says with a laugh. "I had never taken a chemistry course, and took very few science courses." Hollender had lots of questions for the consultant he'd engaged to assess the catalog products. "I was fascinated by what Martin knew. I was eager to get more of him as soon as I could afford it."

In the early 1990s, a friendly community of companies that also included Ben & Jerry's, Stonyfield yogurt, and The Body Shop, grew up together. "We were all trying to do something similar, but we didn't know exactly what it was—so we were helping each other figure it out," says Hollender. "When Martin joined us, we were selling laundry detergent that cost twice as much as other laundry detergents and worked half as well. He was our first technical person. He was our science expert, and our environmental expert. His role was to rein in the impulses of our marketers to ensure that the science was grounded in fact."

Under Wolf's guidance, Seventh Generation ditched products that didn't live up to the label—such as "biodegradable" trash bags

that didn't disintegrate, and cleansers that turned out to contain neurotoxins and endocrine disrupters. He began working with manufacturing partners to develop alternatives with plant-based ingredients, without phosphates or chlorine, free of VOCs.

"Martin gave me lots of news I didn't like," Hollender confirms. "That was his job—to tell me things I didn't want to hear. And he did it in a sweet, loving manner, no matter how bad the news was that he had to deliver."

After Wolf helped pull Seventh Generation out of a series of product crises, he was invited in 2002 to come on board as a full-time employee at the Burlington headquarters. "I was facing south at the time," he recalls with precision, "with a wonderful coffee shop behind me where I had just had a wonderful cup of coffee. To my right was Lake Champlain and the Adirondack Mountains. To my left were the Green Mountains, with profiles of Mount Mansfield and Camel's Hump. And I thought— who wouldn't want to move here?"

#### SHADES OF GREEN

Brooklyn-born Wolf swapped big-city culture for cross-country skiing and cycling in the countryside. "It was a big transition for him to be fully invested in this somewhat crazy company," says Hollender, adding that Wolf quickly became someone "universally loved" at Seventh Generation. "Martin was always willing to sit and explain anything to anyone who was interested. He was passionate about helping people in any way he could." One small hitch: "It took him some time to learn to dress in a somewhat 'relaxed' fashion. That didn't come easily to him."

Eventually Wolf did shed the sport coat and tie. While he embraces the nurturing community at 60 Lake Street, he knows he doesn't quite fit the company stereotype. "I do have a beard," he quips. "But I don't eat granola. I ride my bike to work—but not in the snow."

Soon after joining the company, Wolf was out on the road with samples of a dishwasher detergent he helped develop. He wasn't hawking product—he was determined to prove to state legislators that contrary to what they were being told by the industry, phosphate-free formulations could clean just as well. "Of course the industry didn't want phosphates banned—they cost 15 or 20 cents a pound, as opposed to replacements that were 80 cents or a dollar a pound, and would have a significant impact on profits." He testified around the country, state by state, until so many states had banned phosphates, that in 2010 the cleaning industry declared a voluntary ban, since it was no longer expedient to also produce a phosphate-based formulation just for the states that still allowed it.

"It was when I saw the impact I could have, that I became really excited about getting involved in legislative change," says Wolf.

"I saw that I could bring my scientific knowledge to bear against the industry position, which usually has an aura of absolutism."

No longer was he content to sit back and accept what authorities were telling him. "Seventh Generation really opened the pathway for me to think about applying my skills and bringing about social change."

Wolf's work was recognized by the EPA with a 2011 Region 1 Environmental Merit Award. He was lauded for the phosphate ban, for developing a product scorecard to rate products, and for leading the charge for a full disclosure of ingredients on cleaning product labels. A recent victory was getting toxic substance regulation for children's products passed in Vermont. A current thrust is the federal Chemical Safety Improvement Act, now being considered by Congress, which would update the Toxic Substances Control Act of 1976.

Today, Seventh Generation has grown to include an R & D team that formulates products to meet the standards Wolf sets in his role as director of sustainability and authenticity. The word "product" is gone from his job title. "You can make very sustainable products, but if you're not a sustainable business, is the product truly sustainable?" he asks. "Operating sustainably involves how we make our products, how we source them, and the values shared by our community of employees. But we also want to extend that to the supply network that is providing the materials we use. Whether it's a palm oil plantation in Malaysia, or a lavender field in France—we want to make sure those people have the same opportunity for justice and social equality that we do."

Studies have identified shades of green consumers, from "true blue green" and budding "sprouts" to "naturalites" and "conventionals." Rather than find a middle ground, Wolf enjoys the challenges of reaching for what he calls the apex of consumer expectation and sustainability. "The way I approach it, there are 400,000 species of beetles on Earth, because there's no perfect beetle. The same thing is true of approaches to our environment: There's no perfect way, but a lot of really good ones. As long as everyone finds their best way, it will be a better world." ■



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— Stephen Dungan and Pamela Weathers, Alden Society members and WPI parents



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# INVINCIBLE FORCE

MORE THAN 20,000 FIRMS  
IN 112 COUNTRIES  
SWEAR BY SOFTWARE FROM  
ANUP GHOSH '91  
—AND THAT'S ONLY THE BEGINNING

BY AMY CRAWFORD  
PHOTOGRAPHY BY JEFF MAURITZEN



## WHEN IT CAME TO COMPUTERS,

Anup Ghosh's father, a chemistry professor and university administrator, was one of the earliest adopters.

"We had computers since I was 7 years old," Ghosh says. "My dad used to bring home these really early ones, the kind that actually had a tape recorder to run a program. You would load them in this tape recorder, and it would load very slowly."

For Ghosh and his older brother—typical, if somewhat geeky, kids—a major appeal of those early machines was that they could be used to play video games. At first, the cassettes the boys ordered in the mail each month held primitive text adventures, but by the 1980s, they and their friends were trading copies of *Oregon Trail* and *Castle Wolfenstein* on 5 1/4-inch floppy disks. That was not without its risks, however.

"Everyone was worried about transmitting viruses via these disk drives," Ghosh says. "The antivirus industry was born out of that. And we're still running that same software."

Ghosh, now 45, shakes his head as he thinks back to that more innocent time, when personal computers were still just a geeky hobby, and malware the province of practical jokers rather than criminal syndicates. Although the digital world has changed dramatically, the tools we use to keep our computers safe have not.

Traditional antivirus software, Ghosh explains, works the same way vaccines protect us from biological pathogens. The big cybersecurity companies distribute the signatures of the latest set of known viruses to computers that run their software so that uninfected machines can guard against attacks.

"It was a good idea until the 2000s," Ghosh says, "when the virus writers said, 'Oh, well, I can change the signature cryptically and automate that entire process and now you can't keep up with all my new signatures.' Now, if you talk to any security professional, they tell you antivirus doesn't work."

It's a warning that Ghosh is eager to share with the public, and a problem he has been working on for more than a decade, including as a scientist at the U.S. Defense Advanced Research Projects Agency (DARPA), and as a research professor at George Mason University's Center for Secure Information Systems. In 2009 Ghosh founded a cybersecurity company called Invincea, which, he believes, finally offers a solution.

"We've been running more or less the same technology for about 25 years," he says, as if that fact still shocks him. "Invincea aims to change that."

## CYBER COPS

Invincea's headquarters shares an otherwise unassuming low-rise office building in downtown Fairfax, Va., with law and

accounting firms, but in contrast with the buttoned-up style of the Washington suburbs, the atmosphere here is Silicon Valley casual. Ghosh, who favors jeans and an oxford shirt (dressed up with a blazer when he's making a presentation or appearing as a cybersecurity expert on MSNBC or CNN), encourages employees to make themselves at home. A game room with a foosball table, Xbox, dartboard, and mini-fridge full of Red Bulls gives the young coders a chance to blow off stress, and regular grocery deliveries ensure that fuel is always close at hand.

"The key is to keep the developers fed—if you keep them fed, they keep working," Ghosh says, only half-joking, as he inspects the office kitchen. "And, of course, the other part is the caffeine, so we keep this cabinet stocked with Keurig cups and endless sodas."

It's not all feverish coding; Ghosh has recently taken his team on a retreat in the Blue Ridge Mountains and to Puerto Rico to celebrate a software release. "We have lots of extracurricular activities," says engineering manager Shaun Morber, who has worked at Invincea for two years and appreciates the sense of community he has found there. "There are no closed doors," he says, adding that he's comfortable dropping by Ghosh's office anytime. "It's really great that I can just talk to him. And it's a really wonderful place to work—we look for the brightest people, and we all have the same goal of becoming a better company."

Invincea's employees, who now number about 100, are working hard to keep pace with demand from businesses and the government for their novel approach to fighting viruses and other malware. "Today you have over 300,000 new variants of malware released every day," Ghosh says, explaining what the firm's corporate clients are up against.

Malware is usually transmitted through hyperlinks posted on social media or emailed directly to victims, as well as through email attachments. At a company with several hundred or even thousands of employees, chances are good that at least one person will click on a malicious link or open an attachment that contains a virus or other dangerous program. It's impossible to stop people from ill-advised clicks, Ghosh says, especially since email and social media have become integral to people's jobs, but once malware is on a company's network, system-wide infection can be difficult to prevent. Invincea's solution, Ghosh says, is similar to the way automakers deal with the inevitability of car accidents.

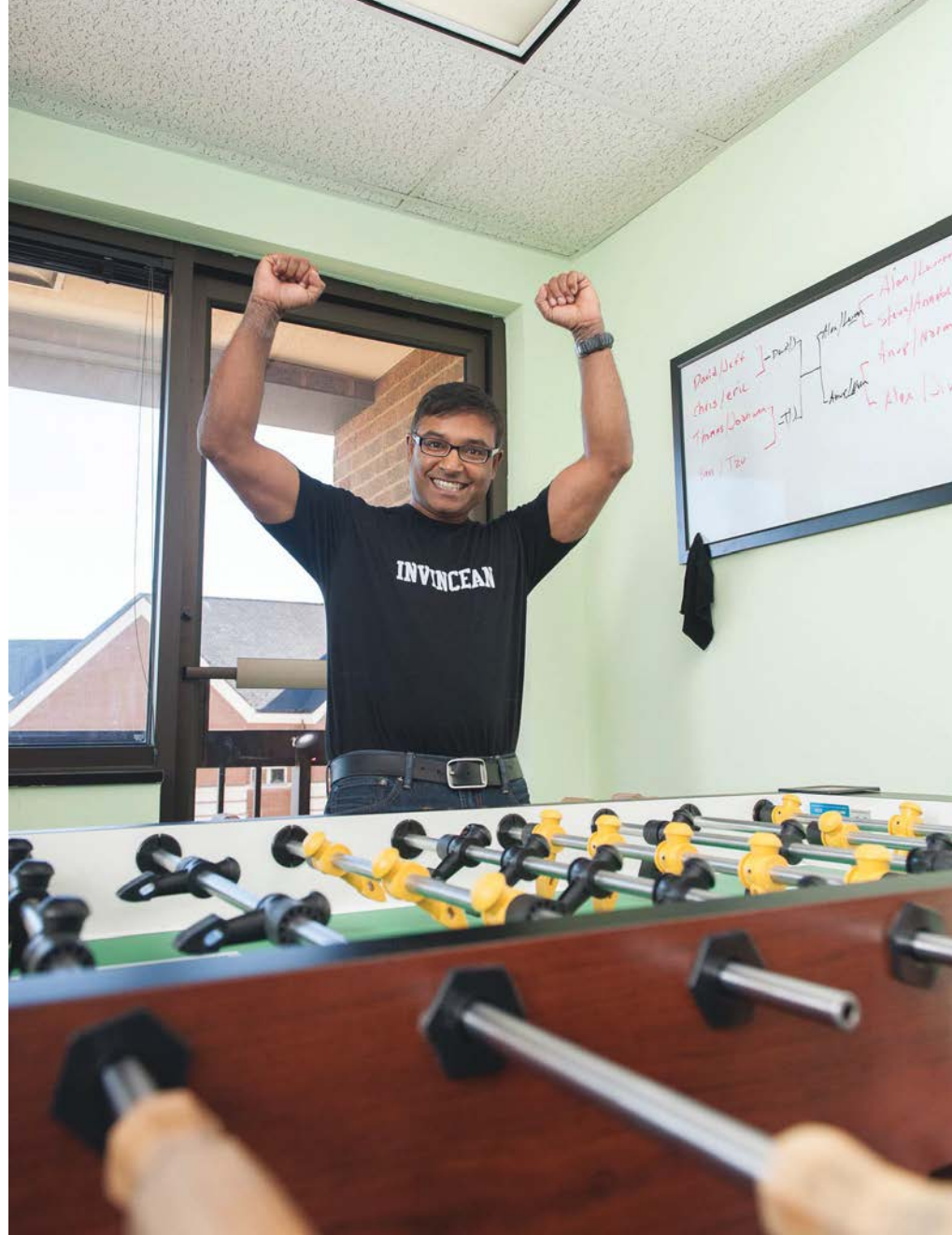
"They say, 'We're going to make this vehicle resilient so that you can survive a crash,'" Ghosh explains. "Crashes happen. So they built in crumple zones and airbags, anti-lock braking, seat belts, and so on. All of that is a way of providing the right equipment for the users when they're doing an inherently

risky activity, which is driving. We think the same approach needs to be taken when going online.”

Like the crumple zone in a Chevrolet or Toyota’s frame, Invincea creates a virtual container for a user’s email and browser. Any link or attachment is opened in this walled-off environment, ensuring that any malicious code is contained before it can spread. A proprietary “malware detection engine” monitors the container, and the software neutralizes any threats the engine detects, sending information about them to a central server, which helps make the system even stronger.

It’s a simple but ingenious approach that has earned Ghosh and Invincea two U.S. patents. Invincea’s software is now used by federal agencies, defense contractors, businesses large and small, and Dell, which now ships it pre-installed on every commercial machine the PC giant sells. Today, Invincea’s software is run at over 20,000 firms in 112 countries, with over a million individual users—a number that was on track to grow to 20 million by the end of 2014.

“I’ll tell you, as an engineer, it’s very satisfying to give birth to an idea, develop it, and then see it in production on a large scale,” Ghosh says. “I think we’re all motivated by that. We like to solve hard problems, and we like to see our work used by the people.”



## ON THE EDGE

Ghosh still speaks with a trace of a Southern accent, a relic of his early childhood in North Carolina. His family later moved to Michigan and Pennsylvania, as his father, Kalyan Ghosh, was recruited by several universities. In the late 1980s, the elder Ghosh accepted an administrative position at Worcester State University (he would later become president, serving for 10 years).

“My family moved to Worcester at the same time I was looking at colleges, so I said, ‘Well, I’ll look at WPI,’” Ghosh says. “I went to WPI and just fell in love. And my family was so close by, I could go home, do laundry, and get a home-cooked meal once a week!”

Aside from the convenience, Ghosh says, it was the physical beauty of WPI’s campus that appealed to him, as well as the emphasis on project-based learning. Ghosh had been a math whiz in high school, and he enjoyed solving tough problems, so he decided to major in electrical engineering. The course work was more than enough to supply the challenge he was looking for.

“WPI was a comfortable place to learn a very hard subject,” he says. “You’re not adequately prepared for a U.S. engineering education, coming out of a U.S. high school—it’s a big jump. It was not an easy transition. But everyone is sort of in the same boat at WPI, we’re all in engineering, math, and science, so you’re surrounded by people who have similar workloads, which is



comforting. You don't have a roommate who's out partying all night while you're doing Calculus IV homework."

It was an exciting time to study computer engineering—with the dot-com era just around the corner, Ghosh found that WPI embraced cutting-edge technology just as he and his family had. Students had accounts on Bitnet, an early network that connected universities around the world, and they used email to communicate long before it became an everyday technology.

Paul Kirkitelos, who graduated from WPI the year before Ghosh, recalls helping his younger friend decide where to go to graduate school; the two deliberated about the options over email before Ghosh ultimately decided to join Kirkitelos at the University of Virginia.

Ghosh was always a good student, Kirkitelos says, but his interests ranged beyond engineering.

"He was quite high-profile on campus," Kirkitelos says. "He had a wide network of friends from all corners of the school—fraternities, sports, academics, clubs, etc. It's no surprise that he has gone so far in business by combining his strong technical expertise with his communication and interpersonal skills to become a successful entrepreneur."

### CSI CYBER

Today, Ghosh rarely writes code himself—Invincea has a team of software developers to handle that. As the public face of his company, he is more likely to spend his work-week on the road, meeting with executives at large banks and top insurance companies who are considering deploying Invincea's security software across their organizations. He has become well known as an expert on cybersecurity, appearing on CNN, MSNBC, and other news channels to give context to the latest news stories involving hackers and security breaches, and his commentaries have appeared in media outlets like the *Wall Street Journal* and the *New York Times*. He has even been asked to help with an upcoming television series, *CSI: Cyber*.

"I met the creator of *CSI*, Anthony Zuiker, at a National Academies Press meeting a few years ago," Ghosh explains. "They were looking for inspiration, and since TV is a visual medium we showed them our malware visualization tools, called Cynomix. They were blown away." While the air date has yet to be announced, *CSI* fans can look forward to seeing real Cynomix imagery on the screens of investigators who are fighting fictional cybercrime.



AS AN ENGINEER,  
IT'S VERY SATISFYING  
TO GIVE BIRTH TO  
AN IDEA, DEVELOP  
IT, AND THEN SEE  
IT IN PRODUCTION  
ON A LARGE SCALE.  
I THINK WE'RE ALL  
MOTIVATED BY THAT.  
WE LIKE TO SOLVE  
HARD PROBLEMS,  
AND WE LIKE TO SEE  
OUR WORK USED BY  
THE PEOPLE.



goal is to replace the outdated software upon which too much of the business world still relies.

Ghosh's own office is sparsely decorated, with a computer perched on a standing desk, a small meeting area and, in the corner, a heavyweight punching bag, suspended by a long chain from a steel beam above the acoustic-tile ceiling. The bag, Ghosh says, was meant to serve as a stress reliever.

"I use it less than I used to, though," he says with a smile. "There aren't many bad days." ▣

### REBOOT

It's a Tuesday afternoon, and Ghosh has recently returned from talks with potential customers in New York. After a meeting in the conference room, where executives often have video chats with employees at other locations on a large flat-screen TV, he strolls through the open office, a large room with bright-green walls and windows overlooking downtown Fairfax. Invincea's young developers are staring intently at their monitors, working to keep pace with the criminals and mischief-makers who are constantly adapting their own malevolent products.

"It's only been the last couple years that corporate boardrooms have really caught on to the real cost of cybersecurity breaches," Ghosh notes. "There have been very public breaches that caused declining share prices, lost revenues, missed earnings—it really affects shareholders."

Given what's at stake, Ghosh expects that Invincea's share of the commercial cybersecurity market will only continue to expand. He is aiming for 20 percent by the end of 2016, a figure that would give more established competitors a real run for their money, but Invincea's ultimate



# TURNING POINT

**BILL BELISLE '68** was an aerospace design and development engineer in the 1970s during an energizing time. Man had recently landed on the moon and interest in aerospace technology was on the rise.

Having been commissioned a lieutenant in the U.S. Army upon graduation, Belisle earned his MBA while working in the aerospace industry. For the first half of his service time, he was a training officer at a unit in Ft. Lewis, Wash. While earning his second master's, he switched to human resources, and became a training administrator for about 6,000 employees.

Meanwhile, Belisle's wife had started a communications consultant business, while Belisle had been attending written communication classes at several junior colleges in the area. Eventually, he says, "it was a natural to combine forces, switch gears," and join his wife at Belisle & Associates.

During this time, his interest in antiques grew—his hobby was getting serious. "After a couple decades collecting antiques," he says, "I became more interested in art, for both the aesthetics and the value. If you're going to dig deep into your pockets, however, you want to have the right information."


A lifelong learner, Belisle yearned to educate himself further in this newfound field. "I located a very small, private college that taught ap-

praisal skills," he recalls. "Appraising is about the valuation of an item, but it begins with evaluation. Who made it? How old is it? What's it made of? What's its history? What's its condition?"

He earned his CFAA (Certified Fine Arts Appraiser) and started appraising part time. But he didn't stop there. "Right after getting that certificate from the College for Appraisers, the president/owner at the time asked me to teach the classes in fine arts appraising. I became, and still am, the chair and only lecturer for that department."

Doing course work at the London School of Picture and Frame Restoration taught him more about the condition of art objects, and a course on microscopy for conservators through the McCrone Research Institute helped him better identify materials used. Belisle then earned a second appraising certificate—in fine and decorative arts from UC Irvine.

"But about five years ago," he says, "I wanted to have more general knowledge about art. Everything I'd learned was self-taught." So he enrolled in the regular program at Cal State Long Beach, which led to a BA in art history.

Just as in engineering, Belisle says research is still a big part of his job. "I think having a strong technical education motivated me to know as much as I could about the scientific aspects of appraisal investigation." 



# Skin Deep

Yael Schwartz  
has the drive,  
smarts,  
and research savvy  
to bring new  
restorative drugs  
to the female  
healthcare market

BY LORI FERGUSON

PHOTOGRAPHY BY KATHLEEN DOOHER





ael Schwartz '91 (PhD) has never been one to play it safe. As a new graduate of Melrose High School, she opted to defer her education, walking away from a college scholarship and emigrating to Israel, where she learned the language and joined the Israel Defense Forces. A daring move for one so young, it would seem, but Schwartz was not daunted. "Israel was a young, energetic country with tremendous appeal," she recalls, "and, besides, we were born in the same year!"

It's a decision she's never regretted. "When I came back from Israel I was more mature, more driven, and exceedingly more confident and focused," she says. That confidence has served her well over the years, particularly as she pursues her latest venture—that as executive vice president of preclinical development for the specialty biopharmaceutical company RestorGenex.

Schwartz is no stranger to pharmaceutical science, having actively participated in the field as a researcher and an educator for more than two decades. After returning home, she earned a BA in psychology/biology, followed by a master's in education and a master's in pharmacology/toxicology. She then worked with principal investigators at Dana-Farber Cancer Institute "learning the ropes regarding pharmaceutical research." She also learned she didn't want to be chasing grant money constantly and instead wished to be more involved in actual drug development. So she went back to school to pursue a PhD in endocrine physiology through a collaborative program at WPI and the University of Massachusetts Medical School; she completed her dissertation in the UMMS physiology department.

After two years of postdoctoral research in endocrinology and immunology, Schwartz made the jump to industry, but she has kept one oar in the waters of academia, serving as an adjunct faculty member at WPI and the Massachusetts College of Pharmacy and Health Sciences.

She had previously shied away from a full-time teaching position. "I'm really not cut out for academia," she says. "I don't do well with routine. I'm a drug developer at heart; it's exciting that there are always problems to solve—nothing ever goes smoothly, and I love that challenge. I taught because I really enjoy the students—they're curious and engaged, and I found being around them very energizing."

Schwartz took her turn at the rostrum because she believes it's important for students to be exposed to science opportunities available to them beyond academia. "My peers at UMMS had a strong postdoc mindset—industry was almost a dirty word—whereas at WPI, students were encouraged to consider working in corporations or starting companies. When I declared my intentions to do post doctoral work for a few years and then move into industry, the faculty at WPI encouraged me; a number of the UMMS faculty acted as though I was a traitor. Granted, this was in the mid- to late '80s, and I'm sure that attitudes have shifted somewhat in the intervening years, but I think the bias still exists to a degree. For example, I gave a talk at UMMS a couple of years ago, and many students came up to speak with me afterwards, asking how to get into industry. At WPI, conversely, the concept of industry and entrepreneurship were always on the table."

While entrepreneurship may have been in the wind throughout Schwartz's time at WPI, it was her early stint in the Israeli army that cemented her sense of resiliency and leadership. "It taught me three very important lessons: how to lead; how to be responsible for my decisions, good or bad; and how to fall and get back up," she explains. "You learn quickly that if you make a mistake, you've got to get back up and redirect your efforts. You learn to be comfortable taking risks, and that was great training for entrepreneurship. You simply can't be an entrepreneur without being resilient, because if you're building something or trying something new, you're going to get rejected...a lot. There's an element of craziness to being an entrepreneur," she continues with a chuckle, "as well as an element of luck and an element of smarts. If you manage to bring them all together, you'll find success."

Another key trait in finding entrepreneurial success, Schwartz notes, is a willingness to deal with unknowns and take risks to get ahead. But, she quickly adds, the risks you take must be calculated ones. Although she acknowledges that apocryphal stories abound of the entrepreneur who risked it all and ultimately came out on top, she argues that, in real life, such scenarios are exceedingly rare. "You have to be insane to go into enemy territory without reinforcements," she wryly observes.

Over the course of the past 25 years, Schwartz has rarely traveled without reinforcements. Instead, she has repeatedly opted to arm herself with the education and experience necessary to achieve her goals. "I'm always a bit surprised at the number of students I encounter who think that they'll earn their PhD and then just go out and build a company. I always advise them to get into the industry they're interested in and learn the business from the ground up. You can garner a great deal of experience on the job and you can learn valuable lessons from others'





“I was looking around and watching other people start companies and I thought, ‘Why can’t I? I’m not afraid of challenges and I’m not afraid of failure, so why not?’”

mistakes. It’s invaluable training that you can later apply to your own start-up if you decide to go down that path. You’ll still make plenty of your own mistakes, mind you, but you’ll have a better sense of what to expect.”

Firsthand experience has shown Schwartz that this approach works. At Dana-Farber she got a handle on the bench science part of the pharmaceutical science equation, and she learned “the human part” of the drug development equation after taking a position as a clinical data manager at Parexel International. “I worked on a cardiovascular medication and learned what happens during clinical development of a drug. It was a wonderful experience, but Parexel is so large and one’s roles and responsibilities are so strictly defined, that I still didn’t feel like I was seeing the whole picture.”

When she saw an opportunity to move to a position with Sepracor—at the time a developing company of approximately 90 employees—Schwartz jumped at it. “I was told I would be working in pre-clinical development and would have the chance to work on cross-functional teams, which was exactly what I was looking for. I got my hands into the development of every aspect of the products I worked on there—I even sat on teams with staff on the commercial side of the business. I really blossomed as a drug development team member at Sepracor—I didn’t have to ‘throw anything over the wall’ to the team responsible for the next phase of a drug’s development and lose sight of it. I could see a drug through the entire process of creation—it was a phenomenal experience and I will always be grateful for it.”

Over time, however, Sepracor continued to grow, the work silos common to big pharma began to form, and Schwartz’s ability to work on cross-functional teams creating a new drug and bringing it to market began to diminish. It was time, she decided, to take another risk. “I was looking around and watching other people start companies and I thought, ‘Why can’t I? I’m not afraid of challenges and I’m not afraid of failure, so why not?’”

In late 1997 Schwartz took the plunge and founded Hygeia Therapeutics, a company focused on women’s health and dermatology—products for postmenopausal genitourinary problems and disorders of androgen excess, i.e., acne, hirsutism, and androgenic alopecia. She launched the company with a strong team, including four colleagues who followed her from Sepracor, but was subsequently stymied by the stock market crash of 2008. Available venture capital dried up and many potential backers disappeared.

But Schwartz was not deterred. “Since defeat has never been an option for me, I hit the pavement and raised a considerable amount of money from private investors and convertible notes,” she says. A short time later, she saw an opportunity to siphon off some of Hygeia’s assets to form Canterbury Labs, a subsidiary company that would focus on cosmeceutical products for aging skin. Hygeia and Canterbury products soon caught the attention of two prominent veterans of the pharmaceutical industry, Sol Barer and Isaac Blech, who acquired the company and formed the new public entity RestorGenex.

“The baby boomer market is growing in leaps and bounds; people are living longer and they want to remain healthy for as long as possible. It’s the Golden Age of drug development.”

In this latest venture, Schwartz’s emphasis is on developing pharmaceutical products for oncology, dermatology, ophthalmology, and women’s health. “RestorGenex has two different focuses,” she explains, “a cosmeceuticals line and a prescription line of products. The cosmeceuticals are really a minor part of what we do—developing them allows us to utilize our existing assets quickly. Our principle focus is restorative medicine; our aim is to restore people’s good health by replacing or supplementing what the aging process has diminished or taken away.” Restorative medicine is the wave of the future, Schwartz believes, and she’s incredibly excited to be a part of it. “The baby boomer market is growing in leaps and bounds; people are living longer and they want to remain healthy for as long as possible. It’s the Golden Age of drug development.”

In many respects, the formation of RestorGenex represents the zenith of Schwartz’s career—the point at which her extensive, highly focused academic background can provide an ideal foundation for the executive leadership skills she has also amassed over the years and must now employ to successfully lead RestorGenex’s drug development initiatives. “I’ve been fortunate enough to work on a number of drugs that have made it into clinical practice—more than 70 percent of drugs in pre-clinical development never make it out of that phase,” she reflects. “I find it incredibly fulfilling to watch a drug develop, enter the clinic, and then become commercialized, and I’m hopeful that I’ll be an integral part of that process again and again at RestorGenex.”

Yet, what ultimately makes a pharmaceutical company successful, Schwartz asserts, is not the drugs but the people: the patients the company hopes to treat, as well as the employees who work on those treatments. “A good company is patient-centric,” she explains. “If a drug fulfills an unmet medical need and is effective and safe or best-in-class, monetary success will follow and the investors will be happy. And if employees feel valued and believe they are working toward a common goal, the company will succeed and become a place where talented people want to work toward collective success. A good leader leads the employees to alignment of collective vision and helps them understand what’s important.”



Schwartz is grateful for this new opportunity, not only for the personal and professional fulfillment it offers, but also for the leverage it affords her in sharing her knowledge and experience for the benefit of other women in the STEM (science, technology, math, and engineering) disciplines. “There are many, many more women in STEM professions than there were when I was in graduate school, in terms of students and faculty,” Schwartz acknowledges, “but the glass ceiling is still very much intact. The boys’ club still exists. There are still far too few women on public and private boards of directors and in the C-suite, and there aren’t many leading start-ups either.”

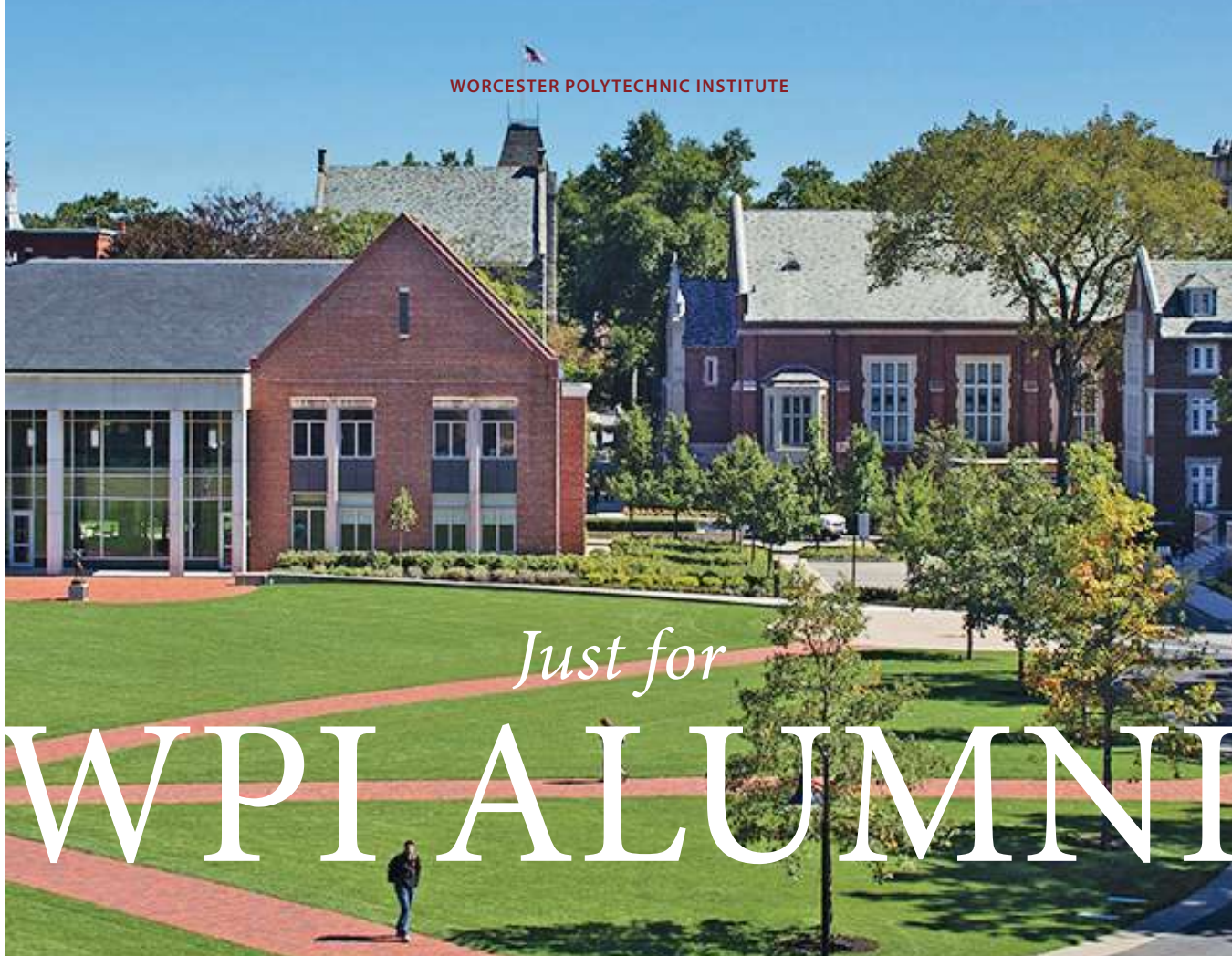
Not surprisingly, Schwartz is doing her part to bring about change on this front. Over dinner one night a few years ago, she and several women executive friends realized that they were dealing with many of the same frustrations and workplace obstacles. So the four of them got together and formed The New England Women in Science Executives Club (NEWISE), a peer-to-peer organization for C-suite executives in the science, healthcare, and academic communities. The organization now includes more than 70 members who meet monthly to speak openly among themselves—free from formal programming or competition—about the challenges, solutions, and ideas they con-

front both personally and professionally. The group has become very popular, Schwartz says, and has proven to be a wonderful opportunity to discuss issues with peers in a relaxed, collaborative environment.

Changing attitudes takes time, she concedes, but one can move the needle if one persists. “I’ve encountered challenges throughout my career, but it hasn’t inhibited me,” she says. “I’ve always had to make my own way. My parents raised me to understand that although I was smart, there was always going to be someone smarter than me. I learned how to hear ‘No’ and keep going—I’ve heard it many times over the years. You can’t take failure personally.

“I keep an open mind about possibilities,” Schwartz concludes. “There are many out there, and science is an exciting place to be. I’m glad I made it my career choice.”

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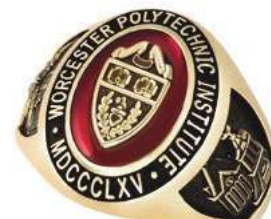


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SPACE

FOR  
JOEL KEARNS '83,  
WPI WAS A LAUNCHPAD  
FOR AN INTERSTELLAR CAREER

BY DAVE GREENSLIT • ILLUSTRATIONS BY STUART BRIERS

Joel Kearns's work has taken him around the world—to China, Russia, Japan, and Malaysia. But the results of his work have traveled much farther. Clear into outer space, in fact. And he's not done yet.

Kearns, who holds bachelor's and master's degrees from WPI and is now working part-time toward a PhD, is with the National Aeronautics and Space Administration. He was recently named deputy director of the space flight systems directorate at NASA's Glenn Research Center in Cleveland, where he has authority in project planning and management of programs and projects across the range of the space agency's missions—including a role in NASA's next manned flight program.

"I've always been interested in space and airplanes—I remember when I was 8 years old watching Neil Armstrong walk out on the moon on that first landing," he says. "My folks let me stay up to watch it."

It was Kearns's first real memory of space.

"I was thinking what an adventure it was, people walking on another world," he said during a break from his busy schedule at Glenn. "Space is the greatest frontier to explore. I felt that even as a kid."

His interest in aircraft and space continued in middle school and high school, which led him to thinking about engineering and technology—which led him to WPI.

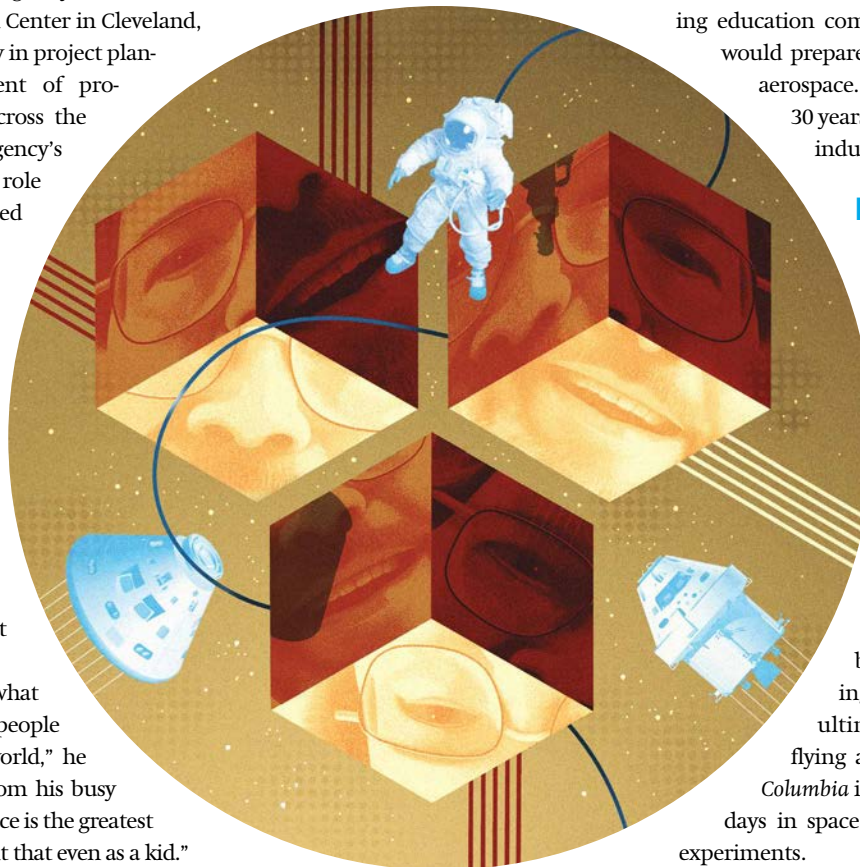
The fact that WPI did not have an aerospace program at the time didn't deter Kearns.

He had family and friends in New England, so was familiar with the area. And one family friend personally familiar with WPI, Dave

Helming '64, encouraged him to apply.

"Dave raved about the great education he got and how much he liked being on campus."

Kearns believed the school's rigorous engineering education combined with project work would prepare him well for a career in aerospace. Looking back after almost 30 years with NASA and in private industry, he says, "I was right."



## LOOKING SKYWARD

One of those projects was called GASCAN (Getaway Special Canister), which was designed, built, and packaged by about 250 students over a span of a decade and flew on the space shuttle *Columbia* in 1991. GASCAN experiments included growing zeolite crystals, work by chemical engineering professor Al Sacco that ultimately led to Sacco's flying as a payload specialist on *Columbia* in 1995, where he spent 16 days in space conducting microgravity experiments.

Kearns worked on GASCAN with WPI faculty members Bill Durgin and Fred Looft, and with the late Hartley Grandin as his advisor he participated in all phases of the project except final assembly. "So, I saw it pretty much from sketches on the napkin all the way to the point where all the designs were done and the equipment was being built," Kearns recalls.

While he may have missed the tail end of GASCAN, Kearns eventually oversaw or directed more than 100 successful experiments at NASA, experiments on the space shuttles, the Mir and International space stations, suborbital rockets, and parabolic research aircraft. They included work in materials science, biotechnology, combustion science, and fluids, among other areas. During that time he received eight NASA Group Achievement Awards and 43 NASA Certificates of Achievement.

Kearns now lives in West Lake, Ohio, with his wife, Lori; they have a son, Ben, and a daughter, Molly, in college. He has worked three stints for NASA, interspersed with jobs in private industry. In the private sector, he has been a space systems engineer at Grumman Aerospace, a leading manufacturer of military and civilian aircraft (later acquired by Northrup Corporation to become Northrup Grumman), vice president for engineering and technology at SUMCO USA, and vice president and director of solar wafer research and development at SunEdison, both manufacturers of silicon wafers for the semiconductor industry.

Much of his work has centered on crystal growth, for which he holds four patents, specifically as it relates to semiconductors. He explains that crystals provide high purity and structural perfection in platforms for microelectronic devices.

Though Kearns earned his degrees in mechanical engineering, course work at WPI in materials science and materials processing have also helped greatly in his career. As he explains, "My mechanical engineering background, along with the knowledge of other areas that I picked up over the years, has allowed me to build on it and get better at crystal growth, equipment design, and space flight project management."

While working for NASA is perhaps a dream job for someone with a lifelong interest in space, Kearns is equally proud of his work in private industry, particularly in materials science. Indeed, he is pursuing his PhD in materials science at WPI, working with Professor Diran Apelian.

## DUAL PERSPECTIVE

Going back and forth between the government and the private sector has enabled him to see two sides of the work world. NASA is mission-oriented while industry is commodity-oriented, and this allows him to bring both perspectives to his jobs.

"It's been really interesting to have the background to move between those different areas and see the different ways people think and the different ways they work," Kearns says. "What I've tried to do is look around and try to remember what are the best things that I've seen in each of the areas and try to bring that to wherever I work.

As deputy director at the Glenn Research Center, Kearns is an

executive manager for all space flight activities there. Founded in 1941 and originally called the Aircraft Engine Research Laboratory, the center was renamed in honor of John H. Glenn. The Ohio astronaut was the first American to orbit the Earth, in 1962, and later became a U.S. senator. More than 3,400 people work at the center, including scientists, engineers, technicians and support personnel.

Aeronautical and space flight technology is designed at both Glenn and at the Plum Brook Station in Sandusky, Ohio; wind tunnels, drop towers, vacuum chambers, and other facilities simulate the environment in space and allow specialized research and testing.

Scientists and engineers tackle a range of aerospace issues in Ohio, including air-breathing propulsion, communications technology, in-space propulsion, cryogenic fluids management, energy storage and materials for extreme environments, according to the NASA's website.

"I get to touch a lot of those things," Kearns says, "to keep them moving along."

Now that the space shuttles – which Kearns managed during his 2006–2010 stint at NASA – have been retired, both he and the space agency are turning their attention to the next manned program, Orion, a joint mission of NASA and international partners. NASA has had Lockheed Martin build the spacecraft's astronaut capsule, while the European Space Agency has contracted with Airbus Defence and Space to make the service module, which will include the propulsion system, flight support gases (oxygen, nitrogen), and water for the crew. Kearns is working with people in the U.S. and Europe on that part of the project. "We do a lot of work in making sure that the service module is well-described in what it's supposed to do, and that it fits very well with the rest of Orion, so we can put it all together in a well functioning aircraft," Kearns says.

NASA launched the 11-foot-long capsule, which resembles those vessels so familiar from the Apollo program, on December 5 from the Cape Canaveral Air Force Station in Florida. That test flight, with a simulated service module, orbited Earth twice and re-entered its atmosphere at 20,000 miles per hour, which heated the craft's heat shield to almost 4,000 degrees. The capsule splashed down in the Pacific Ocean 4½ hours after liftoff.

Kearns says Orion's maiden voyage was a success, going exactly according to plan.

Orion's next flight, at least two years away and also unmanned, will be a high-altitude orbit of the moon, according to Kearns. The first manned flight, several years from now, will also orbit the moon, although the vehicle is being designed to take astronauts to Mars and beyond. The *New York Times* reported that one mission under consideration for the new spacecraft will be to fly astronauts to an asteroid that had been captured and brought close to the moon.



## CHANGING COURSE

While it focuses on taking astronauts farther out in the solar system, NASA is also working with private industry to develop vehicles to take people to the space station, a job done for so long by the space shuttles. Boeing and a company called Space Exploration Technologies Corp. (more commonly known as SpaceX) are building space taxis for that task, according to Kearns.

“So what you’ve seen at NASA is a change in direction from flying the space shuttle up to the space station over and over, to preparing other people to go to the space station while we set our sights on pushing the boundaries and moving us farther,” he says. The fact that Boeing and SpaceX will own the taxis is a very different approach for NASA, he says.

In October, when noted astrophysicist Neil deGrasse Tyson spoke in Worcester, he lamented what he sees as the shrinking pioneer spirit in the United States, unlike in the heyday of the nation’s space program. As an example, Tyson mentioned the probe that had just landed on a 2½-mile-long comet, four billion miles from Earth, a mission intended to find clues into the early formation of the solar system. That probe, he pointed out, was launched by the European Space Agency, not NASA.

While Kearns praised the accomplishment, he disagreed with Tyson that the U.S. has lost the initiative in space. Despite NASA’s tight budget, he says the agency is making the most of the technology and money available, and sees more going on now than even five or six years ago.

“I see a lot of enthusiasm and people working very hard,” Kearns says. “I really don’t think that space exploration has any less support among the American public than it’s had the whole time I’ve been working in the field.

“I would have loved to have been the one to put the probe on the comet,” he continues, “but the U.S. has had probes that for years have been orbiting Saturn and peering into its moons,” discovering methane lakes on Titan and geysers on the ringed-planet’s other moons.

“That’s an incredible mission that nobody else has ever tried to do,” he says, noting that the U.S. also launched the Hubble and

Kepler telescopes, which are giving scientists out-of-this-world views into space.

“We’ve just done so many things and will continue to do so many things that will make headlines in the future that I really don’t see people pulling back,” Kearns says. “You just can’t do everything. Other groups are going to do other things.”

Among those things were two recent commercial efforts that ended badly. Virgin Galactic is a private venture that plans to offer suborbital flights to so-called space tourists. A space plane it was testing exploded over the Mohave Desert, killing one of the pi-

lots. Orbital Sciences Corporation, which makes rockets for commercial and military use, saw one of its rockets explode 15 seconds liftoff in Virginia during an unmanned mission to carry a cargo ship to the International Space Station for NASA.


But space flight involves high speeds, and tremendous energy and force, and such setbacks happen, notes Kearns, who supports entrepreneurs getting into the space business.


“This type of work just takes a lot of dedication, attention to detail, and rigor,” he says, “and even with all of that, every time you field a new system you will find some problem that you really couldn’t envision before.”

Kearns points out that his is not the only recent WPI connection with NASA. Both he and President Laurie Leshin were at the space agency’s headquarters in Washington, D.C., at the same time. They knew each other, but did not work together, he says.


Although his career and work promise to go much further, Kearns continues to

look back on WPI as his personal launch pad. He credits the professors, his engineering foundation, and project work at the university with making everything possible, “to feel confident enough in myself to go out and work in all these different areas and try to do what I wanted to do.”

For Kearns, watching space flight these days is worlds away from when he was a starry-eyed kid. “I appreciate it a lot more now,” he says in understatement. 



**THIS WORK TAKES A LOT OF DEDICATION, ATTENTION TO DETAIL, AND RIGOR. AND EVEN WITH ALL THAT, EVERY TIME YOU FIELD A NEW SYSTEM YOU WILL FIND SOME PROBLEM THAT YOU COULDN'T ENVISION BEFORE.**



**if...** the campaign to **advance WPI**



IF... WE INVEST IN STUDENTS. IF... WE INVEST IN FUTURE LEADERS AND INNOVATORS. IF... WE INVEST IN PLACES AND SPACES.

*“George Alden was WPI’s first professor of mechanical engineering and one of the early leaders who advocated for the emphasis on both theory and practice in WPI’s educational approach. The Trust he established and that bears his name is proud to support the facility that will advance WPI’s innovative curriculum to the next level and help WPI students and faculty have an even greater impact on our world.”*

*Warner Fletcher, Chair of the Alden Trust and a WPI Trustee*



GEORGE I. ALDEN

*Theory and Practice*

As WPI’s first professor of mechanical engineering and head of the Mechanical Engineering Department, George Alden helped shape WPI’s founding educational principle that merged theory and practice. During his lifetime, he set up a philanthropic trust to continue his support for education and for WPI after his death. Today, with nearly \$25 million in commitments, the George I. Alden Trust is recognized among WPI’s most generous benefactors. For this campaign alone, the Alden Trust has contributed \$14 million: two grants totaling \$11 million to renovate Goddard Hall into the George I. Alden Life Sciences and Bioengineering Educational Center and the recent \$3 million challenge grant to the Foisie Innovation Studio.



IF... WE INVEST IN OPPORTUNITY. *Then...* JUST IMAGINE WHAT WE COULD ACCOMPLISH.

**if... The Campaign to Advance WPI** — a comprehensive, \$200 million fundraising endeavor—is about supporting the students we educate and the leaders they will become.

**If...** you join the Alden Trust and make a second, or even a third gift—of any amount—to the campaign in support of the Foisie Innovation Studio, you provide our students with the means to achieve their aspirations for the benefit of us all.

**If...** we imagine a bright future, together we can make it happen.

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**WPI**

# news from HIGGINS HOUSE

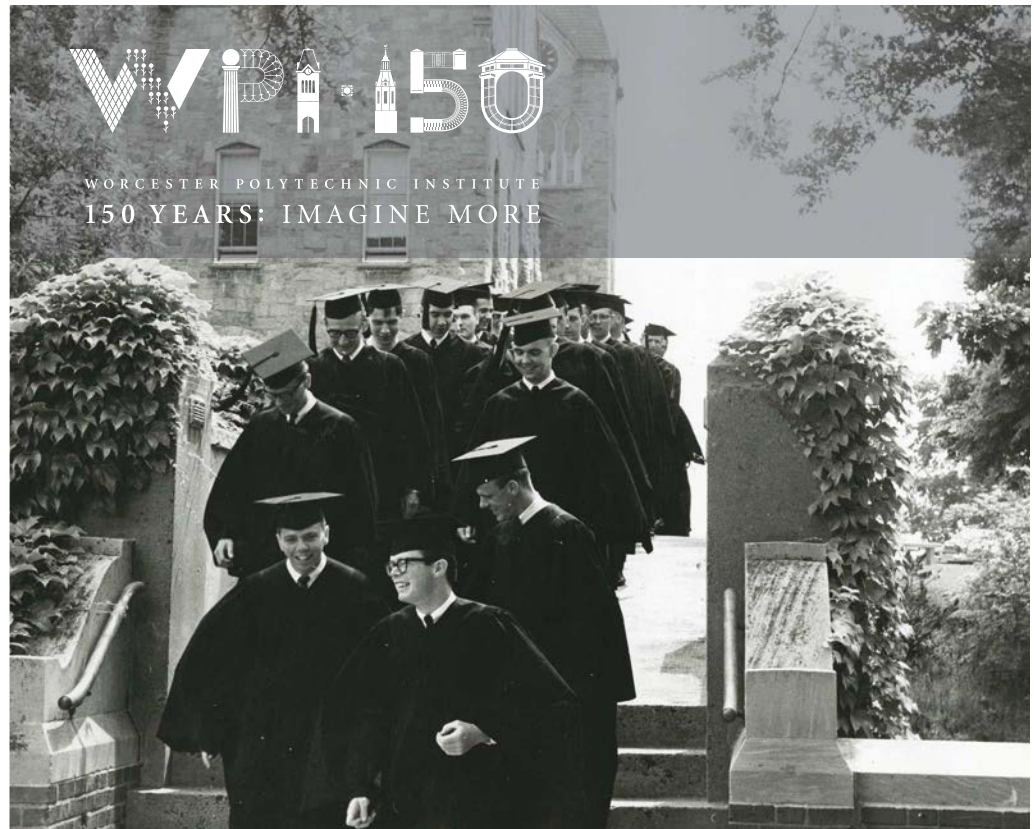


## 150 YEARS: IMAGINE MORE

### WPI'S SESQUICENTENNIAL

is here, and we believe that 150 years of innovation and impact deserve a closer look. The celebration of this historic milestone will run throughout the year with exciting exhibits, intriguing symposia, and an engaging website that will continually update with the latest Sesquicentennial affairs.

WPI is looking to alumni and friends to share memories by making connections online with #imagemore. Head on over to [facebook.com/WPI150](https://facebook.com/WPI150), [twitter.com/WPI150](https://twitter.com/WPI150), or [instagram.com/wpi](https://instagram.com/wpi) and share your favorite WPI memory with us.



▶ 1865

▶ **1865**  
**John Boynton** creates an institute of higher learning. Boynton Hall is the first building on the campus of the Worcester County Free Institute of Industrial Science



▶ 1868

▶ **1868**  
**Theory and Practice** are embedded in the stones of WPI's Two Towers: Boynton Hall and Washburn Shops.



▶ 1890

▶ **1890**  
**Stephen Salisbury III** funds the construction of Salisbury Laboratories, in memory of his father, who donated most of the land that WPI occupies today.



▶ 1915

▶ **1890**  
**One of its first international students,** Japanese-born Gompei Kuwada accepts the job of goatkeeper for the school's mascot. The current goat mascot is affectionately called Gompei in his honor.

▶ **1915**  
**A new gymnasium,** realized largely through the enthusiasm and support of alumni, is dedicated.

## EVENTS

### FROM THE CORNER OFFICE: THE LIVES AND WORK OF WPI'S SIXTEEN PRESIDENTS

Gordon Library

Co-curated by Molly Bruce and Michael Dorsey. Through photographs, documents, media, and memorabilia, this exhibit traces how the presidency has developed through time, delves into the backgrounds and perspectives of individual presidents, and highlights the roles of presidents during pivotal changes in the course of WPI's 150-year history. The exhibit will be on view in the Gladwin Gallery, Gordon Library, Level G, through March 2015.

### ANNUAL RING CEREMONY MARCH 20

Celebrate an annual tradition.

Students receive their WPI class rings and alumni are encouraged to join in the festivities.

### ANNUAL COMMUNITY SERVICE DAY APRIL 25

WPI students are known for making meaningful contributions to communities around the world.

WPI alumni continue this proud tradition in their lives after graduation.

### ALUMNI WEEKEND MAY 28-31

All alumni are invited back to The Hill for an exciting weekend of events and activities.

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



▶1926  
**Robert Goddard '08** launches the first liquid-fueled rocket.

▶1940  
**Earle Bridge** is completed for the school's 75th anniversary.

▶1968  
For the first time in the school's history, **women are admitted** as undergraduates.

▶1970  
**The WPI Plan** is adopted. The Plan uproots a rigid approach to course work with project-based learning across the curriculum.

▶1974  
WPI establishes the first of its **off-campus project centers** (Washington, DC). The Interactive Qualifying Project, as it is known, is the most ambitious component of the WPI Plan.

▶1983  
WPI creates an **Athletic Hall of Fame** to recognize the achievements of outstanding WPI athletes.

▶1979  
Eighty-one years after Henry Lucian Phillips, Class of 1893, predicts that fire protection will become a serious subject at scientific colleges, WPI is first in the nation to offer a **graduate degree program in fire protection engineering**.

## A Symbiotic Relationship

### WPI's History Intertwined with Morgan Family

**FOR 149 OF WPI'S 150-YEAR HISTORY,** there has been a Morgan on the Board of Trustees. From Charles Hill Morgan, appointed by Ichabod Washburn in 1866, to Philip R. Morgan, now concluding his term after 21 years, members of the Morgan family have supported WPI in a multitude of ways.

While a number of Morgans attended WPI, far more WPI alumni spent their careers with the Morgan family business—Morgan Construction Company. Founded in 1888 by Charles Hill Morgan to design, engineer, and manufacture high-speed long rolling equipment for the steel industry, the company remained in Worcester for five generations and after 120 years was sold to Siemens in 2008.

"It's been a symbiotic relationship," said retired CEO Philip Morgan in a recent interview. "We were an engineering company, and WPI is a school of engineering. What was good for Morgan Construction was good for WPI, and vice versa."

As he sees it, "John Boynton established the school to produce an educated workforce, and WPI grew as a source of talent for a whole variety of businesses in Worcester."

For both the family and the company, WPI has served as "the garden," said Peter S. Morgan, Philip's uncle and retired member of the firm's leadership team. "Tech was where we found key people for the company," citing among others Victor Edwards, WPI Class of 1883, whose inventions in the company's early history helped boost its growth. More recently, Michael Eldredge '89 began with Morgan in 1992 and now heads the Worcester long rolling operations within Siemens.



Philip Morgan points to a model of Morgan Hall as members of the Morgan family proudly look on.

"We recognized the value of a WPI education and having engineers coming out of school ready to contribute," said Philip. After the Plan was implemented, he said, the company found "tremendous advantages" from the new approaches that promoted both teamwork and individual thinking.

A WPI education was not a given among family members, but Paul B. Morgan, son of founder Charles Morgan, graduated in 1890. His younger brother, Ralph, had attended WPI as a member of the Class of 1894 and Charles's eldest son, Harry, began classes in 1873, but neither completed their studies. In later generations, Peter Morgan graduated from the School of Industrial Management (SIM) in 1955 and Benjamin Morgan (grandson of Paul B.) earned a WPI degree in 1961.

Back in the garden, Peter continued, "it needed cultivation" to ensure a bountiful harvest, "and that's where Morgan-Worcester came in." A foundation created in 1953 to support the company's charitable activities, it served to provide a steady source of funds despite the inevitable market gyrations in the steel industry. WPI benefited in several ways,

as Morgan-Worcester Inc. offered matching gifts for employee donations, and underwrote two annual scholarships for children of employees.

Service to WPI for several family members has gone far beyond financial gifts to include advice, infrastructure, and improved undergraduate learning. In addition to their roles as trustees, both Peter's father, Philip M. Morgan, and his brother, Paul S. Morgan, chaired the board, while Peter served on the SIM board for many years.

"One of my earliest memories of my grandparents," said Philip, "was when they entertained the WPI president in their home." Philip M. Morgan and his wife, Marjorie, lived on Worcester's Cedar Street. "In Dad's time," Philip continued, "he would bring in Presidents Cranch and Strauss."

For WPI's 75th anniversary, Paul B. Morgan literally built bridges among campus communities. He spearheaded a campaign to erect the bridge across West Street between Boynton Hall and Alden Memorial to honor the late President Ralph Earle in 1940. In turn, Philip M. Morgan ensured more on-campus

THE VIEW FROM THE HILL

## From the Alumni Association President

DEAR ALUMNI AND FRIENDS,

I hope this letter finds you rested, relaxed, and ready to engage with your alma mater in 2015. This will be another year of celebration for WPI as the clock ticks closer to the university's 150th birthday. For real-time news, historical details, and other information, follow the official WPI Sesquicentennial Twitter handle @WPI150 and visit 150.wpi.edu. Be on the lookout for commemorative 150th celebration beanies—presale details (with proceeds to support WPI Alumni Association sponsored scholarships) should be out shortly, and I anticipate excitement equivalent to an iPhone rollout!

Engaging with WPI during events like the Sesquicentennial doesn't just give you the chance to have fun with fellow alumni, students, and staff, it also opens up a broader set of fulfillment opportunities in volunteerism. Impact as an alum was a goal defined and exemplified by Ted Coghlin '56, who recently passed away. Ted's tireless commitment to the broader Worcester community and WPI specifically—chairing every one of his Reunions, and being the volunteer of volunteers for the university—are examples of how a single person can have impact through engagement.

The creation of the Foisie Innovation Studio remains a top priority for WPI and for our worldwide alumni community. The cause has recently been emboldened by the Alden Trust Challenge—and it will be a challenge! The Trust will contribute \$3 million toward the project, but first the alumni and the Institute will need to raise \$9 million. We will have our first big chance to show our support for the Foisie Innovation Studio and the Alden Trust Challenge on March 19: 24 hours of giving to see how much we can raise and how many people can give. Keep your eye on social media, email, and your mailbox for more about March 19.

The Foisie Innovation Studio will make a lasting impact on generations of students. Recognizing a need in enhancing the student experience at WPI was the first step. President Leshin's vision of impact as a "third tower" was the second step. Executing against the need and the vision is what lies ahead, and I have every confidence that we will be there to support WPI just as alumni were there 100 years ago to enhance the campus with Alumni Gym.

Looking ahead to summer (and nicer weather), be sure to block out Alumni Weekend 2015 on May 28–31. Classes ending in 0 and 5 will have reunion activities, and we will honor 10 alumni for their professional achievements and service to WPI: Philip Ryan '65, Joseph Adams '75, Laurence Jones '75, Robert Martin '75, Michael Aghajanian '80, Jason Anderson '95, James Giza '95, Joseph Santos '95, William Herbert '05, and Michael Ferro '10.

But Alumni Weekend isn't just about getting alumni back for reunion years. The Alumni Association Board of Directors and the Alumni Relations staff are hard at work to broaden the offerings with the addition of a "reunion college" to help upcoming reunion planning committees better plan their activities, as well as a volunteer expo where alumni can learn firsthand about the opportunities to give back to their alma mater. More details on both of these programs will be out shortly, but more important, the room blocks are ready!

With best wishes,



**Myles Walton '97**

housing with the construction in 1958 of Morgan Hall, the school's second dormitory, complete with cafeteria and private dining halls.

From campus to classroom impact, Paul S. Morgan rallied family members in 2010 to endow the Morgan Center for Teaching and Learning, which supports new teaching innovations and enhances teaching effectiveness at all levels of a WPI education. Modeled after Harvard's Derek Bok Center, the Morgan Center is helping WPI professors meet the challenge of preparing the next generation of engineers, scientists, and industry leaders. It's a cause Charles Hill Morgan would have championed in his own day.

As the fifth generation of Morgan trustees, Philip Morgan has extended his term as trustee beyond traditional limits. He has remained involved, he said, both out of respect for his family's legacy and with excitement about the university's future prospects. "This place is doing tremendous work," he said. "We're in the sweet spot for what the United States needs. It's rewarding to be a part of it."

When Philip's term ends this spring, his younger brother, Daniel, will pick up where he left off as a WPI trustee. And in the future? "I would love it if there were six generations of Morgans to serve and contribute to WPI," said Philip.

As Peter said, with a smile, "You really can't separate the family from WPI."

— Allison Chisolm



# Alden Trust

## Alden Trust Offers Challenge to Alumni

One hundred years ago, students at WPI faced a problem. While the campus had plenty of classrooms and labs where they could challenge their minds, it had no central place where they could exercise their bodies. WPI alumni, remembering how much they needed an outlet after long days in the lab, decided to change that. Representatives of the class of 1886 pledged \$1,000 to build new athletic facilities if 30 other classes would do the same. Efforts snowballed, eventually leading to \$200,000 raised for new athletic fields in 1914, and an additional \$200,000 to build Alumni Gymnasium.

Alumni laid the cornerstone for the building in 1915, in time for the school's 50th anniversary. Over the years, however, the building slowly deteriorated, and eventually became obsolete with the opening of the Sports and Recreation Center in 2012. As WPI's 150th anniversary approaches, university administrators have embarked on an endeavor to determine the most pressing need for today's and future students. After discussions with faculty, students, and current alumni, it became clear that what WPI most urgently needs is a center for its signature educational philosophy and project-based curriculum.

### CHALLENGE ACCEPTED

The proposed Foisie Innovation Studio will serve as a hub for the Interactive Qualifying Project and Major Qualifying Project that every student must complete, as well as humanities projects and the Great Problems Seminar, and will include a robotics lab, maker space, high-tech classrooms, and a center for innovation and entrepreneurship. "It will fill a void in the WPI educational experience," says Provost Eric Overström. "We've heard stories of students gathering in garages, fraternity houses, and conference rooms in order to work on their projects. This will alleviate that need."

In order to create the Foisie Innovation Studio, WPI is turning to its alumni. While the current fundraising effort, *if...The Campaign to Advance WPI*, has raised nearly \$240 million—exceeding the university's \$200 million goal—much of those funds have been earmarked for scholarships, leaving a gap in funding for new building renovations. Although WPI has raised \$6 million for the Foisie Innovation Studio, it still needs to raise another \$12 million to complete the funding. "That's not easy, especially as we are coming to the end of our campaign in June 2015, and many of our major donors have already made their commitments," says Bill McAvoy, vice president for university advancement.

That leaves alumni as the best hope to make the project a reality. To provide incentive to contribute, the George I. Alden Trust has offered a challenge grant to donate \$3 million toward the cost of the Foisie Innovation Studio—but only if contributors step up with the other \$9 million by April 2016. "This is an opportunity for today's alumni to galvanize around this need to construct a facility that will serve as a focal point, the heart and soul of their alma mater's project-based educational experience," says McAvoy.

### A LEGACY

The history of the Alden Trust has been intertwined with that of WPI since its founding by George Alden in 1912. Back then, Worcester was a booming industrial city; its captains all lived on the west side of the city and lunched together at the long dining table of the Worcester Club. Alden was one of the early founders of Norton Company, the corporation that built grinding wheels to cut metals and other implacable materials, and that for decades was Worcester's largest private employer.

Over the years the Alden Trust has donated some \$25 million to WPI, including endowments for professorships in engineering and the humanities, need-based scholarships, and renovations to such facilities as Atwater Kent



Labs and Alden Memorial Auditorium, as well as to Higgins Laboratories, suitably home to the Mechanical Engineering Department. During the current fundraising campaign, the Trust donated \$11 million in two previous grants to renovate Goddard Hall into the George I. Alden Life Sciences and Bioengineering Educational Center.

“The labs had last been renovated in the 1970s; they were not only out of date, but really unattractive,” says Jill Rulfs, associate department head for Biology and Biotechnology. The Alden Trust’s gift helped convert the 21,300-square-foot facility into a gleaming temple of science, complete with labs outfitted with the latest teaching technology and lab equipment integrated with computers. “For our department it has been a huge boon,” says Rulfs. “It gave everyone a boost in mission fervor, that we can all do great things now that we have this great space.” Not only does Goddard Hall reflect the growing importance of biotechnology—both on campus and in the world as a whole—but it also provides a central hub for life sciences students, complete with study spaces and lounges for them to interact and collaborate. “It’s really given us a sense of community we didn’t have before,” says Rulfs.

Now with the Foisie Innovation Studio (named for WPI’s largest private donor, Robert A. Foisie ’56), WPI hopes to do the same thing for interdisciplinary project-based learning. At the very beginning, WPI was founded on the “two towers” of theory and practice—but it wasn’t until the 1960s that this philosophy found space in the curriculum, the groundbreaking teaching philosophy that has been recently adopted more and more around the country. “It turns out to have been unbelievably visionary,” says Warner Fletcher, WPI trustee and chair of the Alden Trust. “This is the kind of education everyone is embracing now—and I truly believe no one does it better

## PAYING IT FORWARD

In the late 1800s George Alden joined WPI’s faculty as its first professor of mechanical engineering—he was known as both a demanding instructor and a prolific inventor. He established the second hydraulic laboratory in the United States, conducting seminal research in the field. Among his inventions were a dynamometer used for measuring machine power, and the first hydraulic elevator. After Alden had achieved financial success through the company, he decided to “pay it forward” to the city that made it possible, establishing his namesake trust more than a decade before his death in 1926. Following his lead, many other fellow industrialists established their own trusts. “I think these industrialists thought that one of the reasons I’m successful is not just because I am smart or hard-working but also because I have good people working for me in this community,” says Warner Fletcher, chair of the trust who is also a WPI trustee.

None were as generous as Alden, however; with \$190 million in assets, the trust he established is now the largest private foundation in Worcester, responsible for \$9 million in gifts a year. From the beginning, Alden focused his philanthropy on education, naming Worcester Polytechnic Institute, Worcester Vocational High School (now Worcester Technical High School), and the Boys & Girls Club of Worcester as his major beneficiaries. Over the decades, the Trust expanded its reach to give to secondary schools and colleges all over the country—as well as cultural institutions such as the Worcester Art Museum and the Worcester Historical Museum.

than WPI.” Despite that emphasis, WPI has never had a center for its defining pedagogy. “That signature location on campus could be a real shining light for the kind of programming WPI provides and is trying to provide going forward.”

## IMPACTING THE FUTURE

In her inaugural speech this past November, President Laurie Leshin suggested a third “pillar” to WPI’s traditional Two Towers. “If I could sum it up in one word, it would be *impact*,” she said. “We have maximum impact by focusing not only on the number of well-educated STEM graduates we produce, or the number of research grants we receive, but by the positive work that our students and faculty, that our staff and alumni, do around the world.”

Achieving that goal means taking the ideas generated on campus and turning them into projects and inventions that can influence the wider world. “By providing a new home for collaborators and innovators right in the center of campus,” the president continued, “I see the Foisie Innovation Studio as being the physical embodiment of our third tower.”

To that end, the new studio will include a high-tech classroom for the Great Problems Seminar that kicks off the project-based curriculum in the first year, along with a robotics lab, a maker space for fabrication of prototypes, a 3-D printing studio, and a center for entrepreneurship.

“It’s taking projects to the next level,” says McAvoy. “Learning how to market and commercialize good ideas and not just file them away. Out of the thousand projects a year that students create, there are sure to be some that can have impact in communities and in the world, and this studio will foster those opportunities.”

— Michael Blanding

## A human endeavor

School of Business professor reflects upon career, cherishes student interactions

Sitting in Professor Arthur Gerstenfeld's office at Gateway II—surrounded by photographs of his family, of his native New York City, and of the various destinations worldwide he has visited in almost four decades of work at WPI's Robert A. Foisie School of Business, you are reminded that economic pursuit—and the world of business itself—is at its core a human endeavor.

If only everyone undertaking these endeavors were as warm, sincere, and committed to the greater good as Art Gerstenfeld. As anyone who's had the privilege of getting to know him can tell you, the man has a personal touch.

He claims a distinguished list of credentials: including an MBA and PhD from the Sloan School at MIT, his tenure and success at WPI, running what we'd now describe as supply chain management for NASA's Apollo program in the early 1960s, working on international projects overseas, and collecting a host of accolades over the years. However, none of these accomplishments is what he will cherish most when he retires at the end of this current school year.

Instead, what he relishes from his 37 years at WPI is advising and mentoring students.

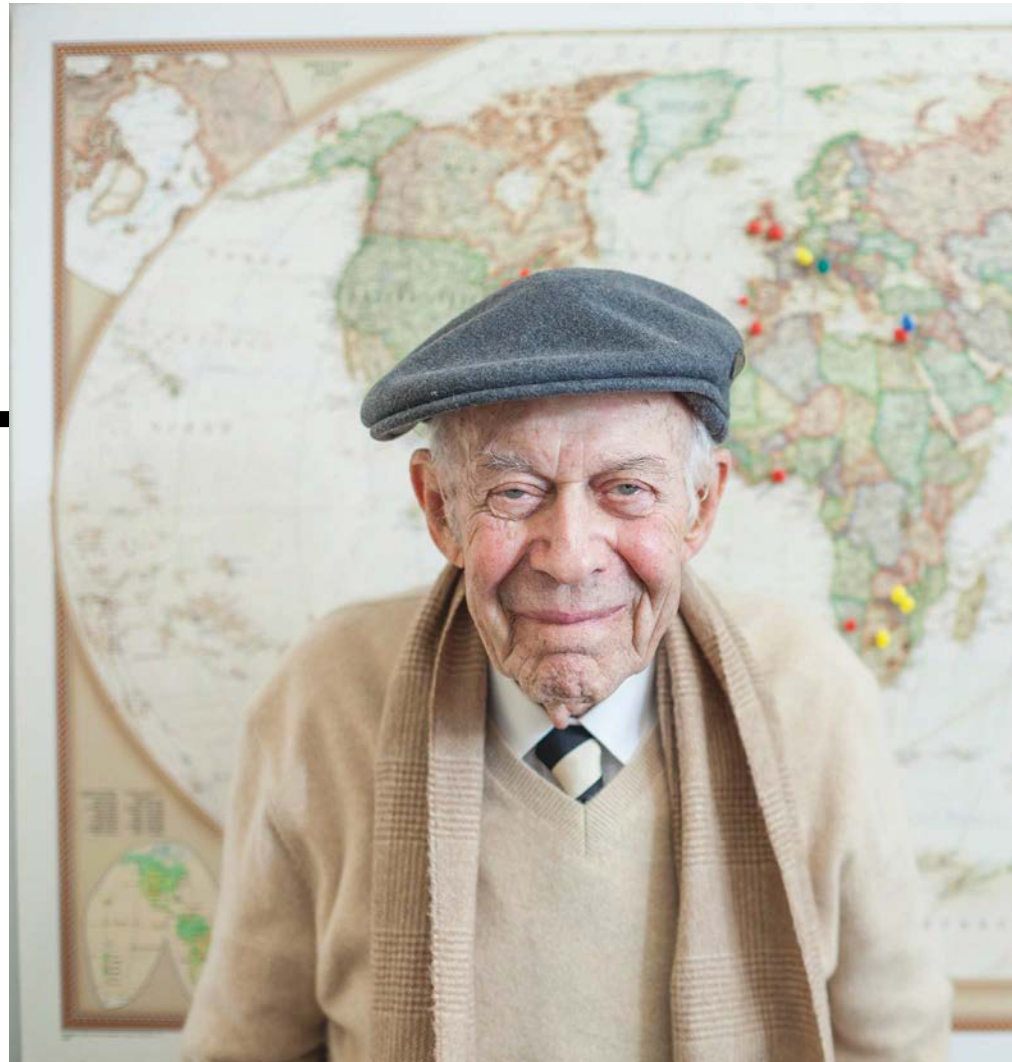
“That's the best part,” he says with his widest smile of the day, which is saying quite a bit because he smiles broadly, easily, and often. “That's the thing I've always enjoyed the most.”

Indeed, the professor says many of his students—several of them now CEOs and senior executives—have stayed in touch long after they've graduated, both seeking advice and sharing their successes with a professor whose influence clearly lasts a lifetime.

And when he retires at the end of this school year, he will continue advising WPI business students.

Gerstenfeld was a business and manufacturing engineering professor at Boston University in 1977 when WPI came looking for someone to build its fledgling business school.

“I had tenure and I was very happy at BU, but the chance to build something was just too appealing,” he says.



What students also get from Gerstenfeld is instruction in what experts might call “work-life balance,” and which clearly stems from his love of life itself.



On his arrival at WPI, he recalls that one of the initial hurdles was to set the university's business program apart from the crowd.

"We needed to come up with an identity," Gerstenfeld says. "The president at the time and the dean and I all wanted it to be a different sort of business school. This was WPI. We weren't going to try to be a BU, or a Northeastern, but be a business school that relied on technology a lot. There's not a business that's not technology-driven in some way."

Another early challenge was some initial hesitancy at WPI to form its now internationally regarded MBA program, which the professor said drew opposition "because some folks were concerned that it was moving away from technology too much, but I felt we could have an MBA program that also focused on technol-

ogy. That's turned out to be a very big and successful program."

As the program has grown, Gerstenfeld has noticed an increasing number of mid-career students looking to come back to school to refresh or acquire technological savvy, or folks with undergrad technology degrees looking to learn how to manage effectively.

"Although, we don't care—they could be English majors," he says. "They'll get a pretty heavy dose of computer expertise while they're here."

What students also get from Gerstenfeld is instruction in what experts might call "work-life balance," and which clearly stems from his love of life itself.

With Gerstenfeld as head of WPI's Wall Street Project Center for the past 15 years, his students have undertaken intense study with some of the world's foremost financial institutions (Bank of America, Barclays, Royal Bank of Scotland, among others) to complete their MQP while studying and working in New York, London, and Glasgow. Alumni, students, faculty, and friends celebrated Gerstenfeld and his work with the Wall Street Project Center at a special reception in New York on Dec. 10.

While the students' access to financial professionals at some of the most desirable companies in the financial sector is wonderful, equally important is the opportunity to get out and see the world, which is why Gerstenfeld insists on a cultural component to the experience.

"I tell them they have to do at least three cultural things each weekend," he says (with a smile, conceding how much he enjoys assigning this task). "They can work five days a week, but on the weekends they need to get out and experience the culture. And every week they need to send me a report outlining what they saw."

With evident pleasure, he shares a recent report from a student working for JP Morgan in Glasgow, who wrote about taking the train down to London during a rainy weekend in early November to visit friends. While the weekend was not momentous, it did include details that illustrated how the student was doing more than crunching numbers in a Scottish office building.

"See here," Gerstenfeld notes, "he writes about having an assigned seat on the train, which is different from Amtrak, and how clean everything was.

"The report also includes the student's impressions of a football [soccer] match at Emirates Stadium, where Arsenal and Manchester United play, and then a perhaps unexpected observation about how Americans are viewed, at least in this little corner of London, during this weekend in November 2014: He was talking to a woman who said that she liked how straightforward Americans are. She said 'Americans are nice.'"

Not exactly an epiphany, but life is in the details—something Gerstenfeld later demonstrates while examining one of the many examples of beautiful, handmade African art that adorn his office, collected over the years during his many trips to Namibia, where WPI has strong ties and where he worked on that country's air traffic control system.

Retirement looms in a fuzzy background that comes ever clearer into focus as the school year progresses, but as with all creative, intelligent people driven by the best stuff in life, that retirement will not be spent idly.

For sure, there will be more time to spend with his wife, Susan Vernon Gerstenfeld, herself a professor at WPI, or doting on grandkids, or continuing to advise students at WPI.

But there's always the next project, the next hurdle to leap over.

Gerstenfeld plans to mix his love of music—he's a clarinetist and saxophonist—with a desire to help English language learners.

In recent years he devised a program to use music in ESL (English as a Second Language) instruction. Taught currently to adults looking to hone weak or burgeoning English skills, the program has proven popular, and he plans to expand it further.

It's another project in a life that has been a project in itself, to show how a good life can be lived.

"I'm a lifelong learner," Gerstenfeld says, smiling. "Things are going to change, change, change. We need to be learning. Always."

— Ted Flanagan

## Engineering a Gift

Robert Diamond '56  
helps kick off Alden Trust  
Challenge Grant



**B**OB DIAMOND has lived a life full of impressive achievements—as the CEO of major companies, as the force behind technologies we take for granted today, as an award-winner. But before his career milestones, Diamond was just a young kid going through life in Worcester during the Great Depression. Higher education—not to mention such professional triumph—wasn't exactly at the forefront of his mind.

*“I almost didn't go to college,” he says.*

After graduating from high school, he joined the workforce—construction jobs and bakery gigs—because at that point, Diamond says, “you were lucky to just have a job.” But then a friend told him about Worcester Junior College. WJC, then located at the YMCA on Main Street, offered an irresistible deal: if it didn't work out, he could get his semester's tuition back. College did, however, work out and Diamond transferred to WPI as a sophomore. He graduated second in his class. “But it wasn't something I planned on,” he says. “I didn't think I was college material.”

Yet 2014, almost 60 years after graduating from WPI, saw Diamond as the generous donor of \$500,000 for the Foisie Innovation Studio. Diamond's donated to WPI before, but this generous gift is a standout—it's the first major contribution to the Alden Trust Challenge, a grant that will help create the first-ever, state-of-the-art home for WPI's project-based curriculum (see page 54). The Alden Trust will give \$3 million to the project when alumni raise \$9 million by April 2016.

Diamond remembers his time at WPI fondly. Yet while he says that WPI has changed tremendously in nearly six decades—“it's no longer men-only, for a start”—the core of WPI is pretty much the same: rigorous teaching. “We were expected to learn what we were taught,” he says. While the school has diversified and significantly expanded its vision and reach, Diamond believes it's still the same place that readied him for work.

“I found when I was at my first job, I seemed to have been better prepared than some of my peers—than *most* of my peers—to actually be an engineer and do engineering work,” he says. “Most of the other

guys I started with at that first job seemed to require much more training to be productive in the work they would do.”

Today college can be seen as par for the course for high school graduates, but for Diamond, WPI was a whole other animal. “Attending WPI obviously had a very dramatic effect on me, it changed the trajectory of my career, my outlook,” he says. “Prior to WPI, I—like a lot of people in Worcester at that time—was quite poor. WPI opened a new vista for me where I was able to enter a profession.”

While there's a whole host of differences between the late 1950s and 2014, Diamond highlights one in particular: an engineer's encouraged entrepreneurial spirit. In the middle of the 20th century, engineers had a fairly limited professional scope—they were focused mainly on practical public projects like building bridges, mines, and the like. According to Diamond, the consumer world and engineering weren't the cozy bedfellows they are today. “It wasn't particularly entrepreneurial back in 1956,” he says. “We were *expected* to go out and get a job.”

And yet, entrepreneurial is an ideal way to describe Diamond and his career trajectory. He got his start working for companies like Philco and Philips, helping develop a reliable color TV camera for the latter. He struck out on his own in the late 1960s as a consultant and went on to pioneer emerging technologies: the caller ID we take for granted today, and the cloud-based home security and management system that is still very fresh. Diamond's latest venture concerns LED technology, which he develops with his company, Xeleum Lighting.

Diamond, who was the WPI 2013 Innovator of the Year, has proven himself a forward-thinking entrepreneur, which is why the focus of the Foisie Innovation Studio is so inspiring to him—he sees it as a complete 180 degrees from the encouraged role of engineers half a century ago. “The concept of engineers as businessmen starting companies was very, very limited back in the 1950s, even in the 1960s,” he says. “Now, engineers, computer scientists, people in the technologies are some of the great entrepreneurs of our day. That's sort of new to this last generation, so I'm just very happy to see that.”

—Alison Baitz

## Homecoming 2014



We honored ROTC graduates and inducted some of our finest athletes into the Athletic Hall of Fame. We dedicated the Grebinar Wrestling Endowment Program as well as gifts from the Class of 2006, the Class of 2013, and the Class of 2014. We played in alumni athletic games and cheered on current WPI athletes. We shared in our cherished WPI traditions—the Parade of Floats, the football game, the Rope Pull. We celebrated the Goat’s Head Award recipient. In all, we had more fun than a herd of goats on a field of fresh grass.



'54

**Roger Wildt** writes, "Finally retired about five years ago and made a permanent move to Belgium (easy transition; had an office in Brussels). Danielle and I are living in an ancient, small Ardennes village on the banks of the River Meuse, seven miles from the French border. By ancient and small, I mean founded in the 800s, with a current population less than that. It was an upscale holiday village in the early 1900s, declined, and now is recovering with the renovation of Victorian mansions and hotels. We have no store, no post office, no gasoline station, but restaurants and a yacht club. My ending up here should not be a surprise to anyone; I earned a graduate degree from the University of London in 1957; have done business travel throughout Europe since 1963; and have English and German parents, plus relatives and friends throughout the area. Long distance travel has been limited due to serious renovations of house and garden, some medical problems, and aging parent issues. But the world around us is so rich in history and scenery that we don't have to go far for new things to do and see."



## 1940

**Howard Freeman** lives in Worcester. He writes, "My wife, Esther, died in November. We met in Winthrop, Mass., in 1935, and we had been married 73 years."

## 1949

**Jerry Gleason** shares, "These days I'm living alone in what was our family home for many years in Sharon, Mass. My dear wife of 66 years, Lynne, passed away this past February after a long siege of Parkinson's disease. It was my responsibility and pleasure to be her caregiver for the Parkinson's Disease years. Our surviving son, Jim, lives not

too far away and we are together regularly. I am very pleased with the progress that WPI continues to make and very happy with the choice of our new college president."

## 1957

**Audrey Carlan** writes, "As you may know, I was the first woman (graduate) student at WPI. I am delighted at the welcome the undergraduate women have received, as well as our new WPI president! My thesis entailed using an IBM 650 (vacuum tubes!) to gather data about scattering from spheroids. My late husband, **Al '57 (MS)**, did his thesis on point contact diodes (remember, this was in the 1950s!).

I have lived in Palos Verdes (a peninsula south of L.A.) since 1967. Any alumni living in southern California? I am a retired math/computer professor, having published several books for the community colleges (see Amazon Kindle: Carlan), and I keep busy with travel, friends, computer activities, and politics. I have three kids—my oldest was born just before I received the MS degree from WPI!"

**Jack Daly** will seek the District 4 seat on the Longboat Key, Fla., Town Commission in the March 2015 election. He is currently vice chairman of the Planning and Zoning Board.

**Bob Galligan** writes, "Had the chance to fulfill a 'bucket list' item by sitting in and playing a few jazz standards on

Send your class note to [classnotes@wpi.edu](mailto:classnotes@wpi.edu). Images welcome!

the piano at the 25th anniversary of the Sun Valley Jazz Jamboree in October. I continued playing and taking lessons after leaving WPI—although the fingers are no longer nimble!”

## 1958

**Stan Graveline** hosts an annual event along with classmate **Norm Taupeka**. “Our guests are mostly WPI types,” he writes.

**Sherman Poultney** writes, “Still able to travel; recently in Dolomites, Rome, Pompeii, Pisa, Florence, Verona, and Venice. Keep exercising!”

**Bill Rabinovitch** shares numerous stories and images on Facebook, including “my present & past involvement with NASA including the current Rosetta Spacecraft & Comet — my experiences filming Roy Lichtenstein, my reinvigoration of superstar artist Yayoi Kusama, my congratulations to WPI on its new woman president (pictured in the last issue of *WPI Journal*), a dramatic story about Steinbeck’s Cannery Row, where I had my studio extending over Monterey Bay during the first manned moon landing, and more.”

## 1959

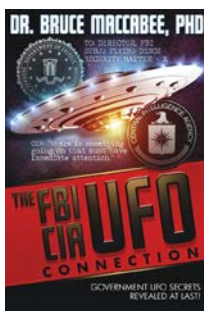
**Bob Lynn** admits, “I can’t believe that I’m 77 years young. I look into my mirror and ask, ‘Who is this man?’ I’ve given up on doctors and now use rotor rooter as needed, an electrician to become re-wired, a plumber, and a heating expert to get my body through these New England winters. My wife, my three very adult children, and my four grandchildren are well and all have very busy schedules. I’m retired but don’t play golf, sky dive, or bungee jump like other retirees. We have lived in Framingham for 45 years, many of which I’ve traveled in and out of the country for civil and structural engineering projects. I would welcome hearing from anyone who would like to reminisce (like paying \$800 for a year of tuition!).”

## 1960

**Raymond Abraham** writes, “I have moved to Florida pertinently. My address is 1706 SE 8th Terrace, Cape Coral, FL 33990. I’m enjoying the great weather and playing golf as much as I am able.”

**Dick Loring** sends this update. “Pat Pierce and I have been married for 53 years and have two children and one grandchild. We moved to Duxbury, Mass., while in our 50s,

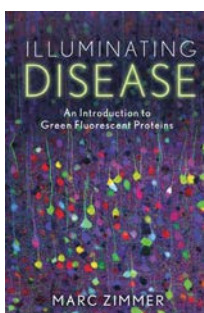
## ► Bookshelf



### The FBI CIA UFO Connection

**BRUCE MACCABEE '64** | Richard Dolan Press

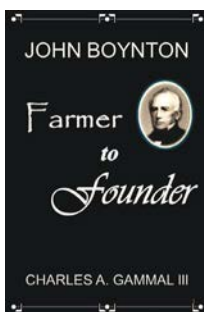
Maccabee’s latest work on UFOs presents examples of sightings and reports, along with an exploration of how evidence of “interplanetary” craft is covered up by government agencies. Maccabee’s detailed investigations include formerly secret FBI, CIA, and Air Force documents dating back to the 1940s that have been released under the Freedom of Information Act. “This is a riveting page-turner, packed with information,” says the publisher. “It tells the real story of why America’s leading intelligence agencies have been genuinely concerned about UFOs, and why the ‘problem of UFOs’ is unlikely to go away any time soon.”



### Illuminating Disease: An Introduction to Green Fluorescent Proteins

**MARC ZIMMER '98** | Oxford University Press

Green fluorescent proteins (GFPs) have been called a “guiding star” for biochemistry research. Scientists are beginning to discover the potential of these glowing proteins to illuminate the previously invisible processes that occur within cells, offering a powerful tool for the detection and a fuller understanding of diseases. GFPs are used in more than three million experiments a year and have been successful in tracking HIV, breeding bird flu-resistant chickens, and confirming the existence of cancerous stem cells. Zimmer’s book introduces this new field, chronicling the early researchers and their discoveries, and exploring the wide scope of experiments performed with GFPs. The colorful illustrations include award-winning micrographic scans. Zimmer, a chemistry professor at Connecticut College, is the author of *Glowing Genes* (2005) and numerous articles.



### John Boynton: Farmer to Founder

**CHARLES GAMMAL III '08** | Contact [boyntonbook@gmail.com](mailto:boyntonbook@gmail.com) to order

From his humanities sufficiency Gammal has created the first comprehensive biography of WPI founder John Boynton, bringing to light “lost” knowledge of Boynton’s life that lay buried in historical records. Gammal painstakingly combed through primary sources, including the official journal of the Massachusetts House of Representatives, town voting records, and the Worcester County Registry of Deeds and the Probate Court, to compile information on Boynton’s personal life, business dealings, and political service, as well as details of his estate. “How did a mere ‘tin peddler’ in the mid-1800s accumulate hundreds of thousands of dollars to launch a university?” Gammal asks, noting that this would make him a millionaire in today’s terms. “John Boynton’s primary occupation was not selling tinware, as most believe,” Gammal says. “The book is unique in documenting his activities as a real estate investor as well as a one-man bank.”

Gammal’s hands-on research took him to Boston and to town libraries and historical societies. An especially rewarding visit was to “The Manse,” the Templeton residence that Boynton built, to see firsthand the second-floor “door to nowhere” that opens onto empty space. “He did what he wanted,” says Gammal. “He didn’t care much about what other people thought. I look at Boynton Hall very differently now. This knowledge changes the way you see the school and the way it was founded.”

wanting to retire on the ocean. Life is good... I ski every week in New Hampshire as soon as Sunapee opens, and I belong to a N.H. ski club that skis the Alps every winter—Chamonix this year. I have a cruising catboat for summers along the New England coast, and a friend has a 34-foot catamaran, which we take across to the Abacos, Bahamas, every fall. She then stays on, living aboard for the winter.

## 1961

**Asjed Jalil** writes, "I retired in 2006, but I am now very active consulting and working with Pradman, an Indian company headquartered in Mumbai. I'm involved in selling their products in North America as well as helping U.S. companies interested in doing business in India."

**Jim Kachadorian** writes, "I am happy to report that Lea and I just celebrated our 75th birthdays in good health. We'll also be pushing 50 years of marriage soon. We are in the process of transforming our Vermont property from a managed tree farm to a state-of-the-art "green" maple sugaring operation. We have partnered with a local tree service company to utilize their woodchip waste product as the fuel to fire a specially built evaporator. This will entail drying the chips in bins similar to corn cribs, since burning green chips will not produce enough heat. The chips will be fed into the prototype evaporator by an auger system. The sugarbush piping, vacuum line, and tree tap system should all be in place by year end. The most up-to-date tree taps will be used to minimize any damage to the trees while getting the most yield due to the vacuum system. Present yearly estimate is to produce about 60,000 gallons of sap (1,250 gallons of syrup) from 3,000 taps. Of course, this is all weather dependent with freezing nights and thawing spring days. This is all being done under the State of Vermont sugaring guidelines. So the next time you buy some maple syrup it might just have come from our farm! When we are not in Vermont, you can find us either in Cundy's Harbor, Maine, or Stuart, Fla."

**Allan Sherman** has returned to Plymouth, Mass., after living in Lexington and Waltham for more than 50 years. Allan and Judith are enjoying settling into their first-ever brand-new house at the Pinehills. "We will be spending the winter in our vacation home next door to our son in Oamaru, New Zealand," he writes. "Retirement is wonderful."

**Veikko "Vic" Uotinen ('63 MS PH)** writes, "I'm retired from a paid job, but still very active in the American Nuclear Society (ANS) and in directing, with my wife, a friendship club for around 60 international students who are attending Randolph College in my hometown, Lynchburg, Va. Glad to be building international friendships and cultural awareness among students and with a group of local host families. Concerning the ANS, I have been a member for 48 years and last year I was given an honorary lifetime membership. In November 2014, I presented an invited paper in a session on Making Ethics Real in Nuclear Engineering at the Winter Meeting of the ANS in Anaheim, Calif."

## 1962

**William Brutsch**, who passed away in 2009, was honored by the Massachusetts Water Resources Authority for his stewardship of the area's water system during his 32-year career with the Metropolitan District Commission and the MWRA. Under his leadership, the foundations were laid for the modernization of a system that is now considered a model for the nation. He also spearheaded a water conservation program in the early 1990s that eliminated the need for new source development and resulted in a decrease of over 120 million gallons of water per day. "He would have been humbled by this gesture in his honor," writes his widow, Carol. "Bill is buried in Quabbin Park Cemetery, near the shores of the great waters he cared for so much."

**Ralph Johanson** was re-elected mayor of the city of Hills and Dales in the Louisville, Ky., area. "I qualified for the US Senior Games (50, 100, and 200-yard breaststroke) to be held this year in Minneapolis. I also spent three weeks traveling in central Europe for my 50<sup>th</sup> wedding anniversary with wife, Kathleen. I'm going to be fully retired from GRW Engineers by end of year—looking for some ideas on volunteering!"

**Stephen Phillips** notes that he's "One of a distinct minority (still working full time in my 70s), with retirement nowhere to be seen or wished for. These days, Royal Health United (a fresh Royal Jelly provider) and Saint Gobain occupy my time."

## 1963

**Bob Craig**, writes, "Retired from GL&V USA Inc. in 2010 and moved to South America, where I've lived since. Enjoying life as a retiree."

## 1964

**Bruce Maccabee** writes, "I retired from a 36-year career as a Navy physicist in 2008. In September I published my fourth book, *The FBI-CIA- UFO Connection* (RichardDolan-Press.com). This book shows that the Air Force withheld from the public that that top brass knew as early as 1948 that some unexplainable UFO sightings were actually evidence of 'interplanetary' craft (the terminology used in FBI documents). From then on they successfully covered up that evidence by publicly stating over and over again that all sightings could be explained; even top generals knew that was not true. I present examples of the covered-up sightings and reports, and describe numerous unexplained UFO sightings from my investigations over a decade and a half." Read more about Bruce's latest book on page 61.

## 1968

**Cary Palulis** writes, "Survived a major heart attack—main valve 100 percent blocked. Stents put in, and I now have a clean bill of health with no restrictions. See you all at next year's alumni golf outing! I'm still going, working full time as VP of sales & marketing for recycler Heritage-Crystal Clean."

## 1969

**Craig Barrows (MS PH)** shares, "Although officially retired, I am teaching physics part time at the Wamego, Kansas, campus of Highland Community College. My wife, Dianne, and I are also volunteer interpreters at the Flint Hills Discovery Center in nearby Manhattan (the "Little Apple"), where we live.

**Raj Chauhan** writes, "I enjoyed my studies at WPI as much as or even more than my previous studies at Chauncy Hall (now Chapel Hill-Chauncy Hall in Boston) and my primary and high school in India. (Back then it was 10 minutes by car from our home in Vile Parle, in Mumbai.) What I really enjoyed at WPI are the beautiful campus and the wonderful New England seasons, along with the excellent professors, the student body, and the wonderful fraternity parties." Raj names many favorite professors, including van Alstyne, Cobb, and Heventhal. "I can't forget Professor Shipman, who said, 'In life, you must be able to grab the bull by the tail and look at facts in the face!' Or Professor Roadstrom saying, 'In every life there comes a time when things become unbearable: That's time to take a break or go on a vacation.' From the era of B&W TV, slide rules, the set square, and French curves, we've come a long way, baby!"



'71

Carl Cruff ('73 MS MTE) retired from Pratt & Whitney Aircraft last year after 40 years of service. He writes, "My last assignment as the commercial engine programs quality assurance manager provided frequent communication with the Boeing and Airbus companies as well as major airline customers. I am now enjoying increased travel, expanded golf play, and bucket list items, such as this B-17 war bird flight. My greatest interest is now volunteering at the New England Air Museum as a tour guide and as restoration associate on a DC-3 project."



I'm thankful to my parents, my wife, Nina, my daughters, Ulka and Ambika, my brother **Vijay '58**, and my nephew **Ajay '86**—and the rest of the Chauhan family and friends, and the staff at our company, Parle."

**Chuck Hardy** writes, "I retired at the end of 2013, after a 45-year career as a consultant to the electric utility industry. I continue to consult from home as needed. This summer my wife and I moved from Massachusetts to Green Bay, Wisc., to be closer to family. My wife is originally from Wisconsin and is a Packers fan. I continue to be a fan of the Patriots and all the Boston sports teams. We attended the Packers-Patriots game at Lambeau Field on Nov. 30. GO PATS!"

**Mahendra Patel (MS ME)** writes, "Currently working as a project manager in the Design & Construction Dept. at Massachusetts Bay Transportation Authority (MBTA), managing transportation system improvement projects. I previously worked in electric utilities (the former Boston Edison) for over 30 years, followed by a short career consulting and working with Honeywell on Boston's Big Dig project. I have enjoyed my active participation over 30 years in ASME International, serving as Boston Section Chair, Region I Board member, and later serving as regional VP. I have enjoyed many ASME Regional meetings on the WPI campus, meeting faculty advisors and many student members. My active involvement in ASME, Engineers Week, and several electric utility industry organizations, as well as leadership roles in Indian community organizations, have benefitted me personally and professionally. My wife and I are enjoying grandparenthood of four grandchildren from our two daughters, Mona and Reena. Our daughters are both lawyers, and we are very proud of them. I can be reached at patelm@asme.org."

## 1970

**David Lawton** writes, "Well, retirement is better than expected. I stay up as late as I want and get up at the crack of 1. I retired from the two companies that I owned with my partners, the Eads Company and Dynasty Filtration. I sold engineered products to engineers and enjoyed my time on the road and in Texas. I visited all 50 states, Canada, and Central America, doing it the best way—on "OPM" (Other Peoples' Money). Donna and I have logged 31 cruises all over the world. Now I have to say, all thanks to a WPI education. It opened the doors for me and business was fun and a challenge."

## 1971

**John Szoke** writes, "I retired in 1999 after a 20-year career at Hewlett-Packard. Since retirement I have been completely involved with investing for our personal account. My wife is a juried member of the League of New Hampshire Crafts, where she creates botanical art for the various League stores in N.H. We are members of the Alden Society and try to get back to the campus as often as we can."

## 1972

**Robert Parry**, was elected a fellow of ASME. He was recognized for his contributions to ASME O&M Codes and Standards and his leadership in developing a code process that allows flexibility in achieving check valve performance improvement through optimization of testing and maintenance activities. This process, Condition Monitoring of Check Valves, is currently employed by more than 20 nuclear power plants worldwide. Parry, a longtime leader in the nuclear industry, is responsible for ASME in-service test programs at Seabrook Station.

## 1973

**Dick Belmonte** writes, "It's been a busy month. I was the team captain for the local Alzheimer's Association walk-a-thon on Nov. 1, and raised over \$4,000. On Election Day, my wife and I were election judges and helped process more than 1,200 ballots over the course of 13 hours. We're looking forward to our next visit to Worcester between Christmas and New Year's Day."

**Dean Kamen** was a keynote speaker at the 2014 General Hugh Shelton Leadership Forum held Nov. 21, 2014, at NC State University. In an interview posted on the school's website, he answered questions on leadership, robotics, and technology. Kamen is the founder and president of DEKA Research & Development Corp.

## 1974

**Stephen Page**, a shareholder in the Stuart, Fla., law office of Gunster, has been named to the 2015 Best Lawyers in America list. He was listed for Stuart in the practice areas of Litigation – Intellectual Property, Litigation – Real Estate, Litigation – Trusts and Estates and Commercial Real Estate. A member of Gunster's business litigation team, he focuses his practice on business and intellectual property litigation, as well as probate, environmental, land use, and securities litigation. Page served on Gunster's executive committee and was the firm's first chairman, 1997–98. He is rated AV-Preeminent by Martindale-Hubbell, an indicator of a lawyer's professional ability and high ethical standards. He has also been honored as Florida Super Lawyers for business litigation and Florida Trend's Legal Elite for commercial litigation.

## 1975

**Jon Anderson**, a partner of Burak Anderson & Melloni PLC, was recently selected by his peers for inclusion in the 21st Edition of Best Lawyers in America in the areas of Environmental Law, Land Use and Zoning Law, Environmental Litigation, and Land Use and Zoning Litigation. Anderson has also been named Best Lawyers' 2014–2015 Burlington Environmental Law "Lawyer of the Year." His practice includes permitting, valuation of complex property, litigation over issues such as contaminated sites liability and clean-up, defense of environmental enforcement actions, utility regulation, and land use. He frequently assists in the improvement of environmental law in Vermont, lectures at seminars on real estate, environmental, and land use law issues, and publishes widely in this field.

**Bill DiBenedetto** continues as president of Lampin Corp. in Uxbridge, Mass. He writes, "Lampin is an engineering and manufacturing company that specializes in producing the finest custom Swiss-machined components (metals and plastics) used in robotics, medical devices, test and measurement equipment, and automation equipment. We also produce and distribute MITRPAK, a full product line of top-quality spiral bevel gear power transmissions across the U.S. Molly and I live in Shrewsbury, and we have three adult children."

**Judy Nitsch**, president of the Commerical Real Estate Women (CREW) Network, moderated the 2014 national conference and conducted a Q&A discussion with Hillary Clinton. Nitsch, who has been a role model and supporter of women in positions of leadership, had a chance to ask new grandmother Clinton what advice she would impart to her own granddaughter.

**Paul Stein** is director of research and new product development at Onciomed Inc., a startup obesity medical device company in Irvine, Calif. He recently received the most recent of his 12 U.S. patents, all of which are for a variety of implantable and interventional medical devices. He also serves as the Southwest Regional Director of Sigma Xi, the scientific research society.

## 1976

**Jon Rourke** writes, "I'm on my fourth venture-backed medical device startup, all in the cardiology field. Currently running an early clinical trial in Cali, Colombia. We do a lot of work at DaVinci Biomedical, a research laboratory run by

**Joe Villani '87**, where **Leo Cappabianca '77** also works. I am writing a long research article to coincide with WPI's 150th on **Harry Worcester Smith, Class of 1887**, the great sportsman of a century ago who donated the gates to Alumni Field. As a freshman, he was the ring leader of the famous "Buckskin" incident, having coaxed a horse belonging to Milton Higgins up the circular stairway of the famous Boynton Hall into what was then the Chapel. The Gordon Library Archives has been very helpful with old correspondence."

In January, **Robert Schildt** moved to Williamsport, Pa., where he bought a house. He writes, "I am retired from the Pennsylvania Liquor Control Board as a state liquor store manager, after 36 and a half years total with the Commonwealth."

**Bob Sengstaken**, a varsity rower at WPI, has rowed the Head of the Charles regatta every year since his time as an undergrad. He now competes at a national caliber level in the Veteran Singles category, this year accomplishing the amazing feat of defeating the great Jim Dietz, the U.S. Olympic Single Sculler of 1976. Bob finished in 9th place, one ahead of Dietz.

The National Society of Professional Engineers (NSPE) elected **Neal Wright** as its director, membership-at-large, at the organization's annual meeting in Washington, D.C. He currently serves as a vice president in Dewberry's Virginia Beach office, where he delivers consulting services to the Department of Defense market segment. In his new role with the NSPE, Wright will help represent NSPE and the engineering profession to the public, and help shape the future direction of NSPE. "As with each organization where I've held a leadership position, I plan on making significant, measureable, and enduring contributions to the NSPE and the profession of engineering as a whole," he says. He is also an active member of the Society of American Military Engineers and the American Society of Civil Engineers.

## 1977

**Thomas Killeen** writes from York Beach, Maine, "It's been 37 years since professor Fitzgerald ("Friz") got me involved in Fire Protection Engineering. What a trip!" He recalls the first master's-level classes ("binders and photocopies, what books?"), and has witnessed 11 shut sprinkler valves in 34 years ("Will I hit an even dozen?"). He adds, "That's scary, as it goes to show that people can undo the best engineering. I got that ingrained doing my IQP, and it's

proven true time and time again, thanks to the Plan. A great idea that worked and still works, and is even better today. Strive to be the best, but remember *people*."

## 1978

**John Bourassa** celebrated his 30-year anniversary with Lockheed Martin. John is an integration and test engineer and serves as the test lead supporting the U.S. Army's Joint Tactical Terminal at Aberdeen Proving Ground in Maryland.

**John Johnson** was named Outstanding Faculty Member in Computer Engineering at the University of California, Santa Barbara, for the second consecutive year. His primary responsibility is in the teaching and advising of the senior capstone project class at UCSB, "a course requirement very similar to WPI's MQP," he notes.

## 1979

**Shane Chalke** writes, "After a career as an entrepreneur in financial mathematics (I started three successful companies), I've been working as a full-time musician for the past five years. I play in the mountains of North Carolina in the summer months, and Sarasota in the winters. I still lecture in mathematical finance at WPI and other schools from time to time, but am quite busy playing 150–200 nights a year!"

**Sigifredo "Fred" Gonzalez** writes, "I'm retired and living in Rock Hill, S.C., with my daughter and her husband and two kids. Looking for a job here, but pickings are slim."

**Mary Farren McDonald** continues as CEO/CTO, McDonald Consulting Group. She and her daughter, **Karen McDonald '14**, live in Austin, Texas.

**Stephen Rusckowski** is president and chief executive of Quest Diagnostics, based in Madison, N.J. The firm's recently added a 50,000-square-foot laboratory facility in Marlboro, Mass.

## 1980

**Mike Gardella** writes, "I am currently the vice president of engineering and manufacturing for Sorensen Systems in Northborough, Mass. I have a very supportive and loving wife of 34 years, two children, and two grandchildren that are a continuous source of delight. I enjoy camping and can be found on the water most weekends, fishing."

**John Goodwin** tells us, "So, after a long non-traditional WPI career path of sales and marketing, I am returning to graduate school to become a physics teacher. Teaching STEM these days is a good thing because a) you will be able to find a job and will be sought after; b) they don't care if you are 50-something; and c) you get a lot of vacation (needed to recover from one of the hardest jobs on the planet!)."

**Paul Kidder** writes, "My career has led me through United Technologies, where we made the equivalent of internet network cards that cost multiple hundreds of thousands of dollars in the 1980s, and included incredible radar systems and command and control systems work. I completed my MS in management at Purdue in 1986, did missile systems work at Raytheon, and now I am a senior procurement financial analyst at Boeing Commercial Aircraft in Everett, Wash. Never a dull moment! I have two kids: Arisen, a CPA tax accountant, and Ryan, who owns his own business servicing construction equipment."

## 1982

**David Kelly** was named a fellow of ABET, the Accreditation Board for Engineering and Technology. He is president and CEO of Bluefin Robotics, a Battelle company that designs, manufactures, and operates Autonomous Underwater Vehicle (AUV) systems and related technology, including battery power systems for defense, commercial, and scientific applications. "It is a true honor to be selected as an ABET fellow," he said in a company press release. "I take great pride in the work I do every day and appreciate the recognition from this prestigious organization." Kelly currently serves as a representative director for ABET, and has also served as executive committee member and commission chair for the Computing Accreditation Commission of ABET. He holds an MBA from Southern Methodist University and an MS in computer science from the University of Texas at Dallas.

## 1983

**Cynthia Kosciuczyk** shares that she's thankful for Southern California weather and excited about starting to be involved in teaching workshops for Bridgepoint/Interlink in San Diego this winter.

**Terese Kwiatkowski** was promoted to senior principal at GZA GeoEnvironmental, an environmental and geotechnical consulting firm in Norwood, Mass., where she has worked for 29 years. She currently sits on the company's Board of Directors. A geotechnical engineer, she specializes in large transportation infrastructure projects; building development projects for colleges/universities, medical institutions, and commercial, retail, and residential developments; and energy transmission projects. She has served as the president of the Boston Society of Civil Engineers and chair of the Geotechnical Institute Committee. GZA president and CEO William Hadge said, in announcing her promotion, "Terese throughout her career has been a pillar of professionalism and technical excellence. She is a visible leader in the engineering community and has made many significant contributions to GZA's success."

'86

Ron Barth's band, Clockwork, performed at WPI's Intergalactic Inaugural Ball, held in Harrington Auditorium on Nov. 8, which was a highlight of Inauguration Weekend. "It was such an incredible experience to be back at my alma mater playing for over a thousand alumni, faculty, and students," he writes. "And meeting President Leshin was an honor! I love being able to split my career between music (playing on weekends), and developing database applications during the week as a software consultant through my company, Alternative Systems Inc."



"Let's all hoist one to the breezes," writes **Jim Leonardo '83**, who attended the Aug. 2 wedding of Michelle and **Chip Bienia** in Southeastern Mass. "A good time was had by all," says Chip, including **Bob Bursiewicz, Roger Uszakiewicz '84, Nick Pirog, Jim Houskeeper**. Jim works as a project engineer for Dyno Nobel Inc., a business of Incitec Pivot Limited, in Simsbury, Conn.

**Don Montgomery** is a managing partner in a marketing agency, WinGreen Marketing Systems, headquartered in Downingtown, Pa. He and his wife, Denise, live in Upper Uwchlan Township and have recently welcomed their first granddaughter, Dakota Jae McCullum, to the family.

## 1984

**Desiree Awiszio** writes, "I worked on an interesting CPLD chip design project for a life sciences product that recently went to production: a Fluorescent Molecular Tomography (FMT) system that is used for cancer research. Working with a great team of people with perseverance and enthusiasm, focused on a design that will help people.... It all came together and was a wonderful experience."

**Joan (Marler) Morra** writes, "I recently had the opportunity to attend a Materials Engineering seminar at WPI for a presentation on additive layer manufacturing with the department graduate students. The seminar was an excellent opportunity to learn about current research and to see how much has changed in the facility. Of course, it was also a great excuse for a reunion with Professor Rick Sisson!"

## 1986

**Nick Tsapatsaris** was co-developer, builder, architect, and engineer of the Center City Mall in Paterson, N.J., a 320,000-square-foot urban center with 650 underground parking spaces. Since divesting his interests in the completed mall last year, he is now embarking on new downtown mixed-use projects. He lives in Ridgewood with his wife, Stacey, and their three daughters, who are 14, 13, and 10.

## 1987

**Tom Riley, Jon Pratt '88, Rick Fisetta '89, and Bryan Outlaw '89** have participated in the Rhode Island Chapter of the Multiple Sclerosis Society annual 150-mile bicycle ride every year for about the past 20 years. This year, Tom's

brother **Andrew '98 (MS CS)** joined them, taking over for his father, George (a former adjunct professor of economics in WPI's SPS department), who rode along with them up until last year. Tom was an avid racer throughout his college years and a member of the WPI bicycle team.

In October **Donald Walker** celebrated six months as controller for BigR.io LLC, a technical consulting and placement firm in Boston. He lives in Brighton with his wife of five years, Marybeth Porcello Walker, and their cat, who will be 14 in March. Donald and Marybeth were married July 8, 2009, at the Mendon Twin Drive-in—exactly 10 years to the day after their first date at the same location.

## 1988

**John Lamach** celebrated his 15<sup>th</sup> anniversary with Schneider Packaging Equipment, where he serves as a design engineer. He lives in Pennellville, N.Y., with his wife, Linda.

## 1989

**Kimberly Kuzmitski Beaulieu** is now working at GE Healthcare in Westboro, Mass., as a supplier quality lead engineer. Kim was previously at Smith & Nephew as a senior quality systems engineer for 10 years."

**Jeff Goldmeier** writes, "I received the 2014 Paper of the Year Award at the POWER-GEN International Conference, one of the largest events in the power generation industry. My paper was titled "Gas turbine fuel evaluation process: A case study on the application of Arabian Super Light Crude Oil for use in GE 7F-class Dry Low NOx (DLN) combustion systems." The paper detailed the process used by GE to evaluate new fuels for use in large power generation gas turbines, and then presented a case study in the evaluation of Arabian Super Light crude oil. This is significant milestone in the power generation industry as it was the first time that a crude oil was operated in an advanced gas turbine." Jeff works at GE Power & Water in the Power Generation Products group, along with **Rich Symonds '67**. "Rich works in Engineering, specifically in Combustion; I work in the Gas Turbine Product Management organization, as the Fuel Flexibility leader. Together we, with the global GE sales teams, help determine if a new fuel can be used by customers in a GE gas turbine. This activity has large impact on power generation globally, as many countries don't have access to affordable natural gas and must, therefore, use less expensive fuels that, in many cases, are of lower quality."

Clarinetist **Adam Pease** was guest soloist for the Saratoga Symphony's all-Scandinavian program in October. He lives in the Bay Area of California, where he is a member of Quintillion, a group that also includes a string quartet. Adam has also been a member of the Bay Winds woodwind quintet and the Loma Verde Chamber Players.

After graduating from WPI, **Andy Siegel** spent nine years of active duty in the Navy. His tours included postings as a division officer in the Reactor Department on USS *George Washington*, as flag lieutenant to the commander of Naval Base Pearl Harbor, and as operations officer on USS *Hewitt*. "Since leaving the Navy in '98, I have worked at IDT as a sales engineer; at (then) start-up NetLogic Microsystems (IPO in '04); and as an area sales manager and VP for American sales at (then) start-up Provigent Inc. (acquired by Broadcom in '11). I'm now at Broadcom, where I continue as director of business development for microwave and millimeter-wave backhaul semiconductors." Andy lives in Livermore, Calif., with his wife and twin boys.

## 1990

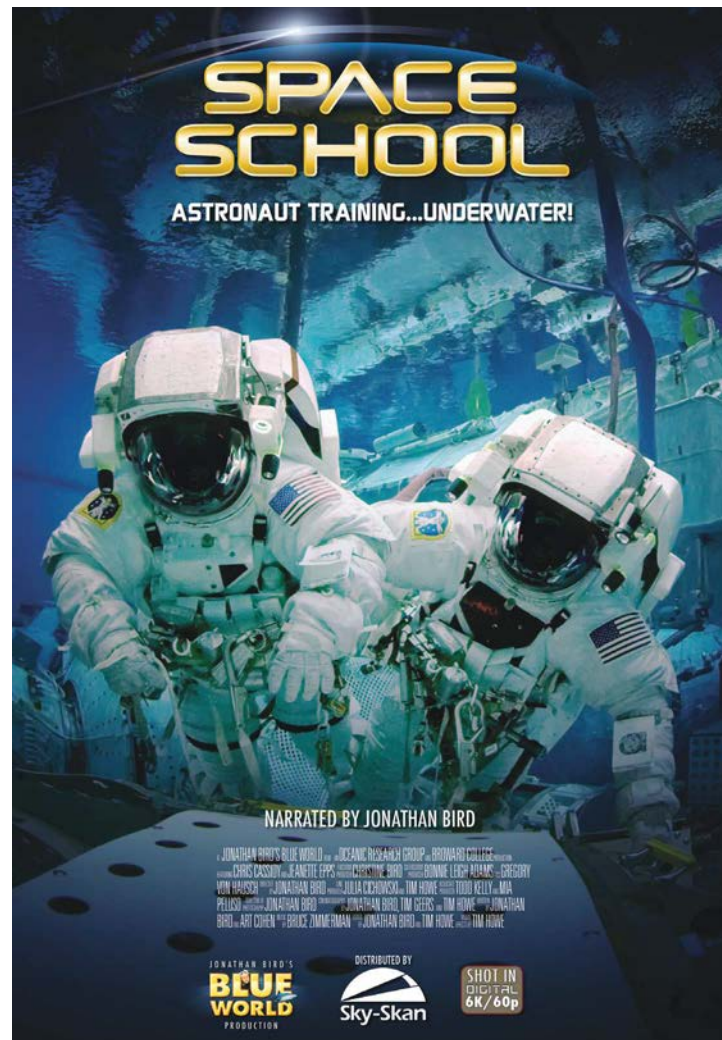
**Al Alonzi** writes, "In July 2014, I was appointed to the federal senior executive service position of Texas Division administrator for the Federal Highway Administration. As a key member of the agency's leadership team, I exercise executive direction over the \$3.2 billion annual federal aid allocated to Texas, which has one of the largest and most complex federal aid programs in the nation. I lead a multidisciplinary staff of more than 50 professionals in Austin to provide guidance to state and local funding recipients unified in their primary objective of remaining a relevant partner in Texas while advancing national transportation goals. I continue to live in Austin with my wife, Susan, and three kids, Edward (10), Elizabeth (8), and Patterson (3)."

Col. **Brian Foley** has served as garrison commander for Fort Meade in Maryland since August 2013. He holds an MBA from Webster University and a master of science from the National War College. His previous assignments include serving as information management officer with the 3rd Special Forces Group (Airborne) and as the Sensitive Activities Information Management Support team leader for the U.S. Army Special Operations Command. His service also includes several deployments overseas and in combat zones, including Afghanistan. He also served in Operation Iraqi Freedom.

'90

Jonathan Bird directed and produced *Space School*, the world's first digitally filmed live-action film for dome-format theatres. He is best known as host of the syndicated Public Television series *Jonathan Bird's Blue World*. The new ultra-high definition documentary offers viewers a rare glimpse of NASA astronauts training for space by spending time in underwater environments here on Earth. With the cooperation of NASA, Bird and his team filmed astronaut Chris Cassidy training for space walks at the Neutral Buoyancy Lab in Houston, and astronaut Jeannette Epps practicing techniques for exploring distant asteroids and planets at the Aquarius Reef Base in Florida.

*Space School* premiered Jan. 15, 2015, at Broward College's Buehler Planetarium. Bird's camera work made use of RED Dragon, the first commercial camera to offer high-resolution images suitable for projection on a dome. *Space School* will be shown in fulldome theatres across the country this year. See more at [spaceschool.blueworldtv.com](http://spaceschool.blueworldtv.com).



## 1991

**Patrick Welge** says, "As of Nov. 1, 2014, I am president of Jaeger Spindles of North America Corp. Jaeger Spindles is based out of Bad Nauheim, Germany, with U.S. operations in Atlanta, Ga. It is a manufacturer of high-speed, high-frequency spindles for the machine tool and other industries."

**Bob Prytko** writes, "I recently completed the scale-up (50kg) of a Phase III drug candidate. Amazingly, I've been at Sepracor (now Sunovion Pharmaceuticals, in Marlborough, Mass.) for over 20 years! We sponsored an MQP project last year and it worked out so well, we are working with WPI again this year."

## 1992

**David Friedman** is acting director of the National Highway Traffic Safety Administration. He was previously deputy administrator.

## 1993

**Jim O'Neill** was part of the group on the podium of the NYSE when HubSpot went public. Jim, an early member of the executive team, serves as CIO for the company, which develops and markets software for inbound marketing, social media marketing, email marketing, content management, web analytics, and search engine optimization.

**Jeff Rembold** writes, "After many years working as an application engineer with PTC, primarily on mechanical CAD and PLM solutions, I have taken on a new challenge. I am now a technical sales engineer for ThingWorx (a PTC business), enabling companies to develop applications

that will help them transform their businesses around the 'Internet of Things.' I continue to live in Rochester, N.Y., with my bride, Cristine, and our five children (our oldest daughter is college-bound next year!). Aside from spending time with my family, I enjoy reading G. K. Chesterton and running many, many miles."

**Pete Travers** has been busy on some high-profile projects, including visual effects for *Guardians of the Galaxy*, *22 Jump Street*, *Blended*, and *Captain America: The Winter Soldier*.

## 1994

**Jungyoon Terry Park** writes, "I was lead engineer for an IT system development program in the U.S. Air Force for three years at Hanscom AFB, Mass., before I got reassigned to the 7th Air Force last September as a deputy director for a modeling and simulation center for the Korean theatre. My family and I now reside near Osan AB. If you are in Korea, give me a holler!"

## 1995

**Jeff Mullen** recently joined Boston Scientific in Burlington, Mass., as a manufacturing engineer. He writes that he continues to enjoy working in the medical device industry and is working on completing his Six Sigma Black Belt certification. For the past two years, Jeff, his wife Kerry, and their daughters, Julia and Olivia, have resided in Reading, Mass.

## 1996

**Mike Caprio** is a founder and organizer of Space Apps NYC, a nearly 500-member local chapter of the NASA International Space Apps Challenge. Through Space Apps NYC he recently helped organize the first overnight hackathon at the American Museum of Natural History in the Hayden Planetarium ("Hack The Universe"), which used the Digital Universe dataset to create new applications for research and education.

## 1997

**Deb (Foley) McManus** has been named VP, quality and program management, for Morpho Detection LLC. She is based in Wilmington, Mass. Morpho Detection is a leader in explosive and narcotics detection for aviation safety, checked baggage screening, military and critical infrastructure protection, and new growth platforms in Chem/Bio, X-ray,

and Radiation/Nuclear detection. The company was formed in 2009 by the acquisition of GE Homeland Protection by Sagem Sécurité (Safran Group). In her new role, Deb is responsible for ensuring that quality is a company-wide requirement. She will also accelerate process improvement, manage and implement functionally independent programs/projects, and drive best-practice sharing and harmonization of processes among sites and departments.

## 1998

**Brian Beaton** is a partner in the Real Estate Group of Bowditch & Dewey LLP in Worcester. He was recently highlighted as one of *Worcester Business Journal's* list of 40 Under Forty. His practice includes assisting clients with the planning and permitting of complex commercial, educational, and nonprofit development projects.

**Jeff Faulkner ('06 MS ECE)** was recently honored by the Massachusetts Water Works Association. He was presented with the association's William H. McGinness Award during the annual meeting in November for his outstanding service to MWWA, and his overall contributions to the waterworks industry. Jeff is a project manager for Tighe & Bond, a consulting firm that provides engineering and environmental services, working out of the firm's Worcester office.

## 2000

**James Behmke**, former partner with Edwards Wildman Palmer LLP, has joined PIB Law as managing partner of the firm's new Boston office, and chair of the firm's intellectual property group. His practice focuses on patent preparation and prosecution in a wide variety of mechanical, electrical, and computer arts, among other technological areas. During his career, he was recognized as a New England "Rising Star" for his legal talent. He received his juris doctor from Franklin Pierce Law Center.

**Ben Nawrath** writes, "It's been a busy year or so for me! Jessica and I got married in August 2013, followed by a terrific honeymoon in Alaska. Last June we moved into our new house, and on July 22, we welcomed Jack William Nawrath to the world. He's finally big enough for his WPI onesie, courtesy of his aunt **Molly '05**. In my spare time I still play my bari sax in a community concert band, and I was recently elected secretary of a branch of the Long Island Woodworkers club. Jack is hoping to get his first Lego set for Christmas so he can follow in his dad's footsteps."

**Victoria Valentine** was promoted to director of engineering for the National Fire Sprinkler Association in August 2014. She now oversees all of the engineering activities for the NFSA.

## 2001

At the start of 2015, former Massachusetts state representative **Matt Beaton** took office as Gov. Charlie Baker's new secretary of energy and environmental affairs. Beaton has represented the 11th Worcester district in the House of Representatives since 2011. As the state's top energy and environmental official, Beaton says he will be committed to addressing what he believes to be the central energy-related issue facing Massachusetts: the need to balance the state's continued leadership in energy efficiency through clean energy installations with affordability for the individual consumer. "Finding the right key to that balance early on will be the main focus of my tenure," he told WPI's *Daily Herd*. "That means continuing to reduce greenhouse gas emissions by bringing in natural gas sources and developing wind and solar energy within the state, while keeping prices reasonable."

Beaton paid a visit to his alma mater in December, as the closing speaker for the Great Problems Seminar Poster Presentation Day. In his address, he told students that he never imagined his career would take the twists and turns that it did, and urged first year students to take advantage of the project opportunities offered by WPI. Beaton holds a master's degree in energy and environmental analysis from Boston University and is co-owner of Beaton-Kane construction firm. The home he built in Shrewsbury was the first certified passive solar house in the Commonwealth.

**Mike Mahan** was recently included on *Worcester Business Journal's* 2014 list of 40 Under Forty for business and community leaders. Currently in finance and administration at Staples, Mike is also very active in his community, serving as a trustee at Fitchburg State University, a director at the Boys & Girls Club of Fitchburg and Leominster, and a member of the Leominster Planning Board.

**Amanda (Kight) Muller** was recently named a Northrop Grumman Information systems technical fellow. This extremely selective program offers employees of exceptional ability and achievement the freedom and opportunity to pursue technical interests of mutual benefit to themselves and the company.

'04

Krystal Tam and her husband of one year, Jeffrey Yong, took a combined honeymoon/first anniversary trip to Paris and Rome in October 2014.



**Jim Konz** writes "The Konz clan recently moved to Bristol, R.I., after living in Massachusetts for as long as we can remember. The draw of the water and the sweet taste of coffee milk was just too much to pass up." Jim is still at Nasdaq, and he notes that "Dina has the more difficult task of staying home with the four kiddos. Life is good."

## 2002

**Meghan Cryan** made a run for selectman in the town of Maynard, Mass. She has served as president of the Maynard Family Association and volunteered with the local PTO, as well as Litter League, Revitalize Maynard Collaborative, and Community Gardeners. She has four children.

**Kurt Onofrey** and his wife, Shauna, welcomed their second child, Penelope Joy, to the world in July 2014. Everyone, including big brother Stephen, is enjoying having a little one in the house, he writes.

## 2003

**Ari Copeland**, operations specialist with Black & Veatch, earned his PO (Professional Water Operator's license) at WEFTEC, a water quality event hosted by Water Environment Federation. Ari was one of the first in the country to receive this new professional designation. He also recently relocated from Colorado to Rhode Island to be closer to family and friends. Ari currently travels around the country assisting in the operation of various water and wastewater treatment plants.

**Nina Simon** was prominently featured in a *Wall Street Journal* article called "Everybody's an Art Curator." As museum director of the Santa Cruz Museum of Art & History, she described bringing the museum out of the red and back to financial health "by opening the doors for people to be involved." The article described Nina's career and innovative ways she's involved new audiences through interactive exhibits.

## 2004

**Scott Bertulli ('05 MS EE)** is an associate in the litigation department of Proskauer Rose LLP. He practices in the Patent Law and Intellectual Property groups, and is resident in the Boston office.

**John Duffy** writes, "On Oct. 4, 2014, I married Lauren Fenuccio, a graduate of Assumption College. Of our wedding party there are many WPI graduates, including best man **Jacob Roczniak '03** and groomsmen **John-Paul Bordage, Ian Love, Chris Jasinski, and TJ Lynch '05.**

Capt. **Laura Matejik-Eberts** was posthumously inducted into the Bay State Battalion Hall of Honor at WPI, in a ceremony during homecoming weekend. A varsity athlete in field hockey and rugby at WPI, and an avid long distance runner, she graduated from WPI with a 4.0 in biomedical engineering. After receiving her juris doctorate from George Washington University, she served as JAG Corps officer at Redstone Arsenal in Alabama, and deployed in support of Operation Enduring Freedom in 2010.

In July, **Brooke (Buchholz) Tropf** started a new job at the Johns Hopkins Applied Physics Lab. She's currently in the Flight Software group for Solar Probe Plus, a NASA mission to study the sun's corona, scheduled to launch in 2018. After a year and a half in mission operations, Brooke says she's enjoying getting back to more technical work, learning about the guidance and control system for SPP, and writing code to emulate that hardware for the Flight Software testbed. "As a bonus, a shorter commute gives me more time for running and working on home improvement projects around the townhouse I share with my husband, Zach."

## 2005

**Barrett Franklin** has been detailed as the acting deputy network director for the VA New England Healthcare System-Veterans Integrated Service Network (VISN) 1. The deputy network director reports directly to the network director and is responsible for the management of the administrative service lines of the healthcare system.

**Greg Krane** and his wife, Farleigh, have relocated to Gainesville, Fla., where Greg is doing a residency in anatomic pathology at the University of Florida's College of Veterinary Medicine. They recently attended their first Florida Gators game. "Note that I was sporting some WPI gear as well," he writes. "We both look forward to meeting any WPI alumni in the area."

**Nathan Meryash** joined NYC-based hardware startup, Keen Home (keenhome.io) as CTO last May. "Keen recently announced the close of a \$1.52M seed funding round and plans to bring its smart air vent to market in the spring," he writes. "Rather than develop our own smartphone app, we will be partnering with several leading smart home ecosystems for a seamless experience."

## 2006

**Mandy (Learned) Boucher** is living in the Boston area with her husband, Tommy Boucher, whom she met in 2000 in the annex of Gordon Library, which housed the Mass Academy back then. They celebrated their marriage, presided over by Rev. **Paul Goranson '62**, on May 10, 2014, with best man **Steve Goranson '06** and Mandy's MQP research advisor and cross-country coach, Professor Brian Savilonis. The wedding had an apt theme of early 20th-century math, science, and technology. After six years of engineering at Pratt & Whitney, she is now leading optimization studies worldwide at Exa, using its unique Lattice Boltzmann technology for CFD simulations. Tommy is a PhD candidate in machine learning at UMass Amherst.

**Michael Hebner** was recently promoted to senior consultant in the technology practice of Deloitte Consulting LLP. He is based out of the firm's Boston office, but is currently serving a high profile client in New York City.

**Amy Jackson** writes, "I currently live in Boston and am working as an actuary for a large insurance company (putting my WPI actuarial math degree to use!). And I got engaged this past September."

## 2007

**John Remby** sends word that he and **Anthony Vello '09** recently completed their first year in a new venture. The two created a cloud software consulting firm, Stratus Hub, based in Manchester, N.H. The company helps small and medium-sized companies manage and grow their businesses by integrating cloud-based software, such as Salesforce.com, into their everyday operations.

## 2008

On June 21, 2014, **Nicole DeCampo** married Christine Warrington. She writes, "After getting engaged on July 6, 2012, we were able to celebrate with family and friends at

Pats Peak in New Hampshire. Our bridal party included **Megan Holmes '05, Tiffany (Warrington) Holmes '07,** and **Lynn Worobey '08.** We had many other WPI alums in attendance, including **Jill Goldstein '08, Shannon Brooks '09, Briana Dougherty '08, Kristen Gervais '07, Amanda Olore '08 Stacey Mohr '08, Siobhan (Fleming) Conway '08, Liz Stewart '08, Jess McAlear '04, Amanda (Solomon) Klemm '05, Maggie Fulton '11, Kristen Garza '11, Katie Partridge '11, Amanda Martori '10, Liza Tuttle '09, Chelsea (Casavant) Richards '08, Jennifer Castriotta '08, Amanda Young '09, Sabrina (Zayas) Carmichael '09, and Mike Richard '08.**

**Brian Duncan** is working for Starwood Hotels Corporate in Stamford, Conn., as manager of operations since June 2013.

## 2009

**Kyle Miller** writes, "I'm nearly finished with my master's in urban planning from the University of Toronto. I'm also working on obtaining my professional engineering license, and will receive my engineer's pinky ring in May. Over the summer, I researched public-private partnerships and attended the Congress for the New Urbanism in Buffalo. I'm still playing piano (hello, WPI JazzGroup!) and taking lots of photos (hello, PhotoClub!). My wife and I celebrated our third wedding anniversary in August. I was able to fit in some sailing with a friend in Toronto Harbour this past summer."

**Neel Sircar** writes, "It's been too long since I re-visited WPI and walked through the beautiful campus that was my home for four years. I recently completed my doctor of philosophy degree within the mechanical engineering faculty at Purdue University in West Lafayette, Ind. My research explored the use of biomass as a renewable and carbon-neutral energy resource through a process known as gasification. Although I haven't visited WPI for some time, I recognize the importance of a WPI education in my graduate career success and in my continued interest to strive towards the betterment of society through technological developments. I recently joined Celanese Corp. in Florence, Ky., as an advanced process development engineer in their Technology Innovation and Leadership Program. I look forward to interacting with WPI alums in the greater Cincinnati area, and I am always proud to represent WPI in the technology and innovation industry!"

## 2010

**Brenna Colleary** married Benjamin Johnson on Sept. 27. She completed her master's degree in systems engineering at WPI in 2014 and now works as a quality engineering supervisor for Davis-Standard in Connecticut.

**John McGinley (MS ME '11)** and **Erin Burns '11** are engaged to be married Sept. 12, 2015. John is working for Raytheon and Erin is working toward her MBA at NC State.

**Dan Sacco** married Michelle Sabella on Oct. 4, 2014. "We started dating the day I left for freshman orientation at WPI," Dan writes. "Michelle attended college in New Jersey. We stayed together the entire time and got married eight years later!"

**Alejandro Solà (MS SD)** bought a house in South Fayette, Pa. He is director of North American strategy for Mylan Pharmaceuticals.

**Liz Schreiber** and **Mike Taglieri** were married in Whately, Mass., on Oct. 11, 2014. They share their romantic story: "Despite Mike living on Daniels 3rd and Liz living on Daniels 4th in our freshman year, we never knew each other until we both signed up for the Thailand project center for our IQPs in our junior year. We both remember the first time we met—speaking broken Thai to each other during a language class exercise before leaving for the project. If it wasn't for our IQP, we may never have met! Our love for traveling and adventure is what led us both to select Thailand, and we have continued to travel since then, going to Yellowstone National Park, Peru, and most recently South Africa for our honeymoon." Mike is now a design engineer for GE Aviation, and Liz is the director of a wastewater treatment plant.

## 2011

"大家好! Greetings from China!" writes **Simeon MacMillen**. "After working for a couple years in manufacturing outside Boston, I am now pursuing my dream of developing Mandarin language 'fluency.' While completing my MQP in China four years ago, I became very interested in Chinese language and culture. I am now participating in a one-year language certificate program at SIAS International University in Henan, China. Please feel free to send me a note at smacmillen@alum.wpi.edu."

**Michael Riggieri** writes, "I have been working for the Worcester Harleysville branch of Nationwide since February as a commercial lines processor and enjoying it very much."

Send your class note to [classnotes@wpi.edu](mailto:classnotes@wpi.edu). Images welcome!



'13

## 2012

**Nimra Wasim (MBA)** researched the state of social protection in the urban informal sector of Pakistan. Her paper is now published as part of a book on the South Asian labor market by Routledge Books, titled *Social Protection Policies in South Asia*.

**Sam O'Connor** writes, "Hi all! Since last year, **Mark Kuhlwein '11** and I have moved to Rhode Island and I've started working at Electric Boat. I've been staying close with the WPI crew program and guest-coxed some races this past fall. (Yes, crew still takes up my weekends.) Hope everyone is doing well!"

**John Wilder** writes, "I recently moved to Shelton, Conn., to start my second year at Sikorsky Aircraft. Things are ramping up here as we prepare for the first flight of the CH-53K King Stallion in March of 2015!"

**Richard Wingert** writes, "Since graduation I have been incredibly busy. I started a small company that sub-contracts jobs in all industries of the labor force. I have worked in and all around Massachusetts. More important, I found a way to feed my passion in respect to theatre. I've been averaging a steady five productions a year and have launched a modeling career from this. Through the insight of WPI's education and incredible faculty, I am doing well."

## 2013

**Greg Overton** and **Marlisa (Cardoso) Overton '14** have good news to share. "We just bought our first house in Colorado Springs and we're both enjoying our jobs in the military."

**Jon Vasquez** began his engineering career with a position at Eagle Stainless Tube and Fabrication Inc. in 2012 as a process engineer. The next year he was promoted to his current position of manufacturing engineer. In May of 2014 he moved to the North End of Boston from Central Falls, R.I. He writes that he hopes to further his career in the medical device industry and eventually go back to graduate school.

## 2014

**Randy Chin** accepted a manufacturing engineer position at Waters Corporation in Milford, Mass. The firm develops products that help improve the biopharmaceutical sector. He's currently living with three other 2014 WPI grads in Brighton. "We are having a great time there and constantly running into fellow WPI classmates," he writes. "It seems like no matter where I go, traces of WPI are still around."

Donal Boyd's photo exhibit "Cape Cod to Cameroon" was on display in Gordon Library this fall, with images of his travels from Cameroon and Turkey to New Hampshire and Cape Cod. The collection of images illustrates the travels of WPI alumni over the past five months. The Library's blog noted, "Donal has a passion for international development and for photography, often blending the two disciplines to tell captivating stories. He views photography as an invaluable tool that allows him to share his interest in technological innovation and international development in a concentrated and succinct manner. Unlike many photographers, he doesn't only take photos, but also takes notes. Sharing the images and captions offers the viewer a way to experience the wonderful memories of Donal's travels."



## Ted Coghlin '56, WPI Supporter and Renowned Community Leader

**Edwin B. (Ted) Coghlin Jr.**, an alumnus dedicated to his alma mater and the Worcester community as a civic, business, and philanthropic leader, died Dec. 10, 2014, at the age of 79. He was one of nine members of his family to attend WPI over the course of four generations. While earning his BS in mechanical engineering, he honed his public service skills as president of the Tech Senate and the Student Christian Organization. He also belonged to Phi Gamma Delta, Pi Delta Epsilon and Skull honor societies.

Ted Coghlin devoted his career to the Coghlin Companies, the family enterprise founded in 1885 by his grandfather, John P. Coghlin. At the time of his passing, Ted was treasurer of Coghlin Electrical Contractors and Network Services. Knowing that a quality workforce was vital to the success of Coghlin Companies—and to the regional economy—Coghlin championed the construction and the continued funding of Worcester Technical High School, securing over \$4 million in donations, which helped leverage more than \$20 million in matching funds. He also worked loyally for numerous civic cause and was honored in 2004 with the *Telegram & Gazette* Isaiah Thomas Award. In recognition of his lifetime of service to the Boy Scouts, he was inducted into the New England Boy Scouts Hall of Fame in 2008.

Coghlin worked tirelessly on behalf of WPI, chairing every one of his reunion committees, and serving the Alumni Association in many capacities, including the Class Board of Directors, Annual Fund Board, Leadership Gifts chairman, and as president of the Worcester County Alumni Club. The Alumni Association honored him with the Herbert F. Taylor Alumni Award for Distinguished Service to WPI in 1981 and in 2008 with the Humanitarian Leadership Award. Ever since his own days on the gridiron, he remained an avid supporter of WPI athletics, attending the WPI Athletics Banquet every May to present the John P. Coghlin Award to an exemplary team manager, in honor of his brother. Ted also established the Edwin B. Coghlin '23 Award for Community Service, presented annually to students in memory of his father.

Ted leaves his wife, Maureen, four children, and five grandchildren.



## Matt Ward '77, Professor of Computer Science

**Matthew O. Ward '77**, a longtime professor of computer science at WPI and a pioneer in the field of data visualization, died at the age of 59 on Oct. 13, 2014. He was known for helping establish the field of multivariate visualization and visual analytics, which involves translating complex data sets into visual representations that make it easier to appreciate and comprehend the stories behind numbers. The tools he developed represented some of the earliest contributions to the field known today as Big Data.

Ward graduated from WPI in 1977 with a degree in computer science and held an MS and a PhD in computer science from the University of Connecticut. He joined the WPI faculty as an assistant professor of computer science in 1986 and rose to the rank of full professor in 2000. In recent years, Ward played a pivotal role in the development of WPI's Bioinformatics and Computational Biology program, serving as the program's first director. He also helped develop the master's program in data science and co-founded the Melbourne Project Center. He leaves his wife, Meredyth, two sons, and two grandsons.



## Jim Muckerheide, Professor and Nuclear Technology Specialist

**James B. Muckerheide, 71**, of Needham died Nov. 29, 2014, leaving his wife, Linda, three children, and five grandchildren. After graduating from Lowell Tech with a degree in nuclear engineering went on to a career in the field, serving Mass Emergency Management Agency (MEMA) as the state's nuclear engineer from 1991 to 2010. In addition to teaching at WPI, he also served as co-director of the Center for Nuclear Technology and Society. An early advocate for improving federal standards for personal radiation exposure, Jim founded a nonprofit scientific advocacy organization, Radiation, Science and Health, and served as its president.

George Schott '46  
Miczyslaw Waclawek '46  
Allen Mintz '48  
Sherman Brickett '49  
Robert Quattrochi '49  
Harvey Vigneault '49  
James Meiklejohn Jr. '50  
Robert Chapman '52  
Earl Klaubert '52  
Warren Peterson '52  
Richard Gilbert '54  
Winslow Spofford '56  
John Atchison Jr. '57

Frederick Mertens '57  
Jessie Erlich '62 (Sigma Phi Epsilon)  
John O'Malley '62  
Michael Littizzio '63 (SIM)  
John McCarthy '65 (SIM)  
Edward Regan '65 MS  
Dennis Beliveau '73 (Alpha Tau Omega)  
Robert Scott '76  
Robert Fritsch '78 MS  
Robert Horne '80 (Tau Kappa Epsilon)  
Donald Burlamachi '82  
Arnold Fay Jr. '82 (SIM)  
Andrew Fryc '82 (SIM)

Warren Jeannotte '82 (SIM)  
Andre Lacroix '84 MS  
David Miles '86 (Sigma Phi Epsilon)  
Patrick Degenhardt, Class of 2017

We also note the passing of John Wild, physics professor emeritus; and Raphael Njoroge, who taught courses on African and African American culture in the Department of Humanities and Arts—a strong advocate for African studies and African people, Njoroge worked with

colleagues in the School of Business to establish an African Fellows Program at WPI.

Complete obituaries can usually be found through legacy.com and newspaper websites. WPI will share details on the "completed careers" of friends and classmates. To request further information, contact [jkmillier@wpi.edu](mailto:jkmillier@wpi.edu) or call 508-831-5998.



# Summer at WPI

WPI summer programs, for kids ages 7-18, are focused on fun experiences that expand the mind and body. Whether it's building a robot, researching and learning with a group of friends, or practicing the finer points of a favorite sport—WPI is the place for the summer.

From Frontiers and Launch to Camp Reach, Advanced Robotics, and more, WPI offers day and overnight enrichment programs and sports camps for elementary, middle, and high school students. To learn more or to apply, visit [wpi.edu/+summer](http://wpi.edu/+summer).



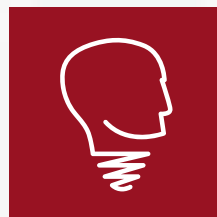
# WPI

For college and high-achieving high school students looking to improve their academic standing or accelerate their graduation, WPI offers summer undergraduate classes, online and on campus, at a discounted tuition rate. For more information, visit [wpi.edu/+summersession](http://wpi.edu/+summersession) or call the Office of the Provost at **508-831-4132**.

# GIVING DAY



#givewpi  
March  
**19**



## How many alumni can **give to WPI** in **24 hours**?

We'll find out on March 19—**WPI Giving Day**—when our 35,800 alumni join together to make a difference for WPI students.

Make your gift on March 19 and it will be matched by several dedicated WPI donors during this 24-hour period.

Your gift will support the Foisie Innovation Studio, the first-ever physical home for WPI's distinctive project-based curriculum, and the **Alden Trust Challenge** in support of the **Foisie Innovation Studio**.

Every gift of every size makes an **impact**.