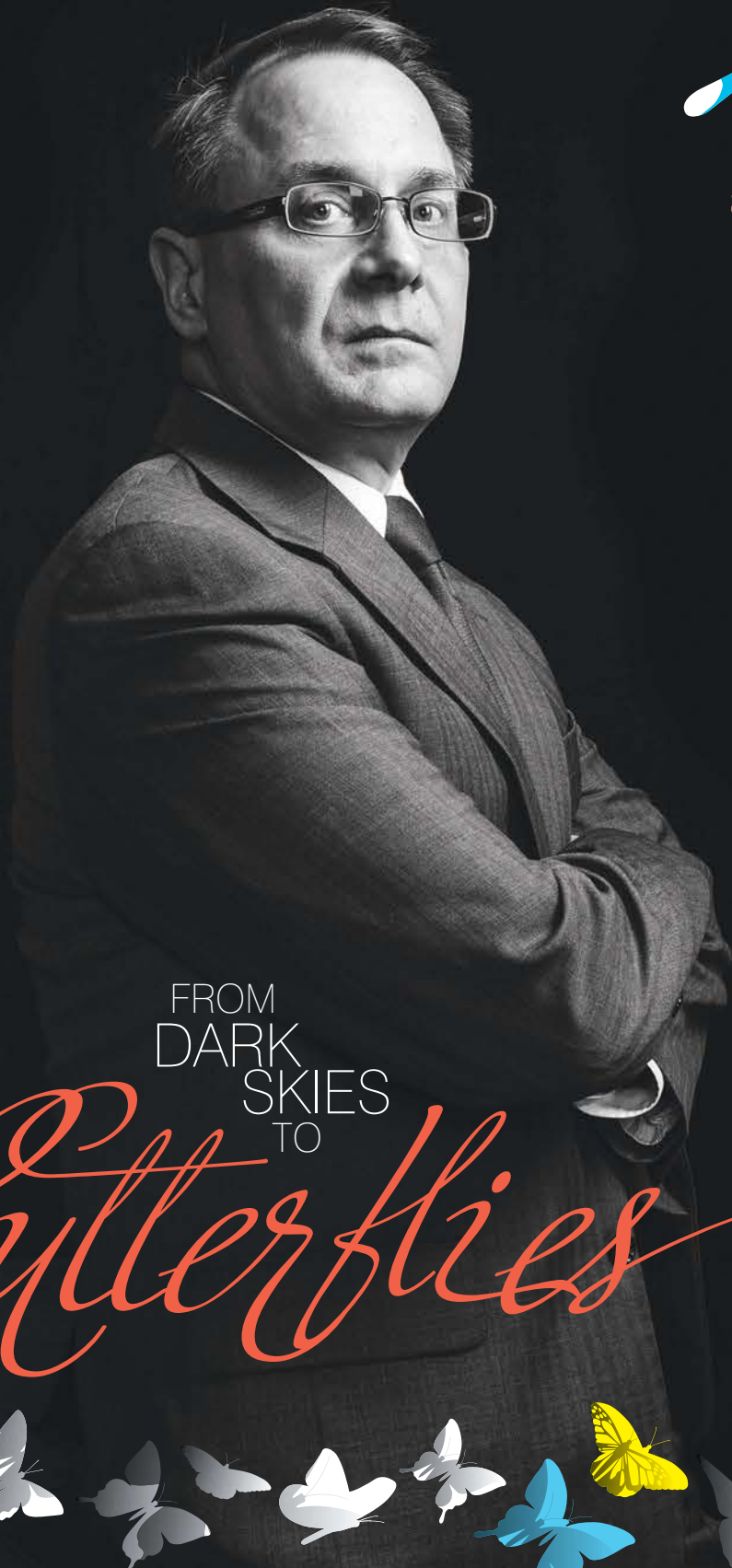


# WPI

JOURNAL



FROM  
DARK  
SKIES  
TO

# Butterflies









## China

has emerged as one of the world's most important economic powers and top exporting nations over the course of just a few decades. The WPI China Hub was officially launched to our partners at a reception in Beijing in July 2103. Its purpose: to grow our deep, respectful, and longstanding relationships with Chinese public and private universities, business partners, local governments, alumni, parents, and prospective students.



### A valuable education

Chinese applications for graduate study at WPI tripled over the five-year period from 2005 to 2010.



## WPI CHINA HUB: Building on a common sense of purpose

### A global marketplace

WPI has project centers in **Beijing, Nanjing, Shanghai, Wuhan** and **Hong Kong**. Chinese and U.S. student teams work on real-world problems as part of the WPI MQP. Many are sponsored by multinational corporations, including Amphenol, TCS, Caterpillar, Johnson Controls, Saint Gobain, Timken, Tyco, and UTC.



### Academic collaborations

WPI faculty and students are working with colleagues at **Beijing Jiaotong University, Hangzhou Dianzi University, Huazhong University of Science and Technology, and Shanghai Jiao Tong University**. Other relationships are in development.



### Government

WPI leads a multinational team of universities entering a house in the **Solar Decathlon China** in Datong in August 2013. SD China is a joint initiative of China's National Energy Administration and the U.S. Department of Energy.

For information on helping to grow the WPI China Hub, contact Karen Bean, University Advancement, at [kbean@wpi.edu](mailto:kbean@wpi.edu)

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Jason Tuell's job at the National Weather Service involves more than predictable models—it's also about saving lives. With 23 weather forecast offices, three river forecast centers, and four weather support units to supervise, Tuell '79 and his team deliver advance warnings to almost 100 million Americans.

BY DAVID ENDERS

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#### **Keeping Glitches Out of Google**

Elizabeth Schweinsberg '00 is a defender of the Google network. One of a small corps of programmers tasked with keeping the Google system safe from hackers and interrupters, Schweinsberg learned the skill initially through network security and cryptology at WPI.

BY TED FLANAGAN

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#### **Science Beneath the Sole**

Steve Ellis '10 works where the rubber meets the road, perfecting performance footwear for Vibram USA. Ellis doesn't care if you're walking your dog or balancing on a steel beam 100 feet in the air—it's his job to keep you on your feet.

BY JOAN KILLOUGH-MILLER

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#### **An Industry Under Fire**

Born from a blue-sky planning session in 2005, WPI's Interactive Media and Game Development program is broadening the school's reach in the digital world. Yet it's not just fun and games as IMGD students and faculty confront the national debate over violence and video games.

BY DAVE GREENSLIT







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Professor Taşkin Padiir, RIVEr Lab director, says his team for the Sample Return Robot Challenge was hoping to make a technological contribution to a hard problem.

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# WPI



## The Hard Rigor of Soft Cheese

**Y**our alumni magazine enjoyed a nice honor this past year when an idea it posited before the WPI School of Business was listed among possible Major Qualifying Projects for the 2012-13 academic year. Students Danielle Payne '13 and Jeremy Berman '13 furthered this distinction when they chose the project for their MQP under the expert guidance of business school professor Sharon Wulf, who served as project advisor.

The MQP asked students to research and test the viability of a student-managed business that would leverage the popularity of WPI's mascot toward a private-label consumer product, in this case, Gompei's Goat Cheese. Your humble editor served as project sponsor, which led to an invitation from Professor Wulf to attend class whenever my schedule would permit. Having interviewed many WPI alumni who spoke reverently about their IQP and MQP experiences, it was an invitation I could not resist.

From the outset the academic rigor was obvious, as Professor Wulf outlined an ambitious agenda for the term. She also set a tone of professionalism that never wavered. Class discussions were expansive, but the sponsor's goal was always front and center. Every class ended with Professor Wulf reminding Jeremy and Danielle that good ideas work best when prioritized and tied to action items. In other words, students were not merely encouraged to take the lead on this project, Professor Wulf *insisted*.

Rigor also came from unexpected sources, as I discovered that collaborative learning is, indeed, woven throughout the WPI culture. Two juniors, Tim O'Neil and Joey Botelho, expressed interest in continuing the MQP the next year, and began to attend class regularly (without credit) in order to better carry the work forward. In working on a cash flow model for the business, Danielle brought that part of her work into another business course, which led to valuable feedback on the business plan from both the class and the teacher, who in this case was Professor Frank Hoy, head of entrepreneurial studies. Rigor also came from Danielle and Jeremy themselves, as their research consistently turned up new knowledge, as well as new obstacles, both of which only increased their motivation.

By the start of C-Term, the MQP team had made such progress that Professor Wulf added a Graduate Qualifying Project team to the initiative, charging them with identifying a viable organizational structure for a student-run business. The addition of three ambitious grad students expanded the project experience significantly, for the MQP team now had to coordinate their work with a second team. Class conversations grew in complexity. So did the business possibilities.



**Danielle Payne '13 and Jeremy Berman '13**

Adding grad students also meant that the work could be presented at GRAD 2013, WPI's graduate-level poster competition where students present and defend their work before tough faculty judges. (Professor Wulf wisely insisted that the MQP team attend this event.) I watched the interaction between student teams and judges with great interest, as the competition lasts most of the day and students must do multiple presentations. I was particularly smitten to see the dean of the business school, Mark Rice, enjoy a lengthy conversation with grad student Joseph Gasparino, imparting some entrepreneurial wisdom in the process. A few weeks later, the MQP team made a similar presentation before faculty and judges on Project Presentation Day, (humorously called "Project Panic Day" by some) and once again, the work received tough questions and rigorous feedback.

My front row seat at the MQP ended on an exceptional note, when both Danielle and Jeremy graciously invited me to WPI's Commencement reception in order to meet their families—a real honor, particularly on this special day. Many wonderful words were exchanged about Professor Wulf, and quite a few jokes were made about goats and the business of cheese.

But Danielle's mother had the final word, when she suggested taking a picture for posterity's sake. Lining us up quickly, she gave a little wink and said the words she knew would guarantee a smile: "Say Cheese!"

And we did.

**JAMES WOLKEN, EDITOR**

# Solar Energy. People Power.



## Three esteemed universities. A premier technical high school. Hundreds of helping hands.

That's how a community comes together to build a net-zero energy home for an international competition. Worcester Polytechnic Institute, Ghent University in Belgium, and NYU-Poly—with help from Worcester Technical High School students—constructed the "Solatrium" to compete this summer in Solar Decathlon China 2013. Our home is powered by the sun. This remarkable learning experience is made possible by our generous sponsors. Thank you, all.

### PLATINUM



Michael E. Grilli '66



nationalgrid

SIEMENS



### GOLD

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FLEXcon  
GE Appliances  
Saint-Gobain

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Creative Pultrusions, Inc.  
First Wind Energy, LLC  
HILTI Corporation  
Stantec Inc.  
UNIRAC

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Acuity Brands Lighting  
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Bose  
Consigli Construction Co., Inc.  
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Gilbane

Kerwin Group  
Solectria Renewables  
Tyco Fire Products

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Lamoureux Pagano Associates,  
Architects  
Lutron Electronics Co., Inc.  
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### FRIEND

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Fay, Spofford & Thorndike, Inc.  
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Francis Iaccarino  
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John Powers '61  
Rand-Whitney Packaging  
Corporation  
Pete Tunnicliffe '74  
W. B. Mason  
Richard P. Welch '80  
Workplace Resources

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Average U.S. temperature, in Fahrenheit, this past century: 35.32

Average in 2012: 41.45

Rank of 2012 among hottest years in U.S. history: 1

Percentage of Americans who believe global warming is real: 70

Percentage who disagree: 12

Percentage of climate scientists who believe humans are the cause: 90

Percentage increase in the world's goat population between 1990 and 2010: +146

For sheep during the same period: -10

Number of cybercrimes filed with the FBI in 2000: 16,838

In 2011: 314,246

World ranking of China for cybercrime: 2

Of the U.S.: 1

Average annual dollar loss of a Massachusetts resident from cybercrime: \$53

Average annual loss by a resident of Washington, D.C.: \$1,120

Rank among cybercrimes of "work-from-home scams": 1

Rank of "romance scams": 5

Average time, in minutes, to digest cow's milk: 360

Average time for goat's milk: 30

Average age, in years, of a gamer: 37

Percentage of gamers who are female: 42

Amount, in billions, that Americans spent on video games in 2010: 25.1

Average number of shoes owned by a woman: 27

Average owned by men: 12

Percentage of women who say shoe shopping improves their mood: 19

Number of goats buried with Egyptian pharaoh Cephraanes: 2,234

Estimated date of the first painting of a goat: 10,000 B.C.

Average price of a video game in 2012: \$50

Recommended first-time gift to the WPI Annual Fund: \$50

Percentage of WPI students that gift will help: 100



As a longtime professor who has been at WPI since 1956, I have come to rely on the *WPI Journal* to keep me informed about alumni accomplishments and the Institute at large. But the current edition uses a font size that is so tiny, that it makes it extremely difficult to read. Not good. Please make an adjustment to your font size so that readers might enjoy their reading experience more.

Thank you,  
**ROBERT J. HALL**

Retired Director, Continuing Education, WPI

This weekend, reading my alumni magazine, I discovered that an influential person from my college years has passed away. His name was William Densmore.

When I was at WPI 15 years ago, William Densmore and his wife, Martha, were in their mid-seventies. They were both amazingly active—I remember he was running a local candidate's campaign for election and she was busy refinishing furniture.

They lived in a large Victorian house about a mile from campus and at one point had decided to start what they called their WPI Scholarship. In exchange for a few very simple chores around the house, they would share their house rent-free with a couple of WPI students every year. The students lived on the third floor and shared the kitchen on the first floor. As a student, you had to mow the lawn, shovel the sidewalk, and stack the wood in the fall. You were also responsible for finding the students for the next year.

They even paid for phone service (this was before cell phones were ubiquitous) and only expected you to pay for any long distance calls. Mrs. Densmore said for a while they would even buy some groceries for the college kids but as she got older it was too difficult to move the jugs of milk back from the store.

On the landing on the way up to the third floor was a wall covered with pictures and news clippings from all the students that had stayed there. When I was there, I think they had been having students live in their house rent-free for 20 years or so.



Their act of kindness amazes me, even more now as an adult. Mr. and Mrs. Densmore have always been an inspiration to me. Rest in peace, Mr. Densmore. The world needs more people like you.

**DON McNAMARA '98**

Your Winter edition of the *WPI Journal* spoke about the social transitions on campus during the 1960s. The Vietnam conflict was certainly on the minds of both liberal- and conservative-minded students.

There was also a draft "lottery" at that time, and many unsuspecting students were drawn in to the Vietnam debacle. I was one of those, and was notified while in college that I would be drafted immediately when I left WPI. After graduation, I went to work in Ohio, but received an active duty notice 12 months later. I served as a 1st lieutenant. in the Corps of Engineers, and ended up with a combat engineer platoon in Chu Lai as part of the American Infantry Division.

I ran into other members of the Class of 1969, Charlie Kalaukas and Dave Johnson, who were also stationed in Vietnam.

No one I knew at WPI avoided the draft by fleeing to Canada. Mostly because we had fathers or other relatives who sacrificed themselves during WWII. I was apolitical before I went into the Army. Yet, I emerged disillusioned by the lack of commitment by many of the leaders in Washington, D.C. In fact, when I came home I had deep resentment for Presidents Kennedy and Johnson for escalating the Vietnam conflict with no intention of winning—50,000 U.S. troops were killed, and over 1 million Vietnamese.

Nevertheless, there is a place for the citizen soldier. My grandfather (Class of 1918), and my father (Class of 1948) both proudly served in WWI and WWII. The U.S. would not have significantly helped our allies in these "world" wars without citizen soldiers.

Now that the U.S. has a voluntary military, hopefully, no more WPI students will be forced to join the military unless another World War comes our way.

**BRUCE GREEN '69**



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## From Strength to Strength

As you may know, President Dennis Berkey concluded his service as WPI's 15th president at the end of this past academic year. WPI rose to new heights under his leadership, and both the Board of Trustees and the WPI community at large have great appreciation for his accomplishments, and wish him the very best in future endeavors.

As chairman of the board, I was asked to lead the university during this transition period, and thus, I have stepped down as chairman in order to assume the role of interim president while WPI searches for its next leader.

I am pleased to tell you that WPI is in outstanding shape. The Institute continues to attract record numbers of applicants, as our reputation for a high quality education is very strong. Equally important, the caliber of these applicants is outstanding—nearly half of last year's incoming class held a 4.0 GPA and more than 50 were National Merit Scholars.

WPI has always been a pioneer in curriculum and course development, and today is no different. A champion of interdisciplinary course work, WPI has invested in a range of new academic programs over the past decade, including bioengineering, life sciences, interactive media and game design, environmental studies, learning sciences, architectural engineering, and robotics. In 2006 WPI became the first university in the nation to offer a BS in robotics engineering, and that program quickly became our third most popular major, and we now offer both MS and PhD degrees in robotics.

Financially, WPI is operating from a position of strength, as our endowment has fully recovered from the economic crisis of 2008. We have a thriving new business school and our part-time MBA program continues to be ranked among the very best in the nation. Equally important, our research funding has grown nearly threefold during the past decade. We've also made wise

investments in our infrastructure and facilities, adding Gateway Park and the Sports & Recreation Center, and upgrading labs and equipment.

And while WPI has never been the sort of university to toot its own horn, you should know that others are doing exactly that for us. WPI continues to be ranked among the best universities in the nation academically. Whether it's *U.S. News & World Report*, *The Princeton Review*, *Forbes*, or the college accreditation boards, WPI consistently ranks among the very best universities in the country. And for several years, WPI has been ranked among the top 15 schools in the country when it comes to return on investment, a critically important metric when parents and students evaluate the cost and value of higher education.

I am especially proud to tell you that WPI is considered one of the top 10 STEM universities in the country for women, which reflects our strong community values and the inclusive nature of our campus. Attracting more women into STEM disciplines is a national initiative and I am very proud that WPI is a recognized leader in this area.

When I was elected chairman of WPI's board, I knew it was a great honor and a great responsibility. I followed Steve Rubin, Class of '74, whose term as a WPI Board member spanned 18 years of remarkable service, the last three years as chairman and five before that as vice chairman. Steve loves WPI with every fiber of his being, and his dedication to this university has never wavered. He has inspired me, and so many others, to give generously of our time, talent, and treasure. I admire Steve greatly, and I promised him—and all of you—that I will work diligently to continue our legacy of excellence.

As interim president, I have many WPI initiatives to lead, with the Institute's capital campaign at the top of that list. "*If...The Campaign to Advance WPI*" is the largest fundraising effort in WPI history and we intend to raise \$200 million by 2015, WPI's sesquicentennial year. To do that, however, we will need the involvement and support of *all* WPI alumni. The *If* campaign will fuel WPI strategic initiatives in three key areas: student scholarships; faculty and academic program support; and campus facility development.

But the most important message I want to share with you is to encourage your involvement with WPI. Your participation in WPI initiatives is critical to the Institute. We want to see you here. We want to engage your talents. Tell others about WPI. And we want your participation in our fundraising efforts so that we can continue the ascent of WPI, while making it accessible to the next generation of scholars. Simply said, WPI has worked tirelessly to make itself among the very best universities in the country, and I believe it has *earned* our support. I hope you agree.

I will be on campus a great deal during this interim period. I am always glad to hear from my fellow alums, and I would welcome your e-mails, phone calls, and, of course, your involvement with WPI. I can be reached at pbryan@wpi.edu, or 508-831-5200.

I sincerely hope to hear from you.

A handwritten signature in black ink, appearing to read "Phil Ryan".

**Phil Ryan '65**  
Interim President



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**WPI**



From left, Orr, Notarianni, Duckworth, and Cyganski are applauded by Gov. Deval Patrick for their research on lifesaving technologies.



► KUDOS

## WPI Honored at Firefighter of the Year Ceremony

Research on First Responder Safety Technology Receives State Recognition

**R**NTHUSIASTIC APPLAUSE HEATED UP Worcester's Mechanics Hall on a cold December day, as Gov. Deval Patrick presented the State Fire Marshal's Award to a team of WPI faculty. ECE professors John Orr, David Cyganski, and James Duckworth, and FPE professor and department head Kathy Notarianni received a standing ovation for their work on technologies and devices to further firefighter safety at the 23rd Annual "Firefighter of the Year" ceremony on Dec. 18. The soulful sound of bagpipes filled the air during a ceremony honoring fallen firefighters, and the National Anthem and other musical selections were performed by the WPI Brass Ensemble, under the

direction of Professor Douglas Weeks, administrator of music.

The award, which honors significant contributions to the fire service made by those outside of the service, was given in recognition of WPI's multidisciplinary research on technologies to protect the lives of first responders. The work includes devices that sense critical "flashover" conditions, warn firefighters of toxic gases, and track the location of rescuers inside burning buildings. A prototype of the Precision Personnel Location (PPL) system was recently put on display in Washington as part of an exhibit called "Time and Navigation" at the Smithsonian Institution's National Air and Space Museum.



## ▶TRANSITIONS

## Leveling the Field for Military Engineers

Warrior Transition Taskforce Seeks to Translate Experience into Certification

**UNCERTIFIED?** More like unfair, according to Neal Wright '76, who is working to help military engineers get a fair footing in their civilian careers. These transitioning veterans are talented individuals, he says, and should be helped to bring their skills to the work force in jobs that befit and compensate their experience.

The problem lies in the certification process. When enlisted military engineers finish serving their country, they must start from near-scratch when it comes to earning appropriate civilian engineering certifications.

The Society of American Military Engineers (SAME) appointed Wright to help spearhead a project to assist in the move from military to civilian employment, naming him co-chair of the SAME Warrior Transition Task Force. Its primary objective is to cross-reference skills and duties performed by the enlisted ranks of military engineers and create a system to credit them with education and experience. The process would be designed to satisfy

part or all of the National Institute for Certification in Engineering Technologies (NICET) and other suitable certifications necessary for warrior-engineers to jump into appropriate civilian jobs.

Wright, among others, has been working on a system that recognizes military engineer training as a continued education equivalent, and that acknowledges these veterans' records of leadership in high-pressure situations. The task force is currently conducting beta testing and developing guidelines that would help military engineers earn NICET certifications, based on their service schooling and work experience. "Our superb corps of noncommissioned officers has a tremendous work ethic and should be highly regarded for jobs based on their training," he says. "We want to help make what they do understandable to the civilian work force."

Wright graduated from WPI after receiving an Army ROTC scholarship, and he hopes the task force will ultimately prove to be a valuable incentive and benefit to those who serve. "I strongly believe in the serving leadership model," he says. "We need to pay it forward and help get our exceptional troops on their feet in the civilian world."



## ▶QUOTABLE

"If I remember correctly, in 1974 the ratio of men to women at WPI was about 25:1. Tech girlfriends were tough to find. But they were smart, engaging, down to earth—pretty much like the guys."

**DEAN GIACOPASSI '78**  
ON WPI FACEBOOK, IN RESPONSE TO A POSTING ON INTERNATIONAL WOMEN'S DAY

## ▶WORLD-CLASS PROBLEM SOLVERS

After careful analysis of the pitfalls of dunking Oreos in milk, Sam Feller '07, working with a crack team of designers and engineers, has advanced the state of the art. Based on Archimedes' principle, his Cookie Dunker features a wide-mouthed upper reservoir for easy dunking at low milk levels, and a fitted dunk chamber, equipped with high milk displacement technology. The Cookie Dunker made a splash in the *Boston Globe*, *Wired*, and ABC News. Learn more at [awkwardengineer.com](http://awkwardengineer.com).



## ▶ SCORE

## Hoops Get Help from an Unlikely Quarter

**ONE MEMBER OF** the 2012-13 men's basketball team didn't log a single minute of court time, but played a crucial role in its record-setting season.

Thanks in large part to a preseason session with renowned sports psychologist Spencer Wood, the Engineers posted a school record 26 wins, reached a No. 2 national rank in Division III, captured its eighth New England Men's and Women's Athletic Conference (NEWMAC) crown in the last 10 years and third league postseason tournament title—and won an NCAA playoff game during its seventh appearance in nine years.

"Working with Dr. Wood gave our team a foundation of mental toughness as well as the psychological tools to enhance our play and teamwork on the court," said 12-year head coach Chris Bartley, who was named the 2013 Glenn Robinson National Coach of the Year, presented annually to the top D3 men's basketball coach, and captured his fourth NEWMAC Coach of the Year award. "It was a powerful piece of our training and helped our student-athletes learn how to be at our best when our best was needed."

Bartley noted his players brought WPI's project-based curriculum strategies from the classroom to the court, a perfect example of the synergy described by President Berkey in a recent *Huffington Post* blog. Berkey noted impressive standing of WPI student-athletes, who have outperformed national and campus graduation rate averages over the past six years.

"This is all happening at a 'tech' school where students are proud to be known as 'nerds,' the school mascot is a goat, and many of the traditional cheers and apparel insignia are chocked with mathematical terms," President Berkey wrote. "Division III athletics is much more than terrific entertainment for fans and spectators. It is an integral part of the overall development of young adults well prepared for lives of high career achievement, leadership, and fulfillment. This is the win-win."



## ▶ NOTEWORTHY

## Connection Is in the Keys

Pianist comes home to the roots of his music

**PIANIST SERGIO SALVATORE '02** admits a little nostalgia influences his concerts at WPI. His April 19 performance in Higgins House included *Three Movements* and *That Goes Without Saying*, both pieces he completed while a computer science undergrad.

"I feel like those pieces have a home here," says Salvatore. "Lots of memories come back."

Eleven years after graduation, Salvatore now balances his professional career as director of e-commerce services for Nook Media and his musical career as a performing and recording artist. His latest CD, *Blue November* with the Manhattan Vibes quartet, was released in January, adding to a catalog stretching back to 1993. His shows have spanned the globe and included performances with legends such as Tony Bennett and Mel Tormé.

Raised in a musical household, Salvatore says music infuses his world. "It has to be in my DNA," he jokes. "It would have been hard for me to escape having a love of music."





Salvatore's bonds with WPI remain strong, and he currently chairs the Arts and Sciences Advisory Board. He says returning to WPI for concerts and guest lectures, is his way of giving back to his alma mater.

"A lot of people ask me how music and computer science are related, and I tell them, 'It's the language. The language of engineering is building and the language of music is building a composition or a performance. You just have to learn that language.'"

#### ▶ERG POWER

## Rock the Boat, Baby

Shox-Box balances ergonomics with strength

**SOMETIMES THE WATERS** of life can take you on an unexpected journey. Take Dave Baker '81, '85 (MS ME), PE, as an example. Having transferred to WPI in 1977 as an injured hockey player, Baker was simply itching to return to athletics. Two dorm neighbors, Bill Hall '81 and Bob Coughlin '81, convinced him to train along with the WPI crew team that winter. And the rest is history.

"Once I got into a boat that spring I was completely hooked," admits Baker. Finding quick success with local and national awards by the end of the season, he began a love affair with rowing that would flow through his entire life.

Throughout his career path, Baker kept that love of rowing alive – despite two back surgeries. After 13 years at Bose, he started his own business in 2004, Blackstone Automation LLC, which provides automation and product development consulting services for the medical, biotech, and consumer products industries. In addition, Baker has recently joined Innovative Products and Equipment as a senior project manager, designing and deploying industrial automation worldwide (three of Innovative's four owners are WPI grads).

While coaching a high school rowing team at Worcester's Bancroft School seven years ago, Baker's love of rowing was reignited, and despite his doctor's advice, he rowed throughout the summer, competed in the fall, dropped 60 pounds, and, in his own words, "felt great." Yet when the weather forced him to head inside to the indoor rower—called the Erg—he couldn't last more than five minutes without back pain.



So Baker put on his engineering hat. "I soon realized that a significant difference between a boat and an Erg is that the Erg has no compliance in the frame the way a boat moves up and down and side to side," explains Baker. "The Erg—my Erg, in particular—needed a suspension to give the frame compliant roll and pitch."

Along with former crew teammate and chronic back pain sufferer Pat Guida '83, the duo created what they dubbed the Shox-Box suspension system. The system absorbs the compressive energies that a static Erg forces both the back and major body joints to absorb, enabling a pain-free rowing experience.

"My business partner, Laurie Smith, suggested that Blackstone launch this as a product of our own," recalls Baker. "I think I agreed before she even finished the sentence. That was four years ago."

On the market for the past four years, the Shox-Box ([shoxbox.biz](http://shoxbox.biz)) has received rave reviews and international sales. But while the design and development was fun, Baker admits the challenge lies in the building of a sales and marketing effort from the ground up. "Unlike engineering, he says, "in marketing there are a million right answers, a million wrong ones, and no formulas for success—just a lot of hard work."

This year will bring new models of the Shox-Box, a phone app measurement system, and an emboldened sales and distribution plan. Baker says WPI played an important part in his business role model. "I think the 'theory AND practice' continuum that has stayed with this university since its inception continues to set WPI grads apart from the rest. It's almost as great as rowing."

#### ▶PROJECTS

## Bored with Brushing?



**A RECENT** School of Business survey found consumers more receptive to trying coffee- or cheesecake-flavored toothpaste than bacon-, barbecued chicken-, or beer-flavored. The "Anything But Mint" business plan submitted by four MBA students proposes a refillable toothbrush and small, inexpensive toothpaste cartridges. See full results—and all the flavor choices—at [anythingbutmint.weebly.com](http://anythingbutmint.weebly.com).

## ► SOLAR

## Many Hands, Zero Energy

Teamwork drives Solar Decathlon effort

**A** **THREE-UNIVERSITY** team is vying for victory in China this summer with the construction of a net-zero energy house for the 2013 Solar Decathlon competition. WPI leads Team BEMANY (BE for Belgium's Ghent University, MA for WPI's location, and NY for NYU-Poly) in the collaborative effort. The object: to design and build an attractive, affordable solar home that will spur interest in renewable-energy housing.

Team BEMANY has been at work on the 1,500-square-foot home for more than a year. Its design—patterned after traditional atrium homes in China and elsewhere—and its solar power led them to brand their structure “Solatrium.”

The challenge brought together students in several engineering disciplines—civil, architectural, and fire safety—as well as requiring writing, video, translation, and presentation

skills. The team constructed the house—from frame to acrylic-encased atrium—in Worcester. After an unveiling for sponsors, Solatrium will be disassembled and shipped to Datong, China, where the house will be reassembled by the team for the 10 juried portions of the competition in August.

Rooftop photovoltaic panels provide 12kW of power, while floor tiles of phase-changing material made at NYU-Poly help regulate inside temperatures. Before construction began, Ghent graduate students and one WPI civil engineering major tested the structural strength of fiber-and-plastic supports and the sandwiched polyurethane walls reinforced with glass rods. Thin and lightweight, with an R-value of 20, they were designed for portability.

Alumni rallied behind the project, as well,

proving support and a place to build the house during the winter months. A unique contribution came from Panamanian artist Eduardo Navarro '81. His contact with Civil and Environmental Engineering Department head Tahar El-Korchi, who advises WPI student projects in Panama, led to a request for a sculpture to grace the house. Navarro visited his alma mater in April to present a painting to President Berkey and to begin work on the sculpture. All who took part in the project, contributing thousands of hours to make their ideal net-zero energy house a reality, gained a new appreciation of what is needed to build a marketable home for the future.







## ▶ LEGEND

## Making Waves from Beyond the Grave

**JIMI HENDRIX WOULD** have turned 70 last year, and a WPI professor made headlines with the discovery of an unreleased recording he calls “the concert tape find of century.” Joel Brattin, an academic authority on the legendary guitarist, was in London last summer teaching a WPI course called “Dickens, Shakespeare, Hendrix, and London,” when he was asked by *UniVibes*, a magazine dedicated to Hendrix, to review a newly discovered 87-minute soundboard recording of a 1969 Hendrix concert.

This legendary performance at the famed Royal Albert Hall in London included hit songs “Foxy Lady” and “Purple Haze,” as well as an extended 12-minute version of “Spanish Castle Magic.” Although a poor audience tape of that gig has circulated for years, it was thought that no soundboard recording—that is, audio taken directly from the mixing board—existed. With the pristine sound quality of the soundboard, Brattin says, “You get to hear the real Hendrix.”

Brattin also served as a panelist for “Hendrix at 70,” a discussion of the life, music, and legacy of the rock icon. He was interviewed on Public Radio International’s *The World*. The *Boston Globe* sent pop music critic James Reed to the basement music lab in WPI’s Alden Memorial to hear Brattin play the recording.

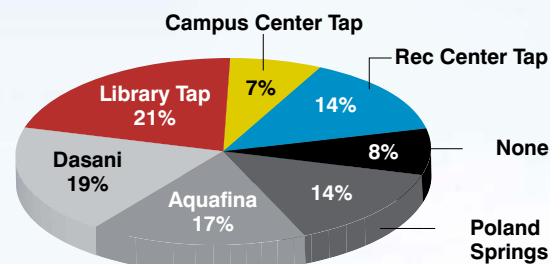
“This is the most important Hendrix concert tape to surface in decades,” Brattin wrote in *UniVibes*. “The sound quality, the guitar playing, Jimi’s vocal performance, and the stereo mix of the Royal Albert Hall soundboard tape are all excellent.” Brattin’s discovery documents one of the last recorded shows Hendrix played with The Experience in Britain. The band broke up in late June 1969 and Hendrix died Sept. 28, 1970.

## ▶ FLOW

## Thinking Outside the Bottle

**THINK BOTTLED IS BETTER?** A recent Worcester Community Project Center IQP showed that most people could not taste the difference and support making WPI a more “tap-friendly” campus. A slurp from the Rec Center and Library bubblers scored as well as the fancy brands.

### Tap Water Challenge Results BEST TASTE as of April 17, 2013



## ▶ PROJECTS

## Putting Projects on the Table

Sustainable Food Center digs into complex questions

**FIVE IQP TEAMS** presented their findings to the New England Organic Farming Association (NOFA) at the 2013 NOFA/Mass Winter Conference. The projects, done through WPI’s Sustainable Food System Project Center (SFSPC), address issues of food access, urban agriculture, and small-scale technologies. In the words of Center director Robert Hersh, “Food simply appears on our plates, but the food system is a complex and entangled network of people, organizations, ecosystems, regulations, and technologies.”

One project, called “School Foodscapes,” examined the dietary habits of high school students. Another group teamed up with a distributor of pre-packaged hydroponic farms to expand the use of this technology for urban agriculture. “Our students typically see the IQP as ‘making a difference,’ and in many instances these projects can help sponsors better understand the dimensions of a problem and identify appropriate next steps,” Hersh says.

“WPI students have taken an active role in supporting their local food system,” says Luke Pryjma, a local farmer active in NOFA. “These engineering students used skills indicative of their field, including technology, mapping, Internet proficiency, and problem solving. They also stepped outside of their field to confront a food justice issue with a quality not often asked of science: compassion.”





**Chuck Gammal '08 was instrumental in the resurrection of PKT.**

►REVIVAL

## Phi Kappa Theta Honored

**WHEN ANTHONY DININO '13** was a freshman, he had little interest in Greek life. “I came in not wanting to join a fraternity and not knowing anything besides the negative stereotypes,” the chemical engineering major says.

That changed after DiNino made several close friends at Phi Kappa Theta. The fraternity, with its strict policies against alcohol and hazing, upended his expectations, and DiNino, who went on to serve as chapter president in 2012, appreciated the focus on community service and leadership.

Those values were rewarded last year at the national Phi Kappa Theta fraternity’s annual meeting, when the WPI chapter won 13 out of 15 service and development awards—every one for which it was eligible, including the organization’s prestigious Founders’ Cup.

The honor once would have been inconceivable. In 2004 the fraternity’s national board shut down the WPI chapter, after reports of vandal-

ism and disorderly behavior. But in 2007 several students affiliated with campus government got together to rebuild the chapter. Today’s Phi Kappa Theta is a very different house, with strong values and high standards for members, including a 3.0 GPA and involvement in extracurricular activities.

Chuck Gammal '08, one of the re-founding fathers, has been proud to see WPI’s Phi Kappa Theta chapter grow in the years since the original brothers graduated. “We built something from the ground up that has a mission and values,” he said. “The current group was able to keep it going.”

DiNino is proud of what he and his brothers accomplished during their time at WPI. Their chapter, he says, embodies the national fraternity’s motto, “Give, expecting nothing thereof.”

“Our brothers believe in that mission,” he says. “It’s good to see we’re moving away from the negative stereotypes.”

►BOOKS

## Finding Meaning in the Mountains

Historian examines the myths and realities of the quest for the summit

**BEFORE THE AGE** of Enlightenment, mountains could be viewed only from afar, as mystical majesties encrusted with ice and snow, inaccessible to mere mortals. That changed as man began climbing—and claiming—the world’s highest peaks. In his new book, *The Summits of Modern Man: Mountaineering after the Enlightenment* (Harvard University Press, May 2013), humanities and arts professor Peter Hansen finds connections between the conquest of mountains and changing attitudes toward nature and mankind.

Mountain climbing, says Hansen, “emerged as a form of modern individuality.” By examining the mythic stories of first ascents and analyzing the controversies, he uncovers themes of imperialism, class, nationalism, and self.

Who was the first woman to reach the top of Mount Blanc? In 1838 a 44-year-old aristocrat named Henriette d’Angeville claimed the title for herself. “She was the first *lady*, but not the first woman,” Hansen clarifies. A young servant named Maria Paradis had actually reached that summit 30 years earlier. “D’Angeville considered her predecessor a simple, uneducated woman, and thought of herself as the first to be able to record her impressions,” he says.

Hansen, who serves as director of international studies at WPI, also notes that in the 1860s, “Italians, Austrians, and the Swiss all wanted to climb their own Alpine peaks to claim them.” Today, our “ownership”

of the natural world can be seen in our response to modern environmental challenges. One example, he says, is cloud seeding, a man-made form of weather modification. “That’s the same attitude of domination.”

Hansen uses the climber’s call “On belay!” as a metaphor for what’s at stake. Belay—the system of securing climbers to each other with ropes—requires connection and a recognition of interdependence. “We are in danger when we see ourselves as separate,” he says, “when we are not on belay with nature or each other.”





## ▶ SAFE LANDING

The Donahue Rowing Center is now a safer place to dock, thanks to an innovative solar lighting system created by Maria Rangel '13 and Thomas Hunter '13 in conjunction with ECE faculty and the Shrewsbury Department of Parks and Recreation. Constructed of wood and recycled materials, the lighting panels help rowers navigate by night, and reduce the risk of costly hull damage from bumping into the dockside.



## ▶ FAREWELL

## String Ensemble Performs Stirring Tribute to the Late Tom Keil

**M**EMBERS OF THE Worcester Chamber Music Society (WCMS) celebrated the life of longtime physics professor Tom Keil with a memorial concert in Worcester's Mechanics Hall on May 12. Opening with the mournful Swan movement from Saint-Saëns's *Carnival of the Animals*, and closing with Bruch's somber *Kol Nidre*, the musicians paid tribute to a devoted friend with works selected by Keil and his wife, Nora, just before his death in February. (See obituary, page 79.)

Keil took up the cello in 1975 and enjoyed making music with people of all ages for more than three decades. He and Nora, a flautist, formed a close association with the WCMS and

spent their Sunday mornings working on duets or joining with other chamber musicians. "They played together for years, coached by our artistic director, Peter Sulski," says WCMS executive director Tracy Kraus. "The program featured some of their favorite chamber music for both instruments."

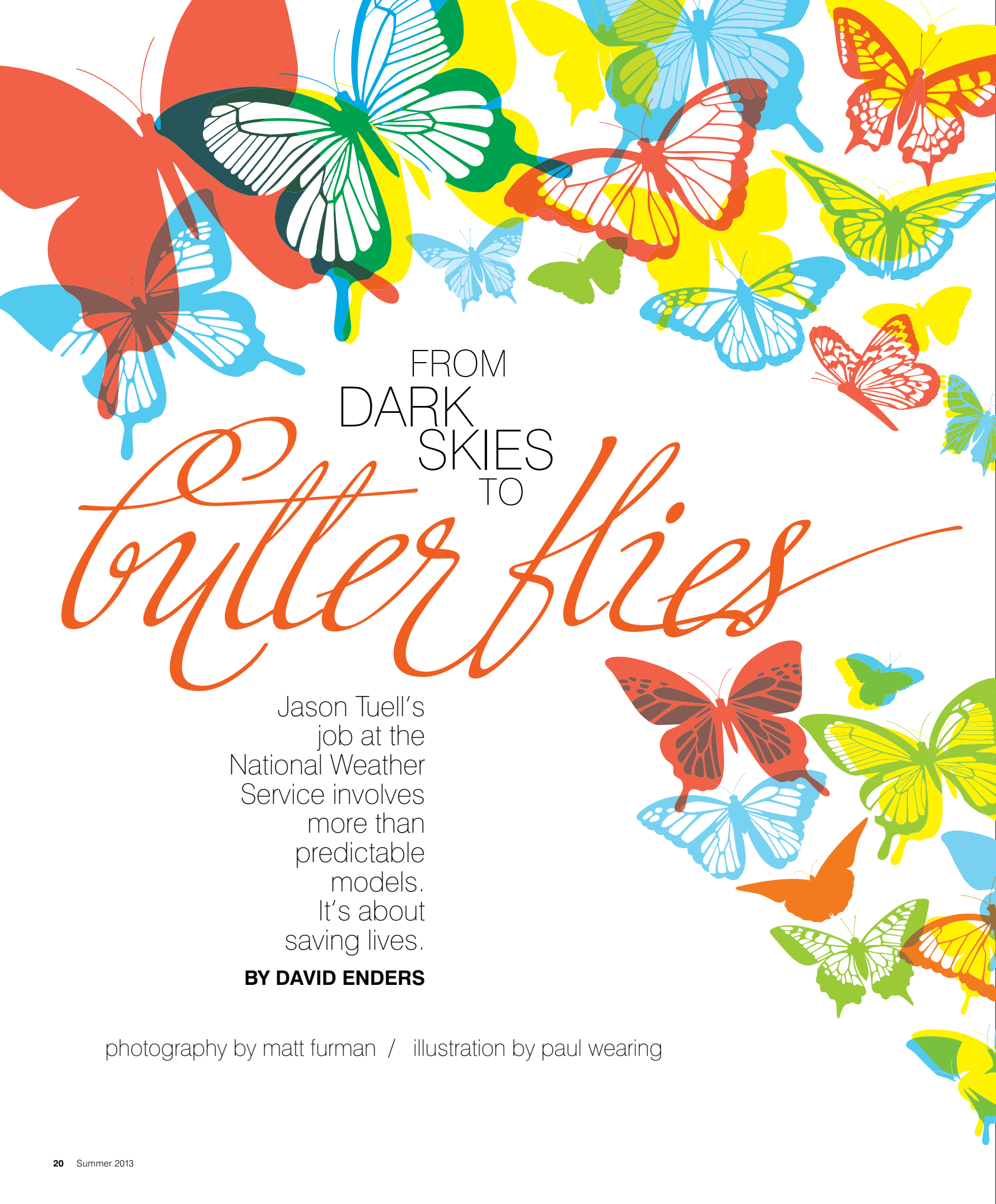
In a pre-concert talk, Sulski and violinist Rohan Gregory recalled their awe when they first played with Keil, an adult amateur, back when the two were young teenagers attending the Apple Hill Music Camp. Keil quickly became a regular there and at the WCMS Summer Festival. In his last year, he was revered as the



oldest participant in both programs. "It's not about your age, but how you relate to each other and to the music," Gregory told the audience. "There was a special part of Tom that loved this more than anything."

*The Thomas H. Keil Memorial Scholarship Fund has been established to help students attend the WCMS Summer Music Festival. Donations may be made at [worchesterchambermusic.org](http://worchesterchambermusic.org).*





FROM  
DARK  
SKIES  
TO

# Butterflies

Jason Tuell's  
job at the  
National Weather  
Service involves  
more than  
predictable  
models.  
It's about  
saving lives.

**BY DAVID ENDERS**

photography by matt furman / illustration by paul wearing





*weather* HAPPENS EVERY DAY ON  
THE BLUE MARBLE.

WHEN IT'S ALL *blue skies*  
AND  
*butterflies.* IT GOES UNNOTICED.

Other days, we constantly check the web for the latest forecasts and are reminded, sometimes not too subtly, that the weather is still calling all the shots. Go ahead and make your plans by the forecast, but prepare to be surprised.

Our atmosphere is, after all, a dynamic system and the difference between a cool summer breeze and a devastating tornado is often disturbingly small. In chaos theory this difference can be attributed to the “butterfly effect,” which proposes all dynamic systems are sensitive to initial conditions. And by that they mean very sensitive. Even the chaotic fluid of our atmosphere is an organized system and, so, there is some predictability based on initial conditions. Even so, there are these small disturbances (“strange attractors” they’re called in chaos theory) that go unnoticed, change the initial conditions, and change the course of events.

It’s the job of the National Weather Service (NWS) to make sense out of what appears to be chaos and according to Jason Tuell ’79, director of the NWS Eastern Region, it’s a job they take very seriously.

“The weather is not small talk,” says Tuell. That’s the Eastern Region’s unofficial motto and they understand the vital importance of accurate forecasting. “I am blessed to lead people who love what they do. They are passionate about meteorology and protecting

the public. It’s not just a job. When we miss a forecast and catastrophe results, we take it personally.”

Tuell started at his new post at the NWS in December 2012—the latest chapter in a diverse career of public service in meteorology. “My new role is pretty simple,” he says. “I’m in charge of 23 weather forecast offices, three river forecast centers, and four weather support units that deliver weather, water, and climate forecasts and warnings to almost 100 million Americans, 24 hours a day, seven days a week. Our region runs from Maine to South Carolina and as far west as Ohio.” Given the increasing number of extreme weather events around the world and the observational record that the climate is getting warmer (high temperature records have outnumbered low records in this country in the last five years by a ratio of 5 to 1), Tuell admits his 685 dedicated staff members have their work cut out.

#### NATURE CALLS

If anyone was cut out for a leadership role at the NWS, it’s Tuell. Indeed, a series of “strange attractors” over the course of his life have prepared him for his career.

“At the age of 5, when—let’s face it—most of us don’t have sense to come in from the rain, I remember watching with my father an





MIT program on public television exploring early work in numerical weather modeling, a predecessor to today's supercomputer-generated weather models," he says. "It was really just something I could do with my dad, but ever since that time I have been fascinated by the weather. A seminal moment in childhood leading to a lifelong fascination with weather is pretty typical at the NWS."

Numerical weather modeling was pioneered by meteorologist Edward Lorenz, the father of chaos theory, who coined the term "butterfly effect." Lorenz created an early computer program to simulate weather patterns based on initial conditions data. Out of curiosity, he changed one of a dozen numbers representing atmospheric conditions, from .506127 to .506. That tiny disturbance drastically transformed his long-range forecast model. Lorenz's 1972 research paper "Predictability: Does the Flap of a Butterfly's Wings in Brazil Set Off a Tornado in Texas?" became a benchmark in emerging chaos theory.

A small disturbance in Tuell's education plans led him to WPI. Dropping out of high school in Rhode Island his senior year due to a teachers strike, he attended St. John's Junior College briefly. He then considered MIT, but it did not offer an undergraduate degree in meteorology at the time. WPI, however, offered him an ROTC scholarship and a firm foundation in physics. "In the long run, the solid foundation in physics from WPI proved to be a real blessing," he says. "It gave me the breadth and depth to do a lot of different things in meteorology in the course of my career. Basically, at WPI, I learned how to learn."

Tuell was eager to recruit the late John C. Johnson, who'd published *Physical Meteorology*, as his senior advisor. Unfortunately, Professor Johnson suffered a heart attack just before Tuell's senior year and Tuell was assigned to Professor L. Ramdas Ram-Mohan. Though Ram-Mohan had no meteorological background, his father just happened to be a meteorologist in India. "Professor Ram-Mohan advised me very competently during my IQP (Mathematical Modeling of the Sea Breeze)," Tuell recalls. "What he lacked in meteorological background was made up by extremely strong fundamentals. He really taught me how to pull myself up by my own bootstraps." The experience also drove home the fleeting nature of so-called expertise. "As another professor once told me, the half-life of an engineer is seven years because technology changes so fast, but the fundamentals of physics never change."

Tuell finished his degree at WPI in just three years; with one year remaining on his ROTC scholarship, he attended the University of Washington to study atmospheric science. He was called to active

duty with the U.S. Air Force in his second year, but not before publishing a journal article on trace gas and particle emissions, prompted by the timely (1980) eruption of Mount St. Helens. The head of his ROTC unit at Washington was an Air Force weather officer, who encouraged his interests.

Another weather officer from his ROTC unit later became Tuell's commander at Eglin Air Force Base, where experimental aircraft and munitions are tested. "My work at Eglin supporting the test and development of electro-optical weapons earned me a quick trip to Saudi Arabia during the first Gulf War and was instrumental in my being selected as a faculty member at the Air Force Institute of Technology." Of utmost importance to the modern war effort was how new weapons, smart bombs, and other laser-guided munitions reacted to atmospheric conditions. Tuell provided forecasts for the bomber sorties and debriefed pilots afterward to learn how the weapons performed under different atmospheric conditions. "There was no textbook on this. It had never been done before."


## SAVING LIVES

Tuell earned a PhD in atmospheric science from Georgia Institute of Technology, courtesy of the Air Force. His 500-page dissertation, "A Search for Strange Attractors in the Saturation of Middle Atmosphere Gravity Waves," deepened his interest in those small disturbances that change the system. But it was due to his early Air Force work developing numerical weather prediction models that he was first introduced to the National Weather Service. He served as the Department of Defense representative to the NWS on development of NEXRAD (Next Generation Radar) meteorology.

After leaving the Air Force in 1997, Tuell had a brief foray into the public sector with Litton PRC. He led a business unit responsible for environmental projects, including delivery of flood forecasting systems, via AWIPS (Advance Weather Interactive Processing Support) to Hurricane Mitch-ravaged Honduras and Guatemala. International work in water resource projects is a tough business model to sustain, he says, but by then he knew a career in public service was his main interest—and the NWS was a perfect fit.

Beginning in 2002, he worked in five positions before assuming his current role as director of the Eastern Region. As chief of the NWS Development Branch he led software improvements to vital AWIPS, NEXRAD, and ASOS (Automated Surface Observing System) technology. From there it was chief of the Programming Branch, then chief of the Science Plans Branch, before getting





his first role in policy making as chief of the Meteorological Services Division, and later as acting director of the Office of Hydrologic Development.

But it's public service Tuell finds most rewarding. "I believe in public service," he says. "My country has been very good to me. At the NWS what we do is save lives and protect people's resources. Who could ask for a better job than that?"

Then-acting NWS director Laura Furgione had this to say on Tuell's latest appointment: "Jason has spent his career moving technologies from research to development and turning them into products we use every day to make our forecasts more accurate and timely."

Weather technology is continually improving. At its current pace, Tuell estimates weather forecasting gains roughly one more day of predictability every five to seven years. Improvements in weather satellite imagery and data collection, improvements in NEXRAD technology, and advances in modern numerical weather modeling aided by an ensemble of supercomputers has had dramatic impact on forecasting. "With NEXRAD developments we now have an average warning time for tornadoes of 14 minutes. Before that, lead times were from zero to just a few minutes," he says. "This advance warning at least gives people a chance to react and take shelter."

There was a 25-minute lead time from the initial warning to the touchdown of the tornado that hit Joplin, Mo., on May 22, 2011. Though this was the deadliest U.S. tornado since 1953 (with 160 lives lost), a National Weather Service assessment showed the improved warning lead time saved countless lives as many people took shelter. "We have reached a point where the social science of how we get warnings to people is as important as the meteorological science itself," Tuell says. "Getting the information out so that people take action is critical."

In modern numerical weather modeling, some 10–20 supercomputer-generated models are compared (and the initial conditions data is intentionally disturbed in each model) to predict the most probable forecasts. Such models were used to predict the course of

Tropical Storm Sandy and proved to be remarkably accurate even six days in advance of landfall, even predicting the storm's erratic sharp left turn before hitting the Jersey Shore. That advance warning, together with an impassioned plea from New Jersey Governor Chris Christie urging coastal residents to evacuate—if not for themselves, then at least for consideration of the lives of first responders or for their families who may bear the burden of identifying their bodies—saved countless lives.

"It also typifies the way the NWS feels about public service," Tuell says, "combining raw data with the social science of how the public should use that data. Though businesses have been using risk tolerance analysis for years, how do you communicate that to the public and get them to take the appropriate action?"

This is the fundamental future of the science, he says. Improved forecasting and data collection are fruitless unless they provide real meaning to serve and protect the public. Integration of state-of-the-art weather forecasting with other disciplines—the Centers for Disease Control, for example—will make it even more meaningful, he predicts.

"I have a curiosity about everything," Tuell says, "the weather, information technology, physics." And WPI prepared him well. "The overall environment at WPI and how they approach education is what influenced me the most."

Though it may seem unsettling that small disturbances can completely change the course of a dynamic system, cause and effect is still unknowable. For all we know, Lorenz's fluttering butterfly may just as easily have prevented a tornado in Texas. Strange attractors can change the course of a storm or the course of a career and put you in just the right place at just the right time to make a real difference.

"My career has had many interesting and seemingly tangential trajectories," Tuell says, "but it keeps leading me back to the heart of our service—putting out forecasts and warnings that save lives, protect property, and enhance people's decision making." ■

... WHAT  
WE DO IS  
*save lives*  
AND PROTECT  
PEOPLE'S  
RESOURCES.  
WHO COULD  
ASK FOR  
A BETTER *job*  
THAN THAT?"





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.



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**if... The Campaign to Advance WPI** — a comprehensive, \$200 million fundraising endeavor — is about the students we educate and the leaders they will become. The Campaign will provide the critical financial aid and supply the facilities, programs, and people that help us prepare our students to thrive in and contribute to our rapidly changing world.

**If...** you help us reach our goal, you will strengthen an already robust and critically relevant institution and 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.

**JASON TUELL, CLASS OF '79**, director of the National Weather Service Eastern Region, is responsible for 23 weather forecast offices, three river forecast centers, and four weather support units that deliver weather, water, and climate forecasts and warnings to almost 100 million Americans.

Just another example of where a WPI degree can take you.

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**WPI**



A woman with dark hair and glasses is shown in profile, looking towards the right. She is wearing a dark top. The background is a blurred computer screen with a grid of icons. The entire image is overlaid with a semi-transparent blue filter. Large, bold, yellow text is superimposed over the lower half of the image.

**KEEPING  
GLITCHES  
OUT OF  
GOOGLE**



# ELIZABETH SCHWEINSBERG '00

## DEFENDER OF THE GOOGLE NETWORK

BY TED FLANAGAN

PHOTOGRAPHY BY LEAH FASTEN

# EVEN BEFORE *CSI: MIAMI* TRANSFORMED THE FIELD OF FORENSICS FROM A CLOISTERED COLLECTION OF LAB-COATED SCIENTISTS INTO A POP CULTURE TOUCHSTONE AND UBIQUITOUS ENTERTAINMENT FRANCHISE, ELIZABETH SCHWEINSBERG THOUGHT SHE MIGHT END UP AMONG THEM.

The appeal was obvious.

To anyone curious about systems and why they work – or don't work – forensics is a prolonged scavenger hunt in which the end result is not only the solution to a mystery, but also a better understanding of the very system under scrutiny.

But Schweinsberg, a self-described Army brat who lived the peripatetic childhood typical of kids in career military or federal service families, was equally enamored of computer science.

While completing high school in Washington, D.C., she received crimson and gray brochures from a small engineering school in a city whose name she could hardly pronounce.

"I want to go there," she said. "That sounds like just far enough away."

Just far enough ended up taking Schweinsberg to places she'd never really imagined, initially riding the wave of the first dot-com bubble into consulting and Java programming, a brief interlude brought to a sudden halt when the bubble burst. That led to graduate school on a government scholarship, and several years at a federal agency more secrecy-obsessed than the CIA. In 2011 she joined Google, which in just 14 years has become the world's most well-known Internet company, a corporation that has changed the way we compute, web surf, disseminate information, govern, learn, work, and a million other things, and may represent one of the most important forces of disruptive change in human civilization since the introduction of Gutenberg's press.

Schweinsberg, who learned the trade while at WPI, is one of a small corps of programmers tasked with keeping all of it safe.

## THE RESPONDER

Schweinsberg says her job at Google has several titles, although the most pedestrian is probably the most accurate – and daunting: Incident Responder.

Google runs a million data centers worldwide and processes over a billion search requests and 24 petabytes of user-generated data per day. For those keeping score at home, about a million gigabytes every 24 hours.

That's a lot of information to protect, though Schweinsberg demurs when asked about the cloak-and-dagger aspect of her work.

Rather than dealing with hostile foreign powers or saboteurs, she most often battles the creative impulses of her co-workers that show up as ephemera in the network – not glitches, per se, but fodder for them.

Schweinsberg first learned to look for these interruptions in the normal functioning of computer networks while an undergrad in computer science at WPI, where she took courses in network security and cryptology, which in the late 1990s appealed to her native intellectual curiosity, even if employment opportunities were scarce.

"I had taken these courses," she says, "but there just weren't a lot of jobs available at the time."

The lessons she learned in Fuller Labs, though, stayed with her through stints as a Java- and a web programmer, careers she eventually abandoned, mostly because the dot-com boom came to an abrupt end, but also because "web application



programming is pretty much the same every time,” she says, “and I could tell it was going to get boring fast.”

Schweinsberg eventually attended graduate school at Carnegie Mellon on a Department of Defense CyberCorps scholarship, which led to a six-year stint at the National Security Agency—the ultra-secret federal agency that protects America’s vast stores of information and communication, among other things.

In July of 2011, after surviving Google’s infamous, grueling interview (“There’s kind of a misconception that it’s a trivia-based interview, questions like ‘how many ping-pong balls can you fit in a school bus?’” she says. “While problem solving is important, we tend to actually ask more applicable questions.”), Schweinsberg relocated to Mountain View, Calif., home to Google’s headquarters, The Googleplex, and began hunting down anomalies on the company’s computer networks.

Most of those anomalies come not from hackers but from fellow Google employees trying to use the network in new ways to facilitate their own work, although often these workarounds are not looked on with great fondness by people like Schweinsberg.

“Usually it’s just people [at Google] trying to get their jobs done,” she says, “and they’re like, ‘Oh, I thought that would be a good workaround.’”

A polite explanation of why those workarounds are not always in the best interest of the network’s integrity usually gets the job done.

“It’s definitely a feedback of figuring out what they did on a computer or on the network,” she says, “and then giving them some education as to why this is not good for the Google network.”

Schweinsberg accepts these instances as the small cost of working at a company with such a highly creative workforce.

“I work with some of the smartest, most creative people out there, so there’s a large element of education in our job. Most of the time, [network issues] can be explained by a Google user doing an action, and we can come up with a pretty good story of what they did before we go talk to them. Day to day, it’s almost always people doing something clever.”

Occasionally, though, Schweinsberg and her colleagues are asked to examine cases of suspected attempted intrusion



“WE JUST HAD THIS GREAT FOUNDATION AT WPI,” SHE SAYS. “IT TURNS OUT THAT, IN COMPUTER FORENSICS, KNOWING HOW THE OPERATING SYSTEM WORKS IS ACTUALLY

REALLY, REALLY IMPORTANT, AND EVEN THOUGH WHAT WE LEARNED [AT WPI] WAS AN IDEAL OPERATING SYSTEM—NOT WINDOWS, SPECIFICALLY —THE FOUNDATIONS ARE THE SAME, AND IT’S JUST THE IMPLEMENTATION DETAILS FROM THERE.”

## ASK THE EXPERT

When asked to give some tips to the average computer user who'd like to keep personal information away from overseas hackers attempting to clean out the family vacation account from some dank, faraway Internet café, Schweinsberg has four suggestions:

### 1. Caveat emptor. Always buy your software from a legitimate source.

"One of the biggest ways, across the board, that we see people introducing malware into their system is through the attempt to get software cracked," Schweinsberg says. Computer users who don't want to pay expensive license fees for certain software packages will often download key generators (keygens in computer security parlance) that offer free access to those same programs. "All too often the keygens are malware."

### 2. Use Google's Chrome browser. (Well, what did you expect?)

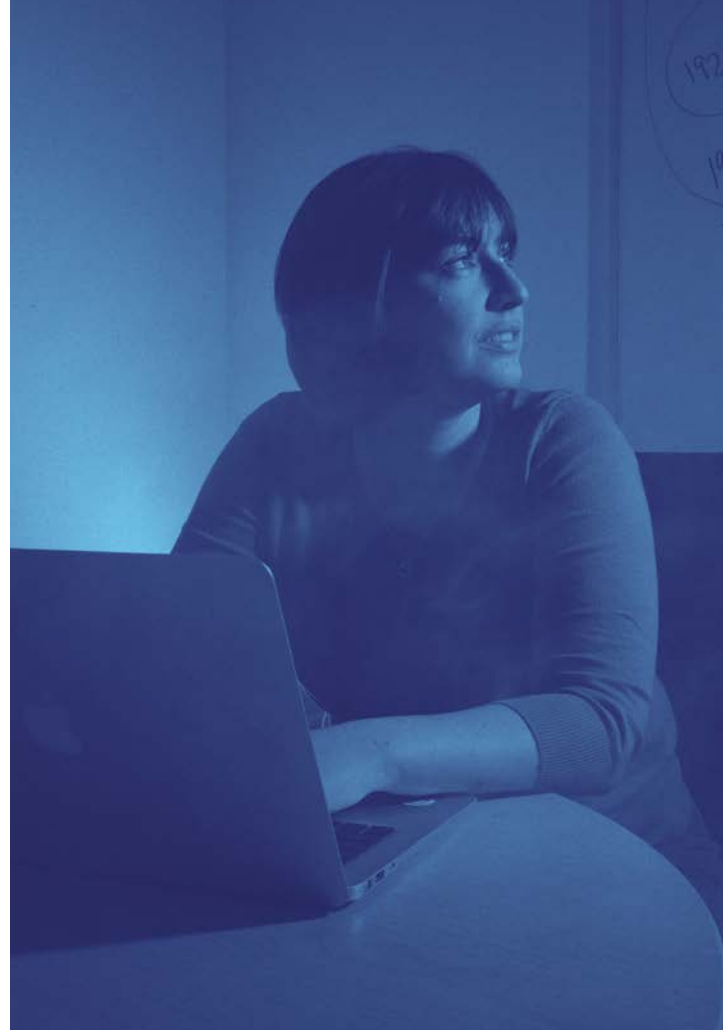
"The Chrome team, in addition to building a browser, spends a lot of time searching the Internet, and in doing so, websites that have a history of promoting malware aren't going to end up in your searches," she says. "We're here to promote information for everybody, not malware for everybody."

### 3. Take advantage of two-factor authentication.

"Use this whenever possible," she says, "but especially for access to things like email and bank accounts. In this form of encryption, the user has a password and then a secondary means of identification, like a special key fob that generates a random number, or a system where attempting to log in sends a unique, one-time code number to your cell phone allowing access. It makes it much, much harder for your account to be hijacked."

### 4. Watch password reuse.

Schweinsberg ruefully admits even an experienced computer network security pro can fall prey to password reuse. "The practice of having one password or password schemes for multiple accounts is a bad idea," she says. "I'm not going to lie, I do it myself. I used one password for every unimportant site, as long as it was just protecting my information and not, like, my money in the bank." That was until a popular social media site had its entire email and password list hijacked and Schweinsberg's Twitter followers began receiving odd Tweets encouraging them to take part in various dubious home businesses. "Someone who followed me pointed it out, and I was, like, 'nope, nope, I didn't say that,'" she recalls with a laugh. "That's not something I would say. I'm not really into the work-at-home scheme."



into the network. Google itself encourages this scrutiny, or at least has a way to compensate programmers who find and report security weaknesses in select Google products and its network.

The Vulnerability Reward Program offers a payment schedule for finding and alerting Google to flaws and vulnerabilities, although there are limitations—direct attacks on Google infrastructure, denial-of-service bugs, and other techniques are off limits.

Google maintains a Hall of Fame tally on its website that ranks the most successful "bug reporters" since the program's 2010 inception, although, in keeping with Google's philanthropic bent, the percentage of VRP money that the bug reporters subsequently give to charity figures into the formula for their ranking.

## A NURTURED CALL

A noted national speaker on computer and network security, Schweinsberg has been an example of a professional staying true to her innermost calling, a calling she says was nurtured in its infancy at WPI.

"We just had this great foundation at WPI," she says. "It turns out that, in computer forensics, knowing how the operating system works is actually really, really important, and even though what we learned [at WPI] was an ideal operating system – not Windows, specifically – the foundations are the same, and it's just the implementation details from there." ■



## The WPI Annual Fund is about opportunity

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ANNUAL  
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STEVE ELLIS '10  
WORKS WHERE  
THE RUBBER MEETS  
THE ROAD, PERFECTING  
PERFORMANCE  
FOOTWEAR FOR ALL  
WALKS OF LIFE.



BY JOAN  
KILLOUGH-MILLER

# science beneath the

photography by  
jarrod mccabe



**ake a look at the soles of your shoes.** If the yellow Vibram octagon appears there, you know that the Vibram Tester Team has walked a mile—or (collectively) a million kilometers—in your shoes.

Even if you're not a backpacker, a marathon runner, or any kind of athlete, the shoes you work or play in have been subjected to the most rigorous testing protocols that Steve Ellis can design. As Tester Team manager for Vibram USA, Ellis doesn't care if you're walking your dog, balancing on a steel beam 100 feet in the air, or serving as "boots on the ground" in military combat zones—it's his job to keep you on your feet.

"I'm the last line of defense in the product development cycle," Ellis says. "I hammer our products beyond belief, because I don't want to put something out there that's not 100 percent the best we can make."

Vibram's "Tested where it matters" motto takes Ellis around the globe, from Mount Monadnock to the Swiss Alps—or the Assabet Ice Rink down the road from his office in Vibram USA's Concord, Mass., headquarters. He seeks out remote areas to get the right conditions for field tests and jets off frequently to the multinational's corporate headquarters in Albizzate, Italy, or the Vibram Technical Center in Guangzhou, China.

The Vibram story begins in 1935 with founder Vitale Bramani, a member of the Italian Alpine Club. (The company name—properly pronounced Vee-gram—is a contraction of his first and last names.) After losing six friends in a climbing accident, Bramani wondered if the rubber used in automobile tires could be applied to the bottom of boots to prevent slipping. Back then, mountaineers climbed in wooden clogs or boots with stiff hobnails. Bramani's quest led to the rubber lug soles we now take for granted.

That spirit of innovation inspires Ellis in his 21st century experiments. He dreams of integrating ferro-magnetic particles into the soles of construction boots to give workers additional traction when walking on steel beams. He wants to experiment with nanoparticles, to see if applying them would give increased traction. "That's why it's fun to work here," he says. "Whatever I think up, they're open to trying out."

Ellis is proud of the company's commitment to innovation that continues under Vitale's grandson, Marco Bramani, who kicked off the "barefoot running" revolution with the "FiveFingers" line of shoes. Ellis sometimes looks at his job as series of ongoing IQPs and MQPs. In a typical workweek, he might be found in Higgins Labs, where he uses WPI's scanning electron microscope to analyze surface topography of products—or playing 18







# Helping our students to #LIVEWPI

WPI takes great pride in engaging our students in a vibrant and thriving community, which is why we invest in their home away from home. When our students return for the new academic year, WPI's Office of Residential Services will welcome the first class of students "home" to the new Faraday Hall, a 258 bed upper class student residence hall featuring tech suites, in suite kitchens and bathrooms, dedicated parking, and air-conditioning. Residents of Founders Hall and Ellsworth Apartments will see many renovations. First year students in Institute Hall will live in WPI's first Wellness Community promoting the development and maintenance of a healthy body, mind, and spirit through a wide range of wellness programs. The beautiful, recently renovated Morgan Dining Hall will continue to serve the campus community with a wide variety of healthy and delicious meal choices.

For more information please visit [wpi.edu/+rso](http://wpi.edu/+rso).

#LIVEWPI



WPI

Residential Services Office

holes of golf on company time. “That’s probably the roughest part of my job, going out and playing golf all day long,” he quips. “But somebody’s gotta do it.”

Why golf? In addition to the physical properties of compounds, Ellis needs to understand the biomechanics of the human body in action to configure the best sole for many different sports. Golfers, it turns out, like Vibram’s FiveFinger line for balance and grip. “If you took an X-ray of a golfer in conventional shoes, you’d see the body is out of alignment and the back is not straight,” he explains “Just as in running, when you take away the thick midsole, you get a better feel for the greens.”

## The Extra Mile

This past January, while others were recovering from their New Year’s revels, Ellis was out braving an icy stream to test fishing waders. “When it’s that cold, the rubber gets super hard,” he notes. “It’s a totally different environment. But we know there are people up in Canada bass fishing in January, so we have to test these conditions.” Wet grip is another complex problem, with different rivers harboring different breeds of slippery algae. Natural fibers are the time-tested solution, but they have been banned in some states, because they can transfer microorganisms from river to river. Ellis is testing synthetic replacements, but it’s a hard sell for die-hard traditionalists who swear by their old felted boots. He’s also experimenting with fibers that would micro-freeze onto wet ice with every step. “We have to educate ourselves about all kinds of issues to solve specialized problems,” he says.

The testing cycle starts with in vitro evaluation of formulas developed by his colleague, the product development chemist. Promising compounds are made up into prototype soles, which are turned over to Ellis for in vivo testing, then sent to testers to try out in the field. It’s up to Ellis to develop testing protocols that best reflect actual wear. For example, he might employ a biomechanical abradar to test wear patterns on snowmobile boots. He’ll vary both the magnitude and direction of the force to evaluate which rubber can best withstand being shredded against metal footplates of the snowmobile. “It really takes a physicist,” he says, noting that his training enables him to calculate the force that is exerted against the rider’s feet on a 40-foot jump.

Vibram’s state-of-the-art Performance Test Center in China is equipped with chambers that simulate rain and ice conditions, pits of mud and gravel, and climbing courses. But the best tests are

sometimes very low-tech. There’s a lot that can be learned from human feet taking laps around a roller rink, to the beat of an ordinary metronome. One of Ellis’s favorite testing sites is nearby Mount Wachusett, which has some of the sharpest granite in the world. “We’ll run up and down the stone steps, or sit and kick a rock for two hours,” he says. “You can beat up a shoe pretty badly there.” Then it’s back to the drawing board to analyze results.

In two years on the job, Ellis has tested about a hundred products, working with more than 150 testers. One of his early initiatives was to streamline the data gathering with web-based logs—but he’ll do what it takes to get the best feedback. “I have a group of excavators working on a parking garage at UMass Lowell,” he says. “They’re terrific testers—but they’re not computer people. So I go out there, we tour the site, they show me their boots, and we talk, face to face.”

In Salt Lake City, Ellis goes out on the trail with a team of bow-and-arrow hunters who use military sniper tactics to stalk game. They don the FiveFingers shoe to make a stealthy approach on their prey. Ellis has even brought his grandmother’s dog into his research, casting its paws to create a FiveFinger-style dog shoe. Growing up, Steve favored hockey, golf, and basketball. He says he’s developed a greater appreciation for the great outdoors with all the hiking and mountain biking he does for his job.

Ellis’s undergraduate advisor, Germano Iannacchione, says that a business and physics degree combination is a natural—in fact, the number one degree sought by physics majors when they return for graduate education is the MBA.

“Many people think of physics as just the ‘first science’—the one that underlies all science and engineering,” Iannacchione says, “but it is also of great practical use. Steve’s

work is a perfect example of this. His MQP was an experimental study of the dispersion of nanoparticles in a complex fluid. He developed new approaches for the advancement of knowledge—and now he’s utilizing these skills for practical applications. His work was cutting-edge in 2010 and has now grown into an intense field of research work.”

The product-testing process will never be one-stop shopping, and that’s what keeps Ellis engaged. “It’s all problem solving,” he says. “It can be a challenge, but that makes it fun.”

Right now, while you’ve been sitting around reading this article, you can bet that Steve Ellis has been at work, discovering new ways to torture your sole. ■

**Ellis goes out on the trail with a team of bow-and-arrow hunters who use military sniper tactics to stalk game.**





## Over Hill, Over Dale

While most people associate the Vibram label with hiking, running, and adventure sports, the brand is not all fun and games. Ellis's testers include mail carriers and factory workers who need sure footing on icy or oily surfaces, and smokejumpers at the Colorado Wildfire Academy, who test out new fire-resistant compounds. One of his projects aims to reduce ankle injuries among soldiers in Afghanistan, where survival can depend on the ability to maneuver quickly on rocky terrain. Approval of military apparel can take years, Ellis notes, and requires an act of Congress.

Sometimes Ellis calls on his office staff to put a FiveFingers model through its paces—there's no shortage of active runners in Vibram's customer service department. At times he needs to reach out through clubs to recruit testers in a specific niche—female runners, for example, or canyoneering experts. He also has to turn away applicants who are eager to receive free sample footwear, but don't match the needed criteria for testing.

"It's about passion level," he says, explaining that the best feedback comes from people who truly enjoy what they do and care about what they do it in. "Our testers are not the typical consumer. We seek out people who are extremely hard on gear. We need them to take it out and beat it up for months."

Testers keep detailed logs, send in pictures, and respond to elaborate questioning to compare performance. While some do sign up for the swag, Ellis says most of his test subjects volunteer for the satisfaction of knowing they're helping their sport.







# fire An Industry Under

IT'S NOT JUST FUN AND GAMES  
IN IMGD, AS STUDENTS AND FACULTY  
CONFRONT THE NATIONAL DEBATE OVER  
VIOLENCE AND VIDEO GAMES.

**BY DAVE GREENSLIT**

Illustration by Harry Campbell

**dozens of students are hovering over laptops** in the Wedge outside Daniels Hall. Some use a mouse, others a console, playing in virtual worlds created by their peers.

It's April and Showfest is under way, an annual gathering where students enthusiastically play video games. It looks like fun—and it is—but it's also serious business. The games are senior class projects, many of which have been a full academic year in the making.

It's also big business. Students in WPI's Interactive Media and Game Development program (IMGD), will step into a \$25 billion industry upon graduation. It's also a business that finds itself in the spotlight every time a mass killing takes place, most recently after 20 kids and six adults were killed at a Connecticut elementary school by a 20-year-old who, like millions of young people, played violent video games.

The controversy surrounding violence in video games is not lost on faculty at WPI, who bring these ethical questions to the forefront in both class discussions and gaming assignments, says Jennifer deWinter, who teaches writing and rhetoric in the IMGD program.

"We don't want to hinder creativity, but we want our students to think critically and defend their reasons for building certain attributes into a game," she says. "If a student designs a game that puts a gun in a character's hand, we want to know why. We require them to think through other possible solutions, and they have to defend, in writing, why that choice was appropriate for that game situation."

Many who teach video gaming feel, as does deWinter, that the industry must engage this political debate in a meaningful way if they are to avoid being attached to senseless violence.

"We would be remiss in not attending to that debate," says deWinter.



## GROWTH INDUSTRY

Not too long ago, the word “gaming” conjured images of bookies and back-room poker games. Now, especially to people under 40, it means video games, and players aren’t gamblers, they’re gamers.

And it’s not just a teenager’s game anymore. The Entertainment Software Association says the average age of a gamer is 30 and almost half of all players – 47 percent – are women.

U.S. Rep. James P. McGovern, a Democrat from Worcester, sees video games as a future driver of the area economy, and notes WPI’s role in fueling the trend.

“The video game and technology industries in Worcester give us an opportunity to build on our regional academic strengths to pursue long-term, high-tech job growth and economic development right here in Central Massachusetts,” says McGovern. “WPI’s video game program is doing incredible work getting the students of today ready for the innovation economy jobs of tomorrow.”

IMGD was spawned in 2004 by what program director Mark Claypool calls a “wildcard session,” a blue-sky faculty retreat where professors were challenged to develop cutting-edge interdisciplinary programs.

Initial course offerings proved to be very popular, so game development was expanded to a full major in 2005, offering students tracks in both the technology and art of gaming. The tech track applies traditional computer programming, while the art track applies drawing and painting to the digital world to create animation, landscapes, and other visual features.

There’s cross pollination in the program, exposing programmers to art, and artists to programming. And all IMGD students must take game design, which combines coding, art, game rules, and story line.

“Game design is the glue that holds these things together,” Claypool says. Or as assistant professor Dean O’Donnell puts it, “I like to think of game design as the method of turning experiences into systems that will recreate those experiences.” IMGD’s interdisciplinary approach, says O’Donnell, fits perfectly with WPI’s philosophy of combining classroom learning with practical experience.

The 13 faculty members who teach courses and advise on projects come from academia and industry. Currently, there are about 170 undergrads and 15 graduate students in the program. Claypool says 40 percent of the graduates go into the gaming business, mostly in New England but also as far away as Japan, where video games are huge. While WPI’s game program might not have been the first in the nation, Claypool likes to call it the first of its kind because it balances the disciplines involved.

More than 500 universities in the United States now teach gaming, though not all offer a major in the field. The *Princeton Review* ranks the top 15 programs, with WPI’s undergraduate program ranked 12th and its graduate program earning an honorable mention. Claypool does not personally put much stock in rankings, but he knows many people pay attention to them.

## GUILT BY ASSOCIATION

After the massacre in Newtown, Conn., the blame game for the tragedy began, with one of the usual targets, the National Rifle Association, pointing a finger at another frequent target, violent video

## Games from Recent WPI Students:

### GAME OF THRONES: ASCENT

Players relive the popular book by George R. R. Martin and the HBO series through a new type of game that unites both story and strategy. // WPI Connection: **Jon Radoff** attended WPI in 2000 before leaving to found Disruptor Beam; he’s on the advisory board of the IMGD program. [disruptorbeam.com](http://disruptorbeam.com)

### MONSTER LOVES YOU

Players live the life of a Monster, making decisions that affect the world. They live in the village of Omen, and their favorite snack is the fingers of small children. // WPI Connection: **Ichiro Lambe ’98** was a physics major before the IMGD program existed. Chief programmer **Elliot Borenstein ’12** and artist **Amy Mazzucatelli ’12** are IMGD grads. [dejobaan.com](http://dejobaan.com)

### BIOSHOCK INFINITE

Set in 1912, players assume the role of former Pinkerton agent Booker DeWitt, sent to the flying city of Columbia on a rescue mission. His target? Elizabeth, imprisoned since childhood. During their daring escape, Booker and Elizabeth form a powerful bond. // WPI Connection: Level designer **Elizabeth Beinke ’09** and Artist **Mary Yovina ’10** are IMGD grads. [bioshockinfinite.com](http://bioshockinfinite.com)

### JACK LUMBER

A tree killed his granny and now he is out for revenge. Meet Jack Lumber, the superhuman lumberjack who hates trees, loves animals, and is out to chop every pine, oak, and maple that stands in his way. // WPI Connection: **Alex Schwartz ’09**, CEO of Owlchemy Labs is—you guessed it—an IMGD grad. [jacklumbergame.com](http://jacklumbergame.com)

### FIELDRUNNERS 2

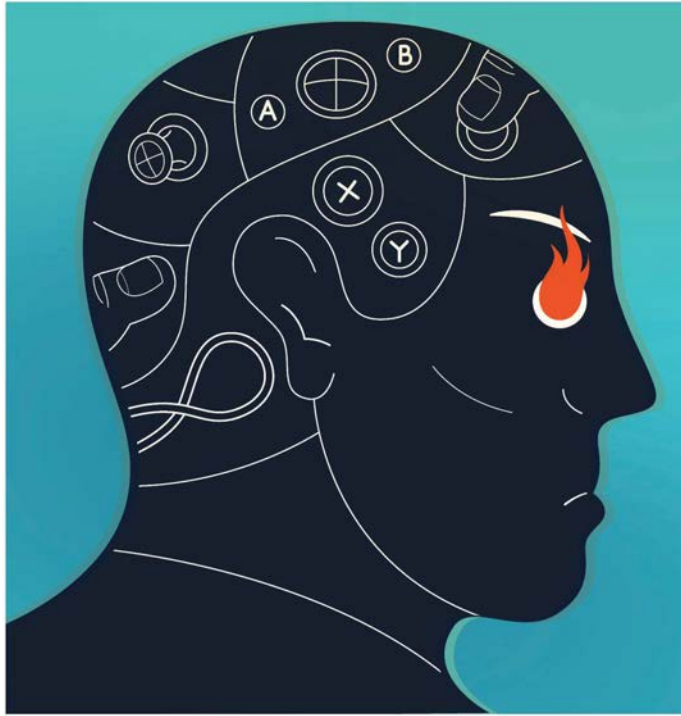
The massive sequel to the award winning tower defense game introduces more levels, weapons, and enemies. // WPI Connection: QA lead **Eric Sutman ’09**, along with QA testers **Chris Chung ’11** and **Jenn Lay ’12**, and technical artist **Derick Barth ’12** all had a hand in this game’s development. [subatomicstudios.com](http://subatomicstudios.com)

games. The *Huffington Post* published a poll in April showing that most Americans believe violent video games lead to gun violence.

Do such games cause players to go out and murder people? No evidence has come forth that makes that connection, though some studies indicate games could be one factor among many, especially for socially isolated young men who spend too much time playing them.

In 2011 the Supreme Court ruled that video games were protected speech that cannot be regulated by government. In its decision, the court noted that there was a lack of consensus among those who had researched the connection to violence. The court also pointed out that youth violence was at a 40-year low, despite the growth of video games.

In a story earlier this year, the *New York Times* said the effect of media



## OPEN THE DOORS

While violence gets far more attention, sexism in video games – indeed, in the industry itself – is also a long-standing issue. Though they make up almost half of all players, only 13 percent of video game developers are women, and that’s reflected in games that over-sexualize women or, as deWinter puts it, portray them as the Playboy Bunny.

In an industry dominated by men – young men – games are developed through the lens of their desires and expectations. However, deWinter believes the industry needs more diversity. “We’ll see more nuanced representation of women and minorities when the industry becomes more diverse.”

O’Donnell agrees that games will evolve to go far beyond action-adventure, offering society a much greater opportunity for communicating.

“As the medium matures, the range of emotions we can express through the art also expands,” he says.

But there’s a long way to go – in the games, in the industry, and even at WPI, where deWinter is the only woman teaching in Interactive Media and Game Development and where the percentage of female students in the program matches that 13 percent who work as programmers and designers in the business.

Tales abound of boys-gone-bad behavior at national video game conferences. DeWinter says she was groped at one, and scantily clad dancers at the Game Developers Conference in San Francisco, the industry’s biggest, caused a stir the past two years.

The difference this year, says deWinter, is that there was a mini-revolt. Two people, including WPI alumnus Darius Kazemi ’05, resigned from the International Game Developers Association, which had co-sponsored the parties.

“More people in the industry are now speaking out about such things,” she says. “People are taking action. These are good signs.”

To get more women into the industry, deWinter says educators need to interest girls in science, technology, engineering, and math (STEM), and to recruit women for degree programs in gaming.

Owen Leach, who graduated in May with a master’s in IMGD, did his thesis on the gender gap in STEM, and plans to develop a game that would encourage more women to enter the field. “My game attempts to teach math while simultaneously appealing to female players,” he says.

Greater numbers of women in the business will not only diversify the games produced but improve the workplace, according to deWinter. “Women value time differently than men do, which could lead to a better balance of home and work and relieve some of the workload issues that wear out people in the industry.”

IMGD faculty members have high expectations for WPI students who earn degrees in their program. “I expect them to be well-educated humanists,” O’Donnell says, stressing that WPI provides a university education.

DeWinter expects her students to be respectful of the players and to be socially responsible, thinking through ethical questions and speaking up for the field with sophistication.

“A trade school will teach you about art,” she says. “A university will teach you to think about it, as well. That’s what we expect from our graduates.” ■

violence on behavior has been studied since the 1950s, and video games have been scrutinized since the ’80s. The latest research indicates that game playing can cause mild aggression in the short term but does not show that this leads to violent crimes.

The *Times* reported that youth violence declined by half from 1994 to 2010, while video game sales have more than doubled since 1996. To O’Donnell, a playwright who teaches social issues in the IMGD program, video games are the latest moral panic in which some medium is blamed for society’s ills.

“There’s always been violence in media. Every actor who has ever played Macbeth has immersed himself in the mind of a murderer, yet actors don’t commit crimes more than anyone else.” O’Donnell says students generally roll their eyes and shrug because they can differentiate between fantasy from reality.

Still, O’Donnell says he often plays devil’s advocate and discusses violence in his social issues class because he knows students who go into the field will hear the argument against video games and they should know how to respond.

“It’s a tool for drama, just like anything,” he says. “But there’s a difference between drama and gratuitous violence.”

DeWinter finds it hard not to roll her eyes when she hears people say that violent games cause violent behavior, which she calls a false correlation. Media often explore human nature, and that includes violence, she admits. That said, deWinter does think it’s fair to critique gratuitous violence.

“If the experience you want is to be mean and cruel, you can do that in a game, but is that a good game to have?” she asks.



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THE VIEW FROM THE HILL

## From the Alumni Association President

DEAR ALUMNI AND FRIENDS,

Spring has sprung and the campus has never looked better. On May 11, the 145th commencement exercises saw about 1,000 men and women – undergraduate and graduate students – cross Earle Bridge en masse for the final time. On Aug. 29, the Class of 2017 will start their journey, soon after crossing Earle Bridge as a class for the first time, and all the while the role of the Institute in the world has never been more important than it is today, enabled by a diverse and widespread alumni network of 33,000 strong.

In the 20 years removed from my entering as a freshman in the Class of 1997, so much has changed in the physical campus for the better with the addition of the Campus Center, Bartlett Center for admissions and financial aid, two new residence halls (490 additional beds), a parking garage (complete with elevated playing fields) and the elimination of parking on the Quad, the expansion into Gateway Park, renovated labs and classrooms, and a world class Sports & Recreation Center. Impressive changes in the educational approach have evolved with the introduction of the First Year Experience that folds into the WPI Plan seamlessly, the continued expansion and opportunities offered through the Global Perspective Program, the introduction of new educational programs and majors, and the formal establishment of a School of Business.

The alumni relationship with its alma mater is a lifelong, two-way street, with a responsibility on the part of alumni to be stewards of the Institute with their time, treasure, and talent. In



The alumni relationship with its alma mater is a lifelong, two-way street.



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April, alumni combined forces with current students to participate in the WPI Community Service Day clean-up efforts at Institute and Elm parks. This annual event is a great opportunity to both return to campus and make a difference—more impactful is the ability to spend a day with undergraduates, hearing about their experiences and aspirations.

But alumni shouldn't forget that WPI still has much to offer post-graduation, from access to the Career Development Center to wonderful education and social programming (Go Sox—alumni outings June 28, July 13, and Aug. 4) to continued networking opportunities with Graduates of the Last Decade, local chapter outings, New Student barbecues, and the In Your Neighborhood

series scheduled throughout the year. As always, you are welcome to reach out to me (mwalton@alum.wpi.edu) if you have questions about what you can do for WPI or what WPI can do for you...both are equally important.

With best wishes,



**Myles Walton '97**

COMMUNITY SERVICE DAY 2013

## The Helping Herd

**A**lumni, students, faculty, and staff are known for giving back to communities, locally and globally. The WPI Alumni Association celebrates this tradition with its annual Community Service Day event. This year approximately 100 members of the WPI community gathered in Worcester to clear brush from Institute and Elm parks. The event was held on Saturday, April 20, at the close of a tragic and anxious week for Greater Boston and Massachusetts

that started with the bombing at the Boston Marathon on Monday, April 15, and ended with the dramatic apprehension of the suspects in the case on Friday, April 19. For Myles Walton '97, president of the WPI Alumni Association, participating in Community Service Day cast a new light on the week's events.

"Seeing alumni, students, and members of the broader Worcester community coming together to make a positive impact on WPI's surrounding neighborhood was a wonderfully bright spot in an otherwise dark week in the Boston area," Walton said.

The morning of activity was followed by lunch and the Alumni Association annual meeting.



The Helping Herd at Institute Park



# news from HIGGINS HOUSE



## 2013 Alumni Award Recipients

The WPI Alumni Association recognized 11 of its members at Alumni Weekend, May 30-June 2, for their professional achievement and service to the university. These remarkable graduates bring pride to the WPI community.

### Robert H. Goddard Award for Outstanding Professional Achievement

#### **RICHARD CAMPBELL '58**

(posthumously), an accomplished acoustical engineer and adjunct professor at WPI whose work spanned space shuttles to concert halls.

▶1 **RAYMOND DUNN '78**, chief of plastic and reconstructive surgery at UMass Medical Center, professor of surgery and cell biology at the University of Massachusetts Medical School, adjunct professor of biomedical engineering at WPI, and CEO of 5G Medical, a small biotech firm co-founded with a fellow WPI graduate.

▶2 **WILLIAM FITZGERALD '83**, former vice president and general manager of GE Global Operations, Services, former vice president and general manager of Assembly, Test and Overhaul, former vice president and manager of GENex product line, and current vice president and general manager, Commercial Engines Operation, for GE Aviation.

**TIMOTHY HORAN '83**, retired colonel in the U.S. Army Reserves, executive at National Grid who currently serves as president of National Grid's U.S. business in Rhode Island.



▶1 **DEAN KAMEN '73**, serial inventor with more than 440 U.S. and foreign patents, most widely known for his work on the first wearable infusion pump and the Segway Human Transporter, and for founding FIRST—For Inspiration and Recognition of Science and Technology—to motivate the next generation to understand, use, and enjoy science and technology.

### Ichabod Washburn Young Alumni Award for Professional Achievement

▶3 **JASON MELLO '98**, lieutenant colonel in the United States Air Force who has held significant leadership positions, including program manager for a multi-billion dollar satellite program and White House military aide, and who



spearheaded the first National Company Grade Officers' Council Professional Development Conference.

### Herbert F. Taylor Award for Distinguished Service to WPI

▶4 **BRUCE BEVERY '73**, current Civil and Environmental Engineering Advisory Board member,



adjunct professor in WPI's Civil and Environmental Engineering Department, Alumni Council class representative, Class Agent, Alumni Association Cabinet member, and class reunion planning participant.

▶ **STEVEN HALSTEDT '68**, current WPI trustee who helped lead the quiet phase of *if... The Campaign to Advance WPI* and current member of the National Campaign Advancement Committee that is leading the public phase of this \$200 million fundraising endeavor, a driving force behind the Colorado Alumni Chapter, as well as a Class Agent, Regional Council representative, and Reunion Committee volunteer.

▶ **ALFRED MOLINARI '63**, trustee emeritus who served on the planning committee for WPI's last major fundraising campaign, former advisory board member for the Management Collaborative for Entrepreneurship and Innovation, Class Agent, Annual Fund Board member, and chair of his 40th and 50th Reunion committees.

▶ **LEONARD REDON '73**, trustee emeritus, current member of the Arts and Sciences Advisory Board, Class Agent, and Admissions volunteer.

**John Boynton Young  
Alumni Award for  
Service to WPI**

▶ **DAVID WHEELER '98**, Alumni Association Board of Directors and current treasurer judge for Great Problems Seminars Project



▶ 4



▶ 5



▶ 6



▶ 7

Presentation Day, volunteer for reunion planning committees, team captain for annual Community Service Day, and tireless promoter of WPI.

*For more about the WPI Alumni Association Awards, a list of past recipients, and an online form where you can nominate a great WPI graduate, visit [wpi.edu/+alumni](http://wpi.edu/+alumni).*



## NASA Challenges Students at WPI

Corporations Support  
Quest for Robotic  
Innovations

**ANYONE VENTURING** outdoors to enjoy Worcester's summer weather recently might have noticed something unusual traveling across WPI's quad. A compact, wheeled robot with a passing resemblance to NASA's Mars rovers, AERO (Autonomous Exploration Rover) has been roaming the campus on test runs for a project that could revolutionize the way we explore other planets – and even how we learn about our environment here on Earth.

A project of the Robotics and Intelligent Vehicles Research Laboratory, or RIVeR Lab, AERO is a four-wheeled mobile platform with an attached arm. It was WPI's entry in the 2013 Sample Return Robot Centennial Challenge, a contest sponsored by NASA that requires an autonomous robot to seek out and collect various objects – that is, “return samples” – in an environment designed to represent a distant planet.

The contest, held this past June, was the second iteration of the Sample Return Challenge, and once again NASA partnered with WPI to organize it. Larry Cooper, head of the agency's Centennial Challenges program, says NASA selected WPI because of its strong track record, noting that WPI's proposal highlighted its technical and educational expertise in robotics, its exceptional facilities, and its depth of experience in managing robotics competitions. NASA also hoped WPI would be able to incorporate a public education component

into the competition, which became TouchTomorrow, a free, family-friendly festival of science, technology, and robots that drew 7,000 people in 2012 and 10,000 this year.

The challenge was held at Institute Park, adjacent to WPI's campus, but none of the six teams won any of the \$1.5 million in prize money offered by NASA last year, while 12 teams failed to win the big prize money in 2013. While WPI, as an organizer, is not eligible to win the money, Taşkın Padir, RIVeR Lab director and assistant professor of robotics





# WPI

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*Highlights:*

Football Game

100th Anniversary Celebration of Lambda Chi Alpha

30th Anniversary of the Student Alumni Society



engineering and electrical and computer engineering at WPI, says his team was hoping to make a technological contribution to a hard problem.

“This is a totally new challenge, having robots going out autonomously, finding samples, bringing them back,” Padir says. “The robot needs to know where the sample is, then find an object using computer vision techniques to pick it up, which is a whole other problem.”

AERO incorporates hardware from Oryx 2.0, a WPI student-designed robot that won first place in another NASA challenge last year, beating out teams from Caltech and the University of Maryland. But while Oryx was operated by remote control, AERO must perform its tasks without human assistance, or even help from an Earth-based device like a compass or GPS. That makes it very different from NASA’s current extraplanetary robots, the Mars rovers *Spirit* and *Opportunity*, which are tele-operated by humans on Earth. That system has its limitations because of the enormous distance a signal must travel—on average, 140 million miles between Earth and

“You can imagine 30, 40, 50 years from now, you could have robots on other planets, several on the moon,” Padir says. “It becomes less and less feasible for humans to control them.”

Mars—meaning that human controllers must work with a time delay that can make even the simplest actions, such as picking up a rock, quite cumbersome.

“You can imagine 30, 40, 50 years from now, you could have robots on other planets, several on the moon,” Padir says. “It becomes less and less feasible for humans to control them.” But asking a robot to perform even a simple task on its own is more complicated than it sounds. AERO, for example, must be able to map its environment, locate itself on that map, and avoid obstacles along the course. It must be able to see unfamiliar objects, identify them based on size, color, or material, and pick them up with its hand-like manipulator. These tasks involve such disparate robotics domains as computer vision, mobility, sensing, motion planning, and grasping.

“These are some of the good problems in robotics,” Padir says. “The technology and algorithms we use are applicable to many situations.”

In addition to the autonomy problem, integrating the diverse aspects of the project into one robot presents a challenge, says Velin Dimitrov, a second-year PhD student who led the WPI team under Padir’s mentorship. “With so many good ideas proposed by the team, we have had to think very carefully about which ones we keep and which ones we pass on,” he says. To that end, Dimitrov and his teammates worked 80-hour weeks assembling the robot, programming it, and testing it. They also sought out sponsors, putting together a pitch that ultimately led to donations of \$75,000 worth of equipment and services

from tech companies like AGCO Corp., Clearpath Robotics, KVH Industries, NVIDIA, Harmonic Drive LLC, B&K Precision Corporation, Dragon Innovation, Advanced PCB Designs, and GIGAVAC.

“We’re excited about our involvement,” says Jay Napoli, a vice president at the Rhode Island-based KVH, which donated an inertial measurement unit, a type of high-level sensor. Napoli added that the knowledge gained from the Sample Return Challenge could contribute to other cutting-edge technology, including driverless cars. “A lot of things that come out of these challenges have real-world applications,” he says.

Geisa Mello, director of business development at California-based B&K Precision, which donated an electronic testing platform, agrees that the project could lead to important insights.

“B&K supports engineering students who are trying to find a solution for today’s world problems,” she says.

For his part, Padir says the team was glad to collaborate with industry. “We share our knowledge, and they also benefit from meeting our students and seeing their technology used in novel ways.”

While autonomous space exploration may be novel, it’s not the only use for the technology behind AERO. For now, the WPI team is focusing on the June competition, but Padir envisions a future where robots like AERO will explore volcanoes or monitor earthquakes, identify agricultural diseases or security breaches, or even help elderly or disabled humans navigate their environments safely.



## With Thanks

Annual Scholarship Dinner celebrates donors and students

ON APRIL 3, more than 250 named scholarship recipients and scholarship donors gathered for the annual Scholarship Dinner. A high point each year, the evening is always brimming with pride for all that the students have accomplished and gratitude for the alumni and friends who helped make it possible. This year was no different, with Daniela Garcia '13 and Donal Boyd '13 speaking on behalf of scholarship recipients. Garcia, the recipient of the Clayton E. and Flora Wheeler Hunt Endowed Scholarship, double majored in biomedical engineering and mechanical engineering, with a minor in Spanish. Boyd, recipient of the Dr. Peter J. Frank Memorial Scholarship for traveling abroad in the Global Studies Program, is a chemical engineering major. The spirit of the evening – and the essence of the Scholarship program – is captured best in their own words.

“And because it can't be said enough, thank you to all of the donors. Your commitment has allowed us to develop the strongest of foundations for our futures. Many alumni who have benefited from this program themselves have established endowed scholarships. As a scholarship recipient, I look forward to continuing the cycle as an alumna with the same commitment and generosity as you have. Thank you to each of you for your personal commitment and your investment....Our success would not be possible without you.” —Daniela Garcia '13

“Without the scholarship I received, I would not have been able to travel abroad for my IQP, and I would never have had the opportunity to have a life-changing experience. The support you provide is foundational in enabling students to learn, grow, and develop as unique individuals. Through scholarships, WPI students are not only given the opportunity to explore the world, but also to change it. On behalf of my family and all the scholarship recipients, I thank you for your dedication to this institution and for your whole-hearted belief in the students who inhabit it.”

—Donal Boyd '13



▶1 Lucinda Hunt-Stowell, whose parents established the **Clayton E. and Flora Wheeler Hunt Endowed Scholarship**, with **DANIELA GARCIA '13**, this year's recipient of that scholarship.

▶2 George Long '57 and his wife Linda with **CHRISTINE BAILEY '13**, the recipient of the **George and Mary Long Scholarship**.

▶3 Bob Beckett '57 (third from right) with the recipients of the scholarship he established with his wife, the **Robert and Patricia Beckett Scholarship**.

▶4 Nancy Craig with **VICTORIA HEWEY '13**, recipient of the **Matthew Andrews Craig Scholarship**, established by Nancy and her husband, the late Don Craig '57.

▶5 **DONAL BOYD '13** (left), recipient of the **Dr. Peter J. Frank Memorial Scholarship**, with his mother, Catherine Boyd, and brother, Michael Boyd '14.

## WPI Gave Flight to a Remarkable Life

Henry Poplawski '39 ensures a WPI education for future generations of students

**HENRY POPLAWSKI CAME TO WPI** as a freshman in the mid-1930s, thanks to the generosity of an uncle who gave him \$200 to finance his first semester. By the end of his first year, Poplawski was forced to drop out of WPI due to financial hardship. After serving in the military, he did eventually complete his studies on the West Coast before embarking on an impressive career as a pilot, test pilot, and aeronautical engineer.

Throughout his life, Poplawski never forgot WPI, nor the disappointment of having to leave the university so early in his college career. More than seven decades later, he hopes to change that fate for future generations of students who face similar financial challenges in attending college. He has committed \$7.8 million through a planned gift for student scholarships at WPI, representing one of the largest gifts the university has ever received.

For Poplawski, this gift to the university represents heartfelt thanks for giving him the start he needed as a young adult.

"I owe WPI a lot," says Poplawski, who now lives in Ohio. "WPI got me on the right path. I probably wouldn't have gone to college otherwise. I had no money to complete my studies, so I want to help others continue theirs."

The gift will support scholarships for WPI undergraduates with financial need. Scholarship support represents a major component of WPI's \$200 million fundraising effort, *if... The Campaign to Advance WPI*. The university seeks to raise \$75 million for student scholarships, making it possible for more qualified and deserving students to earn a WPI degree.

With Poplawski's gift, WPI has raised approximately \$55 million toward that goal,

and a total of more than \$142 million toward the overall \$200 million goal. The campaign also seeks funding to support faculty and academic programs, campus life and facilities, and unrestricted annual support.

For Poplawski, the gift is a reminder of the impact WPI had on his early years and his way of giving back to help those students in need. "I don't want anyone else to have to leave school because they can't afford it," he says.

"We are humbled and eternally grateful for Mr. Poplawski's gift," said former president Dennis Berkey, who with his wife, Cathy, visited Poplawski to thank him personally for his commitment to WPI, and presented him with an honorary doctor of engineering degree. "His determination to complete his studies and then launch an outstanding career – all the while remembering his WPI roots – is truly extraordinary," said Berkey. "We are confident that his generosity and foresight will serve a new generation of WPI students."

This generous gift was celebrated on April 3 at WPI's annual Scholarship Dinner, which recognizes the contributions of the university's scholarship donors and the achievements of scholarship recipients (see page 51). In his opening remarks at the dinner, Berkey described that visit with Poplawski.

Henry was so enthusiastic about WPI, he couldn't stop talking about WPI, he had written poetry about it. He is just an amazingly enthusiastic, wonderful person."



### TRIUMPH OVER ADVERSITY

An ambitious young man with an affinity for building kites and model airplanes, Poplawski overcame personal adversity. The second son of three boys and four girls, he lost both parents by the age of 12 and later lived at his oldest sister's house. After leaving WPI, he enlisted in the United States Army Air Corps – forerunner of the United States Air Force – and was com-





missioned as a second lieutenant in 1939.

He later was assigned as a pilot to help the British, who were engaged in a war in North Africa. The assignment was extended over Saudi Arabia and India, and into China. After 13 months the expanded airline was militarized and the United States was involved in World War II.

Poplawski started working for the Glenn L. Martin Co. in 1942 after a year flying in Africa

for Pan American Airways. At Martin, most of Poplawski's test flying was on the B-26 Marauder, but he also flew A-30 and the PBM-3 aircraft. Following World War II, he received his bachelor's degree in aeronautical/mechanical engineering from the University of Southern California in 1948. He returned to the Martin Co. as an aeronautical engineer and was recalled in 1951 to active duty in the Korean War to fly Martin-made B-29s.

Poplawski then was sent to Lowry Air Force Base in Denver, where he set up the Guided Missile Training School, and later became its director. He trained mechanics and operators for the Martin-made pilot-less missiles known as "Matador" and "Mace."

His career field changed from flying to air/aerospace technical intelligence as his next duty was a four-year assignment to the CIA in Washington, D.C. He retired from the Air Force in 1966 with 20 years of active duty and 12 years in the reserves.

#### PILOT AND POET

In retirement, Poplawski is a member of the Caterpillar Club, an informal association of people who have successfully used a parachute to bail out of a disabled aircraft. During a test flight of a B-26G near Baltimore in 1944, he had to bail out through the door in the nosewheel compartment, according to documents. When WPI officials invited him to the Scholarship Dinner on April 3, he respectfully declined, noting that he is "done flying."

Poplawski and his wife, Claytrice, married during World War II. She passed away in 2006. They enjoyed traveling and were particularly fond of cruises to the Pacific Rim. The couple also participated in many civic organizations throughout greater Dayton.

In addition, Poplawski is an avid poet and has written many poems chronicling his life, including one titled *Claytrice* that honors his wife and one titled *Who am I? (I am an Aviator—A Bird Man)* that showcases his life in flight.

In the last stanza of *Who am I?*, Poplawski shares his philosophy of flying. It may very well also come to symbolize the sense of spirit with which he has lived.

"Pilots are in the air, on the sea, and in the everyday world," he wrote. "Aviator is for the birds, such as in aviaries. And so it goes; you have to live with it."

## Investing in Our Potential

### DEAR FELLOW ALUMNI:

Spring is the best time of year to witness all of the ways WPI changes lives. Project presentation events showcase how the IQP, MQP, and graduate research transform not only our students, but also the communities and individuals who benefit greatly from our students' work. Then, at Commencement we celebrate the growth and achievement of our new graduates during their years on campus. Alumni Weekend concludes the academic year, with the promise of a WPI education exemplified through the remarkable careers and lives of our alumni.

By now many of you will have heard Henry Poplawski's remarkable story (see page 52)—how he grew up in Worcester and had lost both of his parents by age 12; how his uncle gave him \$200 to start his college education at WPI; and how he was forced to drop out of school at the end of his freshman year due to financial hardship. Even though he only spent one year at WPI, Henry credits it with changing his life and getting him “on the right path,” one that led to an impressive career. All these years later, Henry remains so grateful to the university that he is changing the lives of other WPI students by making a generous gift of \$7.8 million to support undergraduate scholarships. He wants to ensure future generations have full access to the transformational education he could only experience for one year.

Henry's story is just one among the thousands of stories of positive change that have emanated from the Hill over WPI's nearly 150 years. This year alone, we have shared with you stories about students helping communities in the United States and around the world, through the distinctive WPI project experience. You've heard personal accounts of faculty members making important advances in a wide array of fields, from biotechnology, biomedical



**Mike Dolan sees much to celebrate in the many ways a WPI education can change lives.**

engineering, and the life sciences to robotics, fire protection engineering, and the arts. And we have celebrated our alumni, like David Norton '62, the 2012 WPI Innovator of the Year and co-creator of The Balanced Scorecard, who credits WPI with giving him the foundation to move beyond conventional thinking to help transform organizations around the world.

If...*The Campaign to Advance WPI*, our \$200 million fundraising endeavor, is about expanding the reach and deepening the impact of our students, faculty, and alumni. The campaign currently stands at \$140 million, thanks to generous support from you, our alumni and friends. This is a proud moment in WPI's history: as the university approaches its 150th anniversary in 2015, a new level of prominence and recognition abounds. We have the opportunity to help launch WPI to

even greater heights by participating—I hope you will consider joining me in this important endeavor by making WPI a philanthropic priority.

If we invest in the potential at WPI, I can only imagine the stories of positive change that will emerge. The multiplier effect is certain to be profound.

With gratitude for your ongoing support,

Michael J. Dolan '75  
WPI Trustee and National Campaign Chair

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





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'57

## 1940

**George Bingham** writes from Portland, Ore., that he recently turned 94.

**Noel Maleady** reports that he's "Well for my 96 years." He lives in Ladera Ranch, Calif.

## 1942

**Wilbur Day** tells us that he's moved to Strasburg, Pa., to live with his son John, and daughter-in-law. "A very large change in my life!" he says.

## 1943

**Len Hershoff** recently moved from Rhode Island to North Carolina and says, "This is a wonderful area. We are a few miles from the ocean which moderates the temperatures, at the southern tip of North Carolina where it meets South Carolina. Not far from Myrtle Beach. No snow, don't use my AC, temp runs between 71 and 79 degrees."

**Ralph Smith** is still active on the town board for site plan review in his hometown of Kennebunkport, Maine. "Play bridge three times a week from K'port to Newcastle, N.H. I retired in 1994 as project manager and engineering consultant for plastics technology from the former Monsanto Co. I still do volunteer work for my church and the senior center."

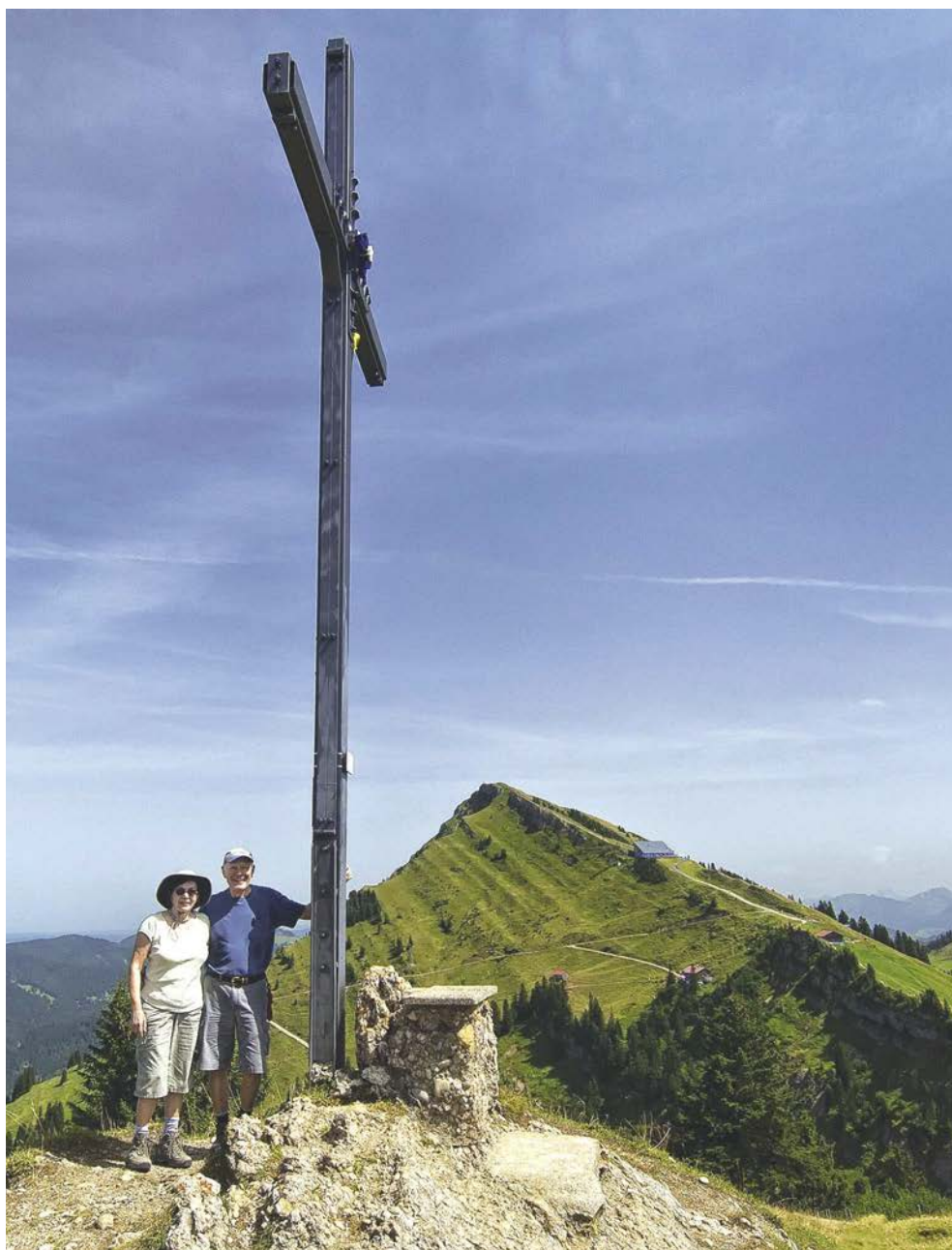
## 1944

"Getting along fine," writes **Sherm Campbell** after a move to Houston. "Still driving, playing some golf, and enjoying life—although I had to give up skiing a couple of years ago."

## 1946

**Daniel Rice** says, "Little did I know when I graduated from Tech in '46 that I would be founding the Rice dynasty of four children, 12 grandchildren, and 4 great grandchildren, making 21 people walking this earth that have my genes!" He writes that he plays golf 4-5 times a week, and shot his age when he was 81. He is a fully certified golf club maker and club fitter, and has a few Master points in duplicate bridge, as well. "I stay in touch with classmates **Walt Bank** and **Don Soorian**, and still tickle the ivories at senior communities."

Richard Barlow writes, "Afra and I had a great six-week visit to Germany, Austria, and France last fall. Best part was hiking in the German and Austrian Alps and visiting with old friends."





## 1948

**Louis Katz** lives in Baltimore. He writes, "Continue to work out three days a week and play duplicate bridge weekly. I survived a triple bypass in '09. The four kids gave us 10 grandchildren, and all are great, so life is good!"

## 1950

**Les Reynolds** moved to an assisted living retirement community in Haddam, Conn.

## 1951

"The day after my 85th birthday, I played 18 holes of golf," writes **John Writer**. He lives in Toms River, N.J.

## 1953

**Dave Beach** says "I was happy to be able to attend my 60th WPI Reunion in spite of some infirmities (Parkinson's disease). Being there and seeing those Class of '53 classmates able to attend brought back a lot of fond memories of the great education I received and the fun I had participating in varsity sports (medium sized fish in a small pond). It was great to see the new gym and the many changes that have occurred since I graduated."

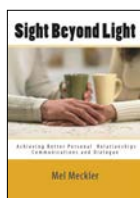
**Henry Camosse** retired to Florida in '95. "Enjoy golfing and riding my Harley," he says.

**David Hathaway** writes, "It has been our habit to escape winter snow/cold with travel to warm countries, and this year it was Spain and Portugal with Grand Circle Travel. Did not do any swimming but learned much history and saw many beautiful cathedrals, palaces, and historic architecture. Sweaters and jackets were helpful as Europe was hit with a cold wave."

## 1954

**Owen Allen** notes that he's "just rounded out 32 years with STV Inc., having morphed from being the young kid with much to learn (who one of the railroad shop foremen I worked with in Maine called a 'shiny-ass engineer') to being the old man of the department. As an STV project engineer, I worked on many MBTA commuter locomotive projects from the 1980s through the present acquisition of 20 new MPI/GE HSP46z AC propulsion diesel, in which I encountered another Allen—**Patrick Allen '07** in STV's Boston office. My daughter, **Deborah Allen '84**, resides in Chelmsford, Mass., has three children, and works independently as an industrial safety professional. Son **Eric Allen '93** went on to get his PhD and PE and travels the length and breadth of the country working for North American Electric Reliability

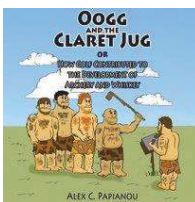
## ►Bookshelf



### Sight Beyond Light: Achieving Better Personal Relationships Communications and Dialogue

MILTON "MEL" MECKLER '54 | CreateSpace

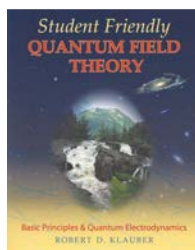
Starting with David Bohm's interpretation of quantum theory as applied to the human condition, Meckler explores memory, perception, emotion, personal relationships and experiences such as telepathy and near-death experiences from the perspective of theoretical physics. Sources include scientific papers and the writings of Ernest Hemmingway. Meckler, an engineer and professor, has authored more than 330 feature and technical articles, handbooks, videos, and design and policy manuals.



### Oogg and the Claret Jug

ALEX C. PAPIANOU '57 | Riverhaven Books

The perfect gift for anyone who loves, or who has a love-hate relationship with the game that has brought great joy and frustration to multitudes throughout the ages. This humorous take on golf—as well as the creation of such things as whiskey, bone china, and archery—is sure to entertain.



### Student Friendly Quantum Field Theory

ROBERT D. KLAUBER '65 | Sandtrove Press

Klauber's textbook provides an introduction to quantum field theory for new students by focusing on the fundamental and central concepts of the theory. "It is not orthodox, exhaustive, or written for seasoned practitioners in the field," he notes. Focusing on the canonical quantization approach, he also provides an introductory chapter on path integrals and covers fundamental principles of quantum field theory. Step-by-small-step derivations with conceptual overviews (called "wholeness charts") are included at every level.

Corp. Middle son Scott went his own way to Ithaca College and is a webmaster for Channel 10 in Providence, R.I."

## 1955

**Bob Holden '59 (MS ME)** earned a BA in political science and history at SDSU in 1970 and completed course work for an MA in political science in 1988. He also holds an AA in history from Grossmont College ("It took me 27 years for this

degree"), and an MA in Latin American and U.S. history from SDSU. He is a retired professor of engineering, mathematics, and physics from Grossmont College (1961-1978), and a retired professor of political science and history from Cuyamaca College (1978-1998).

Bob writes, "I have filed an *amicus curiae* brief with the U.S. Supreme Court correcting the 2nd Circuit's claim in the Defense of Marriage case that there has been no such thing



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as gay marriage in 'history or tradition.' My research, including John Boswell's 1994 book, *Same-sex Unions in Pre-modern Europe*, indicates that the Christian church was not homophobic for its first 1,200 years. In May 2007, I visited the fifth century Istanbul church named after two gay saints, Serge and Bacchus. It is listed in the city tourist brochure as the "second most important fifth century church in Constantinople." If you would like more information by email copy, notify me at [redprof@sbcglobal.net](mailto:redprof@sbcglobal.net).

## 1956

**Bill Johnson** lives on Pawleys Island, S.C. He says, "We moved two blocks down the street to be a little closer to the ocean."

## 1957

**Bob Beckett** was given an honorary doctor of engineering degree at Commencement 2013. The founder of Robec Inc. and co-chair of *if...The Campaign to Advance WPI*, he has been recognized for his entrepreneurial successes and his service and generosity to WPI.

**Audrey Carlan** says, "Surprised? A woman's name as alumna in 1957? My (late) husband, Alan, and I each earned our MS in physics at WPI in June 1957. We had been taking WPI-approved classes at American Optical Company (then in Southbridge), and were able to complete all the course work and theses at WPI. WPI was not yet ready for a female, so I carried a WOMEN sign to affix on any vacant restroom I needed. I regret I could not attend the 1957 graduation; I was eight months pregnant! Our son, Steve (born July 18, 1957), is the first child born of two WPI parents. We settled in Southern California, Al as a semiconductor scientist/engineer/manager, and I as a math-computer professor, and author of several books. (see Kindle: Audrey Carlan). My books are on the simpler side; f.e. arithmetic (for adults) *Calculating Men and Women*; algebra (for adults) *X's and Y's of Algebra for Adults* (note: also for home school parents). Al passed away in 2007 after a full life (with me) as semiconductor consultant, sailboat racer, duplicate bridge player, world traveler, politician (Libertarian), square dancer, as well as father to three great kids. Are there any WPI alumni in So. Cal? Palos Verdes? LA? Can we get together?"

**Lee Morgan** and his wife live in Guilford, Conn., on the north shore of Long Island Sound, "a charming and historic place except for the storms recently experienced," he notes. "We return to WPI on occasion and like the new (when compared to the 1950s) campus and buildings."

**Al Papianou** writes, "The World Famous Class of '57 will celebrate its 60th Reunion in 2017. When we graduated in 1957, we thought that anyone over 40 was OLD, but we are still not doddering, shuffling, or drooling—even though 40 was a long time ago! Tech has changed enormously since we graced its hallowed halls, but we haven't. We are still the beer-drinking, hell-raising group that we were those many years ago. Of course, beer-drinking means maybe two at the most, and hell-raising ceases at both afternoon nap time and our 8pm bed time.

"We have been blessed with a great education, good friends, and longevity. Looking forward to seeing everyone at Reunion. Whenever."

**Spike Vrusho** has been involved in fundraising in Vero Beach, Fla. As fundraising chair for the Unitarian Universalist Fellowship, with strong support from his wife, Marion, he has raised close to \$20,000 from an auction, yard sale, wine tasting, and dining coupon sales. For the UU auction, he cooked a champagne New Orleans shrimp dinner for 12 people and a champagne Greek dinner for 10 people for \$65 per person. As part of the Homeless Family Center's annual dinner fund raising committee, he helped in raising close to \$160,000 for the organization.

## 1958

**Don Abraham** and **Ray Abraham '60** have spent the winter in sunny Cape Coral, Fla., playing golf about three times per week. "We will be heading north in May to continue playing in Connecticut," he says.

**Sherman Poultney** writes, "I have partly retired from Wilton, Conn., to the Chapel Hill area of North Carolina. Missed Hurricane Sandy and the whole winter. We are at a life care community, Galloway Ridge (not fee for service). Lots of professional people and engineers for many stimulating discussions and activities. We are next to Fearrington Village, which is a little New England village set down in the country. Duke and UNC next



door as well as their medical facilities. Come join us!" See [gallowayridge.com](http://gallowayridge.com).

**Bill Rabinovitch** writes to thank *WPI Journal* for including his Marilyn Monroe artwork in the last issue. He says, "Realizing WPI's purpose is solving problems on a global scale, I've done a new image about climate change that I hope may impact upcoming Obama's vote on defeating the Keystone Project, which will be a horror for the environment and earth itself. My image is hard hitting—but as a NYC artist, I should make my stance known."

**Paul Vilandre** married Anne Carter on March 9, 2013. They will be taking a belated honeymoon in New England in September. He says, "I'm doing very well healthwise, except for the normal small aches and pains of a 77-year-old! Grandson David Costa is married with three stepchildren and one of their own on the way, and is a restaurant manager. Grandson Steven Costa graduated from North Greenville College in May. Daughter Keren and husband Rick Costa are doing fine in Anderson, S.C."

## 1959

**Moe Amin** retired from Sargent and Lundy in Chicago. He continues to do consulting work for the firm on structural issues of nuclear plants.

## 1961

**Frank Verprauskus** says, "Karen and I recently returned from a trip to India with Overseas Adventure Travel. I arrived expecting a country with a reputation for advanced high-tech/computer prowess would exhibit some significant advances in infrastructure. The streets and highways were narrow and in general disrepair. The vehicles—trucks, buses, autos—were modest in size and design and inefficient. As an example, we encountered dozens of hand-made trucks: they use a one-cylinder gas engine designed primarily for water wells. Our other expectations of India—the culture, the colors, the beautiful old buildings, the wildlife, and the people themselves—were met and exceeded."

## 1962

**Dick DiBuono** writes, "After semi-retiring from professional civil engineering practice in

2003, I became active in the management of the Lifetime Learning Institute of Northern Virginia, serving on its board of directors for seven years, including a year as vice president and two as president. Immediately following that I became president of the Abruzzo and Molise Heritage Society of the Washington, D.C., area, a very active regional Italian-American organization, and served three years in that capacity until January 2013. As immediate past president, I still serve on its executive committee.

"Researching my family genealogy is my avocation; I've succeeded in extending my paternal family tree back to the late 1600s in the Molise region of Italy and my maternal family tree back to the early 1700s in the Marche region. This genealogical research has necessitated taking four trips to Italy in the past dozen years, where I've found and become close to cousins on both sides of my family. I'm planning to take another trip there in May and June. For the past 10 years I have served as volunteer staff genealogist on a part-time basis at the Annandale, Virginia Family History Center. Playing golf on a nearly weekly basis with my buddies—all retired officers from the D.C. metropolitan police and the capitol police, and one retired DEA executive—is my sports enjoyment."

**Bill Krein** and his classmates enjoyed their 50th Reunion so much that they elected to send a delegate this year to ensure the class of '63 has an equally enjoyable time. He writes "I have been selected to represent '62 at Alumni Weekend this year, and I have agreed to administer the 50-Year Associates Pledge on Friday evening."

## 1963

**Bill Zinno** writes, "Enjoying retirement in North Carolina. Using my free time to assist small business start-ups through an SBA organization called SCORE." Bill lives in Wake Forest with his wife, Janice.

## 1964

**P. Swamy (Shachi Puttaswamy)** writes, "I am retired from ABB International after working for many years in the Netherlands. I am currently residing in Greenville, S.C. It is a growing city with many major companies, good colleges and schools. It has great

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weather and nature; the Smokey Mountains are just about a two-hour drive. My wife and I are living comfortably in a large home and yard. I volunteer as an AARP tax aide in the tax season, travel a lot, and participate in Indian cultural events such as dancing and singing. I also love hiking and gardening. Anybody from WPI still knows me, please contact me at Swamysha@yahoo.com."

## 1965

Since **Donald Franklin** retired in New Hampshire, he has built a retirement home on Newfound Lake. He has also become active in local government, having been elected town auditor and a member of the school board. "These duties take up my time when I'm not skiing or fishing," he says.

**George Mitschang** is living the retired life. He left BAE Systems in June of 2011 after 15 years. Prior to that, he served in the Navy for 28 years. He writes, "Pat and I play golf and enjoy the fellowship of the Ramsey Golf and Country Club. We have four grandkids, all boys, who play baseball in Little League ("three of the four pitch so they must have gotten something from grandpa!"). Pat still works as a realtor and has started the year off well."

**Henry Schneck** writes, "I have been fully retired for the last 36 years. My first love and wife passed away in 1987, and our first son, Bryan, passed in 1997. I'm now enjoying life in our waterfront home on Long Island with Donna, her son David, and his family. I have two grandsons."

**Burt Shair** says, "I retired last year from my chief engineer position at Worley Parsons in Houston. Since that time I have been a consultant on a world-class LNG facility planned for southern Africa. My wife and I have six children and 11 grandchildren who keep us busy. After 47 years in the engineering business, it's getting close to retirement."

## 1966

**Philip Blackman** just returned from several weeks in Bangkok and the beaches and tropical agriculture of the southern island areas that efficiently handle thousands of daily tourists via boats and scooters. He writes, "Rode an elephant on jungle trails, kayaked through mangrove forests, and went diving by the limestone towers that dramatically rise 300 feet or more while sporting dangling stalactites tens of feet tall. I saw the birds that make the nests high on cliffs; nests that are more valuable than their weight in gold as the ingredient to bird nest soup. Bangkok, a city of 10 million people and 5 million vehicles of every description, somehow stays organized and productive with abundant and obvious individual ingenuity and enterprise." He says he felt that Buddhist culture and numerous edifices and images played an important lubricating role in the engine of city life.

'68

Bob Meader says, "One month shy of 40 years, I will be retiring (at the end of June) from the US Army Corps of Engineers to spend some time with our four granddaughters—and to get much more serious with the timber-frame shed hobby while I can still lift the timbers. Betty, after 45 years of marriage, is not quite sure what to expect with me being underfoot more during the week, but perhaps I can still skip out for the occasional long bicycle ride to give her a break. The Corps has been good to me. Two years in uniform—one in Texas, one in Vietnam—and 38 years as a civilian civil engineer in planning division in Mobile, Ala., and then in the engineering division in Waltham and Concord, Mass. Also a year in D.C., and half a year in NYC. Between Mobile and Waltham, I was the base engineer at South Weymouth Naval Air Station. Earlier in my career, after graduating from Rutgers with a MCRP, I spent time at the Fall River planning department and the Coastal Area Planning and Development Commission in Savannah, Ga."



**Jeffrey Cheyne** and his wife, Charlotte, are planning a cruise in August with their son and daughter, their spouses, and all six grandchildren. He is retired and living in Mansfield, Mass.

**John Lauterbach** writes that he was recently in Europe for meetings with clients and scientific meetings including first meeting of the CORESTA e-cigarette task force. In April, he presented two papers at the American Chemical Society national meeting in New Orleans on chemistry of cigar

wrappers and terahertz spectrophotometry of tobacco samples.

**Earl (Bud) Sparks** writes that since retiring in January 2005 and relocating to Wilmington, N.C., he and his wife, Jan, have spent their time golfing, boating, and traveling the world (all seven continents).

**Gene Wilusz** serves as senior NBC scientist at the U.S. Army Natick Soldier RD&E Center. He was the keynote



speaker at the Industrial Fabrics Association international meeting in Boston last November.

## 1967

**Joe Ferrantino** writes that he and his wife, Donna, have been retired for 14 years and are enjoying every minute of it. He says, "We split our time between Georgia and Massachusetts, so we can play golf year-round. We completed a bucket-list trip through the Panama Canal this winter, and played golf on the Robert Trent Jones Trail in Alabama with Maureen and **Dusty Klauber '67** in April. Dusty and I are looking forward to planning our 50th Reunion in 2017."

**Steve Frymer** says, "I have been retired from the Mass Highway Dept. for 10 years. I teach chess and play duplicate bridge. In 2012 I reached the Silver Life Master designation with the American Contract Bridge League. My son Sam lived in Las Vegas for three years, where he failed to become famous playing the popular Texas hold 'em poker variant. My daughter Becky tutors high school science courses and teaches yoga in Manhattan. She recently took a vacation to Vietnam."

**Lester Small** is retired from the USAF Research Lab at Wright-Patterson AFB in Ohio after 42 years of service. He lives in Dayton with his wife, Nancy.

## 1968

**Ken Battle** says, "I have been living in South Jersey since 1996 with my wife, Jeanette. Kids are grown—one in Guatemala and one in Moscow (both were born in Belgium). I work for Jacobs Engineering in Mt. Laurel, N.J. It's a great time to be a chemical engineer! I plan to keep working as long as my body and mind are capable. After racing cars for 12 years in my younger days, I have been nurturing older sports cars. I currently have a 1984 Ferrari 400i and a 1969 Lotus Elan +2 with a Cosworth motor. My daily driver is the fastest of all, a Subaru STi. Jeanette and I bought a lake house on Cayuga Lake, N.Y. (Finger Lakes). We go there year-round and also rent it. We may make Homecoming this year."

**Jerry Jasinski** was selected by his peers as the 2012 Vermont Football Official of the Year, State of Vermont Chapter of the National Football Foundation and College Hall of Fame. A longtime professor of chemistry at Keene State, he

has been officiating football at the high school level for 42 years. He was selected as a WMUR-TV "Hometown Hero" in 2008, when he was honored as a football official for the 50th annual NH-VT Shrine Football game held at Dartmouth College—a game he played 50 years prior as a high school senior from Towle High School in Newport, N.H. For 18 years he also served as assistant track & field coach at Keene State, where he had the privilege to coach its first national champion, Paul Trochi. During his Keene State career, he established and directed the Vermont State Decathlon and Heptathlon Championships. Now in its 38th year, it is known as the Jerry P. Jasinski Vermont State Decathlon & Heptathlon Championships.

**Gene Murphy** says, "I wanted to be a mathematician very much! But my advisor, Professor Hall, discouraged my desire, saying about math: 'You can only teach it or be an actuary.' So I asked what engineering discipline has the most math, and he replied electrical engineering. Therein my BSEE! My most influential teacher was Professor Zaccaro, professor of mathematics. He marvelously taught me math for my entire freshman year. Thank you Professor Zaccaro, may he rest in peace. And thank you for this opportunity to tell my fondest memory at WPI." Gene writes



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that he retired in 1995 to care for his sick mother. His last job was with the U.S. DOD. He moved to Stafford Hill assisted living in Plymouth, Mass., in 2008.

**Germán Pérez-Mera** lives in Santo Domingo, Dominican Republic, with his wife, Donna. They are retired and enjoy doing Spanish-English translations for law firms, business and commercial institutions, foreign embassies, and the Dominican government. For six years he has been studying the "Art of Pitching" and runs a training camp of young pitching prospects for try-outs to major league teams.

## 1969

**John Doda** writes that he is still working for a living at APM Hexseal in Englewood, N.J., as director of international business, and continues to enjoy traveling. "Did the Inca Trail in Peru," he says. He just finished a season as a PSIA certified ski instructor.

**Bruce Green** writes "I've been hiding out in Maine for the past 25 years, now selling technical products to the paper mills throughout New England. I'm a third-generation WPI grad, and we all have been involved with the sales and marketing of engineered mechanical products. Oddly enough, I'm in my peak earning years in my 60s, and I hate to retire. All three generations of my family have benefited from a solid WPI education. It has given us the flexibility to adapt to changing market trends, and led us to successful careers."

**David Johnson** says, "We moved last year from the South Carolina low country to the upstate, where I am teaching part time at Furman University and enjoying Greenville."

**Bob Seldon** lives in Santa Monica, Calif., where he has been active in city politics.

## 1971

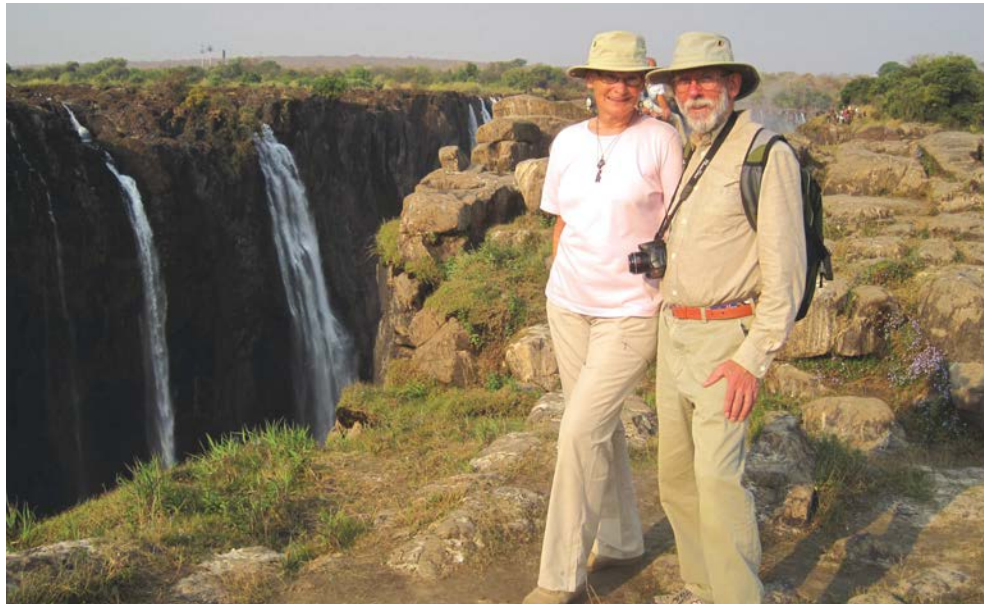
**Jim Abraham** writes, "On a recent trip to Houston, I got to meet fellow alum **Baljit Gambhir '73 PhD** (chem eng) and reminisce about WPI days of old!"

**Ben Katcoff** announces the birth of grandson #3, Gavin Jack Lavo, son of daughter Rebecca and husband James Lavo, and brother of twins Joshua and Dylan (now 5). Ben recently celebrated his 10th anniversary at the Office of the Comptroller of the Currency (a bureau of the U.S. Department of the Treasury) in the human resources division, where he serves as director, compensation and benefits.

**Jim Kaufman**, founder and president/CEO of the Laboratory Safety Institute, is celebrating the 35 years of safety in science in science and science education. Contact him at [jim@labsafetyinstitute.org](mailto:jim@labsafetyinstitute.org) for a free 2' X 3' Lab Safety Guidelines poster.

'71

Larry Hyman says, "All is well with me and my wife, Judy. I retired after an awesome 36 $\frac{1}{2}$ -year career with The Dow Chemical Company and continue to live in Midland, Mich. We are doing a significant amount of travel now, including Victoria Falls, Zimbabwe."



**John Moore** writes that he moved to Georgetown, Texas, in 2005. He is now in partial retirement but keeps busy selling Mercedes-Benz at the local dealership, and playing golf.

**Mike Santora** announces his retirement from the Town of Milford, Mass., where he was the town engineer for 28 years. He will be succeeded in the position by another WPI alum, **Vonnie (Karas) Reis '88**.

## 1972

**Robert Ranta** writes that he retired from IBM Corporation as senior business area manager/project manager in 2002, after 25 years of service. He serves as director of Tivoli Park Master Assoc. and president of Tivoli Trace Condominium Assoc. in Deerfield Beach, Fla. He has a website development business with several retail business and municipal government customers. He is also a semi-professional musician and sole care provider for his aging mom. He says, "I am where I am in life with no complaints or regrets, I've done well and am satisfied."

## 1973

**Frederick Kulas** says, "Upon our graduation from WPI, I worked for General Electric Co. for two years in manufacturing management and then went on to business school. After earning an MBA degree, I worked for IBM in sales for three years and then joined Digital Equipment Corp. as a product marketing manager. I continued working for Digital through the acquisitions by Compaq and HP in various marketing and general management roles.

"In my most recent position with HP, I had service line management responsibility for the Enterprise Services Division and led global, regional, and functional teams. Last year, after 31 years with Digital, Compaq and HP, I decided to retire from HP. What I enjoyed most about my career has been the opportunity to work in a collaborative environment within an industry that has had a transformative effect on the way that business is conducted. I'm now giving some thought to a second career. I'm considering financial planning and investment management."

**Wallace McKenzie** says, "In late 2011, I left the private sector and became the education data warehouse director for the State of Massachusetts. It is very similar to what I



have done for 30 years in the private sector, but now in the public sector. Interesting challenges, especially as Massachusetts and other states try to measure the effectiveness of education programs."

**Paul Parulis** writes from Niantic, Conn., "Happily retired; spending my free time hiking and volunteering, and enjoying my two granddaughters."

**Richard Sliwoski '80 (MS CE)**, director of the Virginia Department of General Services, was featured in a recent Council of State Governments (CSG) publication. He was also named a 2012 CSG Toll Fellow. "Toll fellows are selected by a panel of program alumni," he writes, it's a prestigious honor to be selected."

**Mark Whitley** writes, "In October 2012 I retired from the oil and gas business after 38 years. My wife, Janice, and I are going to enjoy life and our families."

## 1974

**Edward Gordon** has published his second book, *Man Cave Gourmet: The Single Hunter/Gatherer Foodie*. From the publishers description: "At some point in their life, perhaps

more than once, the male of the species finds himself cast from the nest. In order to survive, he must learn how to find sustenance. Primordial memory of hunter/gatherer presents him with outdated concepts, so he must be encouraged to understand the 21st Century methods and mores." Gordon presents his viewpoint on this situation, based on his history of having been pushed out of the nest on numerous occasions, and relates his experiences, which include being raised in the Jewish faith. "It's a foodie book for people from all walks of life." More info at [tinyurl.com/mc gourme](http://tinyurl.com/mc gourme).

**Richard Loomis** works for his family business, Loomis and Loomis Inc., structural engineers in Windsor, Conn. He does foundation designs for power generation equipment and industrial work for local manufacturing firms and is a licensed PE in 22 states. He and his wife, Debbie, have been married for 11 years and live in Hampden, Mass., with two horses, five dogs, and assorted other animals. They show their Vizslas in conformation, agility, and obedience, and Richard occasionally judges at AKC hunt tests for pointing breeds.

## 1975

**Nancy Berube** writes "I worked at Family Health Center of Worcester for 15 years, then went into solo private

practice and have enjoyed having WPI pre-med students shadow me. I am also in formation to be an associate of the Daughters of the Holy Spirit, a Catholic religious order founded in France in the early 18th century with sisters around the world." Nancy has been married for 33 years to John Stevens, an artist blacksmith who also runs her medical practice. Their son Gregory, West Point '07, got a master's in public health at Cambridge University. He married his sweetheart (an '08 West Point grad) and together they attended medical school at the Uniformed Services University of the Health Sciences in Bethesda. They are now doing their internships at Brooke Army Medical Center in San Antonio. Daughter Hannah graduated from UMass Amherst in 2011 and now teaches at Marianapolis Prep School. And son Sam graduated from West Point this May and will attend medical school at USUHS.

**Paul Bianchet** is a project director for Alstom Power – Renewable Power Sector. He is currently managing the pre-execution phase for the supply of a 121 MW solar receiver steam generator (SRSG) for a concentrated solar plant (CSP) to be constructed in the Negev Desert in Israel.



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**Doug DeWitte** recently took up writing poetry. He sends this short one: *I am a poet.*

*Don't bother me with your struggles.  
I am a poet!*

## 1976

**Art Stryer** completed a 30-year career in hardware engineering: 15 years in electrical (design) engineering, as principal engineer, granted one sole inventor patent, also engineering manager several firms; and 15 years in electrical (applications) engineering, as senior app engineer, member technical staff, senior field app engineer. In 2012 he earned an associate's degree from Foothill College in internet technology-web development. He currently develops websites and plans mobile applications development. Art has one son, born in 1997.

## 1977

**Peter Chenard** was promoted to vice president of manufacturing for military programs at Pratt & Whitney. "Pratt has been a great place to work," he says. "I spent most of my career in engineering and moved to operations in 2009 after holding the position of chief systems engineer for validation for eight years."

**Dan Sullivan** writes that he was a *Popular Science* 2013 Invention Awards Winner for Jamstik, named one of the top 10 inventions worldwide. More information about his product can be found at jamstik.com.

**Jeff Tingle** says "I'm CTO of an early-stage healthcare start-up (TheraVid) focused on injury rehabilitation in orthopedic medicine. We're part of the Boston-based HealthBox Accelerator program and supported by Blue Cross Blue Shield of Massachusetts. It's been an exciting time as we've launched product; we are currently running our second round of pilot studies. Also finding time to run and ski, having done the BAA half marathon back in the fall, and Craftsbury's 50k x-c ski marathon during the winter."

**Rick Wheeler** was named to the 2013 New England Basketball Hall of Fame. A member of the WPI team from 1973 to 1977, he was inducted into the WPI Hall of Fame in 2005. At the time of his graduation, he was the all-time leading scorer in WPI history, with 1318 points.

## 1978

**Richard Bourgault** writes, "After living in Europe most of the last 35 years, as an Army officer and with MITRE, we've now settled in Florida. In February 2012 I became site lead for MITRE at the Tampa site, leading 70 engineers doing IT

'77

Scott Sieburth says "Last July I was co-organizer of the Organic Reactions & Processes Gordon Research Conference. In October my 40th high school reunion came together—I was the primary organizer for that, as well as the National Organic Chemistry Symposium held at the U of Washington in Seattle, with help from the UW faculty. That became my full-time job when classes ended at Temple U, where I teach chemistry. My daughter is in medical school, and my son just graduated as a math major (sorry, U of Rochester).

"And if that is not enough, I just got married to my high school sweetheart, Karin Soderberg. While we both knew it was going to happen, it was a rather spontaneous event; we drove from San Diego to Las Vegas on Saturday, the Ides of April. In Las Vegas the marriage license office is open until midnight 365 days a year. It was awesome, although we did take a pass on having Elvis sing for the event. My bride and I will return to Burning Man for the third year in a row at the end of August. I am attaching our self-portrait from our week in Black Rock City last year, reflected in one of the many many art projects there. Hope you are having fun too!"



work for Special Operations Command and Central Command at MacDill AFB and supporting their worldwide missions. Irene and I are loving the Florida lifestyle, but we do miss our daughter Nadia (now 30), who finished a master's degree from a German university and stayed there to work outside Frankfurt."

**Charles Martin** is currently working at PNSY in Kittery, Maine, on 688- and 774-class nuke subs, inspecting/repairing electrical components.

**John and Donna (Philbrook) McGee '80** are living in Radford, Va., nearby daughter Emily and four grandchildren. John is completing his seventh year as an instructor in the mathematics department at Radford University. This year, one of his advisees, James Grenier, was named Dean's Scholar based on his academic achievements, which include independent study of elliptic curves over  $\mathbb{C}$  and detailed proof of Bezout's theorem. "I enjoy working with such talented undergraduates and helping them to prepare for graduate level work," he says.



**Steve Robichaud** writes that he still sees classmates **Rich Gottlieb, Sergej Ochrimenko, Ken Swenson, Roy Thompson, Ed Valcarce, and Mark Groves '79** on a regular basis, including golf outings. They also still meet on Crane's Beach in Ipswich on Mother's Day weekend, a tradition started in 1975 (freshman year). "This year is the 39th edition of that beach trip. Go, Daniels 3rd!"

## 1979

**John Arnold** continues to balance software development work with public service. He founded Linkage Systems Corp., a software product development and consulting company, in 2000. He has also received four patents for work in the areas of electronic message filtering and mobile data security. An active advocate for libraries since his WPI days, he was elected a library trustee in Westborough, Mass., as a 19-year-old sophomore. He is a 12-year veteran of the Massachusetts Board of Library Commissioners and currently serves on the board of LYRASIS, a nationwide library membership organization. John chairs the LYRASIS strategy and planning committee that helped launch LYRASIS Digital: a new

initiative to help libraries enrich, expand, create, manage, and share their collections. He is also a member of the WPI Gordon Library Vision Task Force to help WPI's library provide the resources that WPI students and faculty need, when and where they need them.

**Shane Chalke** writes, "After building and selling several businesses in the financial mathematics space, I have settled into my next career, as a musician. I've been working full-time as a professional jazz musician for the past few years, playing in Banner Elk, N.C., in the summers, and Sarasota, Fla., in the winters. I have Professor Rich Falco to thank for this. In other news, my youngest daughter, Jillian, is at WPI, Class of 2014."

**Andy Davidson** joined Timberline Construction as the new chief financial officer in January 2013. He is married with two children and three grandchildren, whom he enjoys spending time with whenever he can. He also enjoys traveling with his wife when he gets the chance. Andy is an avid Red Sox fan and a movie buff; he enjoys collecting posters and memorabilia.

**Alwyn Fitzgerald** says, "In 2011 I founded Fisher King Winery located in Mount Horeb, Wisc. I wrote a 70-page business plan, put together a successful financing package, and within three months, we had raised enough investment capital to launch the business. In 2011 we renovated an old Ford dealership in downtown Mount Horeb, purchased and installed winemaking equipment, began production, and opened the doors for retail wine sales out of our tasting room. Our mission is to produce and sell premium, artisan wines crafted primarily from locally grown Wisconsin grapes. We won a gold medal for our dry red Marquette wine and a double-gold medal (as well as a "Best in Class") for our Blue Rapture white Seyval wine among 1,200 wine entrants in the 2013 International Eastern Wine Competition judged in California.

"In the first two years of operation our sales exceeded projections. Being a commercial winery owner and winemaker is a far cry from doing marketing for a midwest engineering consulting firm (my previous job). WPI trained me well—the BS in life sciences and the engineering discipline at WPI, along with a later MBA from UMass,



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provided the foundation for a productive corporate career and later for starting the winery. I thank the late Roy Seaberg, who convinced me to begin my higher education at WPI, for believing in me."

**David Ford** is director of public works for the town of Wolfeboro, located on the eastern shore of Lake Winnepesaukee. He has been married to Trish for 32 years, and they enjoy hiking, biking and kayaking in the lakes and mountain regions of New Hampshire. Dave's nephew, Nathan Ford, graduated from WPI this year.

**Mary (Palumbo) Seaboldt** has been teaching high school math for the past 10 years at Somers High School in Lincolndale, N.Y., where she serves as math department leader. She has been married to John for 27 years and is the proud mother of Mariah and Ian. Mariah graduated from WPI in May with a degree in civil engineering and will stay to get her master's in fire protection engineering.

## 1980

**Fran Boucher** says, "I entered my 15th year working in customer commercial and industrial energy efficiency program management at National Grid in Waltham, Mass. My current focus is energy efficient design and retrofit for labs, clean rooms, and data centers, as I continue to build on the interest I developed doing my IQP and MQP. Ever grateful that I discovered this career path while I was at Tech. I enjoy presenting energy efficiency seminars to industry professionals and launching new initiatives. I'm active in state and national committees creating advanced energy codes for commercial buildings. Also enjoying my hobby of helping people find new jobs. Living outside Boston, enjoying my marriage and my 6- and 8-year-old children. Still wondering how I ever passed the 'Comp' and still wake up regularly from the recurring nightmare that I haven't graduated yet and I need to take it over again."

**Michael Kennedy** continues as a human factors engineer in the global engineering services department of chemicals and polymers producing company LyondellBasell. He recently has been focusing on various process safety initiatives. This summer, he will celebrate being a resident of the great State of Texas for the last 30 years.

**Bob Vozzola** and his wife, Diane, met up with his daughter, **Erin (Vozzola) Kendrick '08**, and her husband, Ryan Kendrick '08, in China. They toured all around Beijing, including the Forbidden City, the night market, and the Great Wall. Bob and Diane live in Colorado, and Erin and Ryan are stationed in Korea working for ExxonMobil.

'81

Eduardo Navarro '81 returned to the WPI campus for the first time in 32 years in April, to discuss his plans for a sculpture for WPI's solar house project (see page 16). He also presented President Dennis Berkey with a 12-foot painting of a wild horse—titled *Caballo* (Spanish for horse). The Panamanian artist has done more than 1,000 paintings of wild horses, and also serves as publisher of *Panorama of the Americas*, the in-flight magazine for Copa Airlines, which serves Latin American countries. See more of his work at [eduardonavarro.com](http://eduardonavarro.com).



## 1981

**Dana Foster** worked as VP of engineering at PQ Controls in Southington Conn., then at a start-up telecom company for several years. "Seeing the impending dot-com bursting bubble caused a career change," he writes. For the last 10 years he's been a produce broker, buying and selling fruits and vegetables from all over the U.S. and neighboring countries. "The impact of the recession in this field is much less," he notes, "and there's no outsourcing to worry about either. Let's not forget that every week or two the product has to be re-ordered!" Dana credits problem-solving skills acquired from WPI as very helpful in his present job. His son, Max, has just committed to go to WPI in the fall as a member of the Class of 2017. "Love to hear back from anyone else whose children are going to be there, maybe they can hook up."

## 1982

**Donald Aitken** lives in the foothills above Colorado Springs, (narrowly escaping the Waldo Canyon wildfire in 2012). He continues at Scitor Corp. as a senior space system engineer. His son Kyle graduates from Purdue University this spring with a BS in electrical engineering

**Maureen (Seils) Ashley** continues to homeschool her 14-year-old daughter, who is receiving a classical education. Maureen and her husband recently had solar panels installed on their barn roof in beautiful Vermont.

**Scott Harris** came out of retirement (from SolidWorks) to co-found a new cloud-based PLM company, Belmont Technology Inc.



**Jay Koven** says, "Now that my kids are out of the house (three engineers and one scientist-in-the-making), I have decided to go back to school myself. I am currently enrolled in the computer science engineering doctoral program at The Polytechnic Institute of NYU. I am studying cyber security and forensics under an NSF IGERT fellowship and hope to complete the program by 2015."

**Tom Potter** says, "I recently climbed Aconcagua (22,902 feet) in Argentina. This mountain is located in the Andes near the Argentina/Chile border, and is the highest point in the western and southern hemispheres. I was part of a group of nine climbers and three guides. Only five climbers and two guides summited. The climb took 16 days, not including travel and logistics days on each end. I doubt I will climb anything higher in my life, as I am not getting any younger and it requires a decent financial and time commitment. The reward was getting to spend a few days at the end of the trip in Mendoza, Argentina, which is the

Malbec wine capital of the world. I am a senior director at Sensata Technologies in Attleboro, Mass., where I currently serve as a business unit manager."

**Peter Sherlock** was recently appointed senior vice president and director of The MITRE Corporation's Bedford operations. He will be responsible for further strengthening the organization's cross-sector research and development in cyber security, aviation, homeland security, law enforcement, and the financial and health care areas. He also helps lead the National Security Engineering Center (NSEC), a federally funded research and development center MITRE operates for the Department of Defense. He earned an MBA from Rutgers University in 1995.

## 1983

**Keith Agar** says, "Since graduating in 1983 I have worked as a design engineer in Rochester, N.Y., starting out at Eastman Kodak Co. and now working as senior design engineer at Integre Technologies LLC. I have been married for 25 years and have raised three wonderful daughters, one of whom graduated from WPI in May with a BS in bio/biotechnology. We've been on campus quite a bit and are so impressed with all the positive changes!"

**Don Montgomery** lives in the suburbs of Philadelphia, where he continues as a partner in WinGreen Marketing Systems ([wingreenmarketing.com](http://wingreenmarketing.com)), a marketing agency specializing in online marketing and lead generation for technology companies. The company was a 2010 finalist in the WPI Venture Forum's Five Minute Pitch Contest. Don and his wife, Denise, are profiled in the recently released book *How the Red Sox Explain New England*, by Jon Chattman and Allie Tarantino.

## 1984

**Mark Gustafson** is now a program manager in the tactical technologies office at the Defense Advanced Research Projects Agency (DARPA). He moved there after 25 years as a civilian engineer and program manager with the U.S. Air Force. At DARPA, he will continue to pursue advanced technologies and demonstrations enabling future aircraft and weapon systems.

**Keith MacNeal** was recognized at the 2013 Mohegan Council BSA Quinsigamond District Awards Dinner. Keith was presented with the William D. Boyce New Unit Organizer Award for starting Pack 54 at Epworth United Methodist Church in Worcester. He was also presented with the District Award of Merit in recognition of noteworthy service to youth. Keith is the chartered organization representative at Epworth UMC for Troop 54 and Pack 54. He serves as advisor to the Order of the Arrow Pachachaug

Lodge Ceremonies committee and as Quinsigamond District Friends of Scouting chair. He is a former cubmaster and assistant scoutmaster.

**Howie Miller** recently joined the San Francisco office of the Boston law firm Mintz Levin. His practice focuses on products liability litigation and small- and medium-sized business advising.

**Richard Testa** recently completed his Certified Financial Planner™ designation and opened his own office at 70 Main Street in Wayland, Mass.

## 1985

**Melinda Johnson** works for Oracle as a principal program manager where her primary responsibility is release readiness for T-series and enterprise servers platform software. "In my spare time, I enjoy country life with organic vegetable gardens and horses—which provide a steady supply of fertilizer!"

## 1986

**Bill Clemmey** writes, "Spent a great weekend in April up at North Conway, reminiscing with fellow Lambda Chi Alpha brothers from the Class of 1986. It was an impromptu 27-year reunion!" Also in attendance were **Tom Crowley**, **Mike Doherty**, **Mike Duquette**, host **Dave Henry**, **Stu Murray**, **Mike Nelson**, **Steve Rogerson**, and **Matt McDonald '87**.

**John Fedus** married Carrie Aitner on July 21, 2012, at St. Joseph Church in Rockville, Conn. The best man was **Charlie Simmons '87** and **Bill Leary '86** was an usher. Also in attendance was **Mike Mazzucco '86**.

**Kathy Loftus**, global leader for sustainability at Whole Foods, returned to campus to speak on Earth Day, full of enthusiasm for her work on business and community environmental projects. Noting that Whole Foods stores benefit from a locally driven green team—like WPI's student organization—she stressed the importance of small and large initiatives. "Green design is not just about adding a sexy element like a water-collection cistern," she said. To her audience of fellow engineers she acknowledged, "OK, not everyone thinks a cistern is sexy. For example, an unglamorous engineering analysis, done upfront, can do much to conserve materials and energy usage." Kathy's new goal at Whole Foods is to make 90 percent of its stores "zero waste" by 2017. She says she looks forward to more synergy with WPI, and to partnering with the "amazing minds" of its students.

'84

Barry and Gayle (Dalawrak) Joseph are pleased to welcome their son Brian '13 to the ranks of WPI alumni. Brian competed with the WPI Ski Team at Dartmouth Skiway in January.



**Joe Sauer** is a founding partner at Fortes Technology, an IT consulting firm in Danbury, Conn. Joe lives in Brookfield with wife, Sarah, and daughter, Chloe.

## 1987

Capt. **Rich Blank** was selected commanding officer, Naval Surface Warfare Center, Carderock West Bethesda Division. An engineering duty officer, he holds a master's degree in mechanical engineering from the Naval Post Graduate School and has served at Pearl Harbor and in Afghanistan. He recently completed a tour as the SEA 05D technical director for Surface Ship Design and Systems Engineering. In this capacity, he served multiple roles in helping support new ship designs, resolving technical issues and working with industry and technical warrant holders to develop cost reduction specifications needed to meet current requirements.

**John Clark** is vice president of engineering at Quadrant Software in Mansfield, Mass. Quadrant is a small software development firm that services the IBM midrange and mainframe marketplaces.

**Jay Crochiere** says, "For the past five years I have been running sales for Daymark, a local information technology systems integrator and value added reseller. We help clients with all aspects of IT infrastructure, including data protection, storage, networking, virtualization, managed services, and cloud solutions. There are three of us WPI alumni here at Daymark. In my spare time I enjoy working on my Moultonborough, N.H., lake house, running (ran the Boston Marathon in 2006, 2011, and 2012, and Reach The Beach in New Hampshire in 2011 and 2012), indoor soccer, and coaching my son in baseball and basketball. I still keep in touch with several of my SAE fraternity brothers on a regular basis."

**Timothy O'Toole** has lived in Worcester; Washington, D.C.; Orlando; Groton; Norfolk, Va.; Massena, N.Y.; Wilmington, N.Y., and, currently, Keene, N.H. He has served in the Navy and holds an MBA from Regents University. Tim and his wife, Judy, (married in 1988) have two daughters, Hannah and Belle. Hannah is a graduate of Plattsburgh SUNY, and Belle graduated from high school this year.

**Elizabeth Kelly Spackman** was named the 2013 teacher of the year for the Atlantic City, N.J., school district. She says, "I am an alternate route teacher and currently the 8th grade team leader. I teach middle school mathematics and algebra I. My teaching career started in 2009. I received a master's in business administration from Drexel University in 1991 and my state teaching certification from New Jersey City University in 2010. My husband, Rick, and I reside with our two sons, Arthur, 13, and George, 11, in Cape May, and spend our vacation time at our home in Camden, Maine." Her father is also a WPI graduate—**Brian Kelly '55**.

## 1988

**Jeff and Lisa (Ricker) Allen '90** recently celebrated their 20th wedding anniversary. They have lived in Hudson, Wisc., for the last five years with their three children. Jeff is an associate for Brown and Caldwell's Saint Paul, Minn., office, in their industrial wastewater consulting practice. Lisa is looking to return to the workforce after an extended stint as a stay-at-home parent.

**Eric Pauer** was promoted to the rank of colonel, in the Massachusetts Air National Guard in September 2012. His wife, **Diane (Brisette) '88**, and children, Ryan and Valerie, pinned on his new rank. Eric serves as the state director of logistics of engineering at the Massachusetts Joint Force Headquarters, Hanscom AFB, Mass. In civilian life, he continues as senior principal systems engineer II at IMPACT Science and Technology (Exelis) in Nashua, N.H.

**Herman Purutyan** writes "Getting ready to see our daughter off to college next year. Spending plenty of time on the soccer fields (okay—on the sidelines, watching my son) and enjoying every minute of it. Loving the challenge of growing a company with new offices in Perth, Australia, and Houston, Texas. Life is good!"

## 1989

**Mark Bugbee '94 (MS EE), '05 (MBA)** is founder and president of CAPE Solutions Inc., an automation and information systems consulting firm. He lives with his wife, Pam, his son, Kurt (WPI Class of 2017), and his daughter, Erin, in Holden, Mass.

**Chris Fanning (MS CS)** is president and CEO of SSI (surveysampling.com), a global provider of sampling, data collection, and data analytic solutions for survey research, reaching respondents in 78 countries via Internet, telephone, mobile/wireless, and mixed-access offerings. SSI is based in Shelton, Conn., and employs 4,500 people worldwide.

**Heidi (Sellars) Ferré** is a project manager for MobileMD, a Siemens Healthcare company, implementing health information exchanges (HIEs). HIEs provide the capability to electronically move clinical information among disparate health information systems while maintaining the meaning of the information being exchanged, thereby facilitating access to and retrieval of clinical data to provide safer and more timely, efficient, and effective patient-centered care. She currently resides in New Hampshire with her two sons.

**Dave Sauriol** says "I currently live in beautiful Monson, Mass., with my wife, Jo, and our six children, ages 24 to 9. We are still rebuilding and replanting around town since the tornado came through (6/1/11), although my family and I were fortunate enough to live a mile north of the devasta-

tion. I work in Lincoln, R.I., in sales/engineering for a major turned-parts and plating supplier to the automotive tier 1 & 2 markets (TRW, Delphi, Borg Warner, etc.), making parts for safety critical systems (i.e., braking, transmissions, airbags). I am an avid hiker in my off hours, having hiked the majority of the New England 4,000 footers (48 in New Hampshire, 14 in Maine, five in Vermont left to go. Next on to the Adirondacks—46!). I have also hiked major sections of the AT and recently was chair of the Berkshire Chapter of the Appalachian Mountain Club. You can see some of my mountain pics on my Facebook page (Hikin' Dave). Hope you are all well and prosperous. Now get outdoors!"

## 1990

**Michael McGreal** is the president and founder of Firedyne Engineering P.C., based out of the Chicago area. The firm is celebrating its 20th anniversary this year.

**Matt Ronn** says that alumni musicians from WPI, Wellesley College, and Wheaton College recently gathered at the home of **Mike Wroblewski '91** to celebrate the birthday of his wife, Andra Cyronak (Wellesley). Other WPI alumni attending included **Tim Bousquet '90, Alan Brightman '88, Steve Brightman '90, Rich Gutowski '89, Bob Kitchen '89, David Lavalée '89, and Gary Vincens '89**.

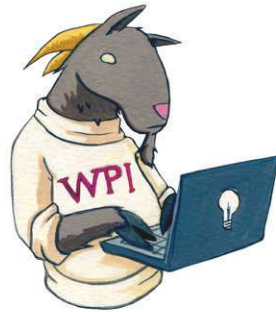
## 1991

**Loree Griffin Burns** won the 2013 National Green Book Award for her book *Citizen Scientists: Be a Part of Scientific Discovery from Your Own Backyard*, in the Children's Nonfiction category. After her first two books, which dealt with environmental crises (ocean-borne trash, and the decline of honeybees), she stated, "I wanted to write a book that came for a place of joy—a book that didn't have any dirty environments or dead animals." Later in her acceptance speech she said, "It is gratifying that my book, which essentially asks kids (and their adults!) to slow down and pay attention to the amazing world around them, has been honored." The award is bestowed by The Nature Generation, a Washington, D.C., nonprofit dedicated to youth education. Loree is currently at work on a picture book depicting the amazing life story of tropical butterflies that are bred in Central America and shipped out to museums and zoos for display.

**Frank Christiano** and his wife, Kerri, announce the marriage of their oldest daughter, Angela, to Jon Garcia on April 20, 2013.

**Grethel (Lizano) Mulroy** says "I have now been at Xerox in the Rochester, N.Y., area for nearly 22 years—hard to believe I am way past the 5-year plan to quickly get some experience and then move back to New England. I am a launch manager working with engineering teams,





# CLASS NOTES

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marketing/sales teams, customers (beta tests), and supply chain to coordinate all aspects of bringing products to market. It's a fun role. On the personal side, my husband, Chris, and I are approaching our 20th anniversary. Our oldest daughter is completing her first year at the Coast Guard Academy in Connecticut. It's been fun going to track and cross country meets where she competes against WPI! Our younger daughter is finishing up her junior year in high school and starting to look at colleges."

**Tim Roos** started his own geothermal design and consulting business in 1991. He is a certified GeoExchange Designer and PE in seven states. He is also a chapter member and serves on the board of NEGPA, the New England Geothermal Professional Association. Learn more at [wellspringGeo.com](http://wellspringGeo.com).

## 1992

**Christopher Dunham** and his wife Paola are proud to announce the birth of their second child, Maya. Maya's 2-year old brother, Alec, loves his baby sister and has been a big help around the house for his tired parents.

## 1993

**James Cooke** writes that after several years on the West Coast, he has recently returned to New England as a staff process engineer with JDSU in Bloomfield, Conn., making fiber optic modulators. He enjoys spending time with family and catching up with classmates, but says he misses the snowboarding in Utah.

**Michael Zarozinski** is a senior software engineer at the Center for Intelligent Information Retrieval at UMass Amherst.

## 1994

**Jason Johnson** writes, "I am glad to be part of Karl Storz Endoskope and WPI leadership development program that will help augment students' opportunities while they are students. Sharing industry experience and business acumen in addition to project work has been well received. The program is going into its second year, thanks to Karl Storz leaders and WPI."

**Drew Peterson** sends news of his ship, the USS *Oklahoma City* (SSN 723), homeported in Apra Harbor, Guam. It was recently recognized by Commander, Submarine Squadron Fifteen with the Red & Green "N" for Navigation Excellence, the White "W" for Weapons Excellence, and the White "P" for Personnel Readiness for 2012. These awards are part of the annual Battle Efficiency, or Battle "E" competition.

## 1995

**Gilda (Medeiros) Aliberti** works part time as a project manager at PTC. She writes, "Five years ago, I created a family lifestyle blog ([evan-and-lauren-a.blogspot.com](http://evan-and-lauren-a.blogspot.com)) to share area attractions and shows with other parents. Friends would ask about museums or play spaces that I went to, and I would create and post virtual tours and reviews. Since then my blog has grown and my reach extends to Facebook, Twitter, and Pinterest. I have been able to provide wonderful once-in-a-lifetime opportunities to my kids, with special meet-and-greets and perks others don't get to experience.

"I am also a founding member of Mom Bloggers for Social Good and I was lucky enough to be selected by Disney for an In Home Celebration with a theme of Giving Back to the Community. My daycare provider's house had just burned down so I was able to get donations from friends and family to rebuild her daycare with much needed items. I have also been a judge at the FTC Qualifier in North Andover three years in a row, and this year I also spoke at the event. It was so nice to see so many young people with a true excitement for the engineering design process. It was also wonderful seeing so many women involved. Being one of three women in my aerospace engineering classes at WPI, I knew what it was like being in the minority."

**Jacob Anderson** says, "After starting *Totally Evil Entertainment* in 2012, I have been busy making mobile games across all major markets. Recently I became part of the core maintainers group for *MonoGame*, which is an open source implementation of Microsoft XNA that targets every platform that can run games. I have also been maintaining *Cocos2D-XNA*, the XNA version of the hugely popular *Cocos2d* game framework. Just recently I worked with Miguel de Icaza and Kenneth Pouncey to convert *Angry Ninjas*, a game kit written in Objective-C, to C# and *MonoGame*. This project was announced at Xamarin Evolve 2013 and is not open sourced and targets seven game platforms, including the top three mobile platforms. *Totally Evil* and I have been very busy showing the industry how easy it is to distribute mobile games across all platforms with a single, unchanging code base."

**Dan Larochelle** joined the Robotics Education and Competition Foundation, a nonprofit that teaches STEM through competitive robotics. He is the regional manager supporting VEX robotics teams and events throughout New England and New York, where he gets paid to play with robots and have a great time. Dan and his wife, Jen, recently celebrated their 10th wedding anniversary and have two boys, John and Kyle.

**Mark Paulson** says, "The latest from here is that I'm currently working on new cloud data storage solutions for

*SpectraLogic*, located in Boulder, Colo. This is basically a dream job for me as I've been able to move from a career in classical block storage solutions to the up-and-coming world of web-based object storage solutions. I'm on the Emerging Markets team here and we're busy working on new strategies and prototypes of products. As our group monitors the recent and most promising tech, I've been able to learn the Go programming language ([golang.org](http://golang.org)) developed by Google as a follow-up language to C/C++ . I've been having a lot of fun writing and prototyping in this relatively new language and am excited to discover how we can use it.

"On a personal note, as part of homeschooling our kids, we were able to take advantage of PTC's educational program, and they donated four licenses of *Creo 2.0* to our school. Our kids are beginning to learn how to build solid models and we'll be investing soon in a 3D printer so that they can further create real models. Our hope is that this will ultimately launch them into entrepreneurial directions. If only we had this technology available when WE were kids :)."

## 1996

**Michael Walker** is design chief of measurement systems at Pratt & Whitney in Middletown, Conn. He completed his master's degree in materials in 2012. He married Shannon Bacchiochi in August 2008; they live in Glastonbury with their two daughters, Sara and Emily.

**Sarah (McIlhenny) White** and her husband, Morgan, say their twins, Max and Jacob, are awaiting the birth of a brother.

## 1997

**Brian Lakin** spent more than a decade at the Regional Water Authority in New Haven, Conn. He recently accepted a position with *Jacobs Associates* ([jacobsf.com](http://jacobsf.com)) in its New York City office. Initially, Brian will be working on several of the company's tunnel design contracts for the NYC Department of Environmental Protection.

**Jimmy Pai** writes, "New year, new job—as a regional director of IT for *Fairmont Hotels* in San Francisco. My son, Dexter, is growing fast—almost 2 now."

## 1998

**Matt Arner**, principal of *Flair One LLC* of Groton, is building a solar farm in Charlton in partnership with Bruce Forrester of Westboro. The \$300,000 worth of electricity the site is expected to generate annually will secure net metering credits for Clark University, using locally produced green energy as part of a plan to become carbon neutral by 2030. Matt founded *SolarFlair* in 2007. Today, the 35-employee company headquartered in Framingham has



'96

Amy (Plack) Marr writes, "This past fall, I had the great pleasure of taking my daughter's Brownie troop, all third-graders, to an event on the WPI campus. The Society of Women Engineers put together a fantastic program for girls to do STEM activities in pursuit of the new 'inventor' and 'product manager' badges. The girls also had a fabulous time just walking around the campus and asking me questions about what it's like to go to college there. I showed them where I lived on campus, where I worked, and they thought it was just beautiful. They found the Tau Beta Pi key very interesting, so I explained what it is and what it signifies. (They were pretty impressed when I told them that I was a member.)"



about 100 commercial solar installations. Other than the 48 panels that power his home and hybrid car, this is Matt's first personal investment in a solar generation system.

**Bill Goode** ran the 2013 Boston Marathon to raise funds and fight stroke as a member of Tedy Bruschi's charity, Tedy's Team. Read his eyewitness account of the Marathon explosions and aftermath on his blog, [wickedgoode.com](http://wickedgoode.com).

**Keith Levesque** graduated from Harvard School of Dental Medicine in the class of 2011. He is working at Levesque Family Dentistry in New Hampshire. He lives in Hollis with his wife and their two daughters.

**Clarisa Pernalet** moved to Panama about 10 years ago, and has been working as the general manager of E-Tech de

Panamá since then. She writes, "I married in 2007 and have two beautiful kids, Adrian Andrés, 4, and Camila, Andrea, 2.

**Jeff Spaleta** ("though in my heart I'll always be class of '97—took an extra year to do a study abroad and a co-op") is a postdoc in the Space Physics group at Geophysical Institute, University of Alaska Fairbanks, where he works with the SuperDARN project. Most recently, Jeff won a superhero costume contest at his local curling club by dressing up as Arthur from "The Tick." He says, "I am exceptionally proud of that achievement. Stiff competition from the teenage mutant ninja turtle curlers. Prior to that, I traveled to the South Pole for the express purpose to fly my kite. Oh, and while I was there I helped install a new SuperDARN radar system. Those are the highlights so far just this calendar year. Prior to that over the last few years,

I've helped build SuperDARN radars in Adak, Alaska, and in McMurdo Station, Antarctica, as well as a couple of other places. We've one more radar installation left to deploy in the Azores, hopefully this summer."

**Michael Stark** completed the 2013 Disney Princess Half Marathon in the upright position, which was his goal. With the help of family and friends, he was able to raise over \$4,000 for the Leukemia and Lymphoma Society. "Thank you to everyone who donated!"

## 1999

**Steve Dupree** says, "I celebrated our 11th wedding anniversary, my lovely daughter Sarah's third birthday, and my 4th year working at Allrecipes.com, all in June."

**Julia (McIlhenny) Glorioso** and her husband, Richard, and daughter, Ayla, 3, welcomed a son and brother, Ari James, on Nov. 25, 2012.

**Paul Graves** traveled to San Diego with his family, where they toured the USS *Midway* aircraft carrier, hiked Torrey Pines State Reserve (cliff-top trail overlooking the Pacific), played in the surf, and enjoyed local seafood. While Paul was at a conference, his wife and daughters visited Sea World and the San Diego Zoo. "I attended the Tradeline Lean Facilities Lifecycle Conference and learned about applying lean concepts to the construction process," he says. "Now I need to implement these in our organization where it makes sense." Paul is deputy director of Design & Construction Management at the University of Kansas.

**Ray Halpin** continues to employ the life skills that he honed during his studies at WPI: interpreting the technical aspects of life and applying them to real-world applications to help improve business effectiveness and efficiency. And, he says, "Not only do I get to do what I love, but while I'm on the road, I have the chance to connect with WPI alums, some of whom I haven't seen in years, but it feels like we just had lunch at Morgan yesterday."

**Laura Cooper Olivieri** is a pediatric cardiologist at Children's National Medical Center. A recent *Washington Post* story described her use of a 3-D printer to create models of patients' hearts to help surgeons to visualize defects and plan surgical interventions. "Not that long ago, people with congenital heart disease didn't even survive," she told the *Post*. With this "amazing" technology she can accurately reconstruct rare and complex defects, allowing surgeons to practice on the models before surgery.

Major **Matthew Poisson** completed his year-long fellowship at the Oak Ridge National Laboratory in May 2013. During his time in Tennessee, he completed a comprehensive research paper on DoD efforts to secure the cyber supply chain for

'03

Rebecca Wachs was a finalist for the Lemelson-Rensselaer Student Prize. Her invention, an implantable sensor, wirelessly transmits data from the site of a knee replacement, spinal fusion, or other orthopedic surgery, giving doctors an unprecedented wealth of information about how an individual patient is healing. The robust, inexpensive device can monitor load, strain, pressure, and temperature during healing and could also help guide sizing and placement during surgery. Rebecca earned her doctorate in biomedical engineering from RPI in January and began working as a senior research and development engineer in the sports medicine group at RTI Biologics Inc. in Alachua, Fla.



modern, net-centric, weapon systems. He will be returning to Edwards AFB in California, where he will become the director of operations at the 445th Flight Test Squadron.

## 2000

**Amit Bobby Nandi** is the director of operations at Sequent Medical, a neurovascular medical device start-up in Orange County, Calif.

**William "Bernie" Till (MS FPE)** recently celebrated 25 years of service at the Savannah River Site and accepted a fire protection engineering manager promotion with the site's Fire Protection Organization.

**Maria Vassilieva** earned her MS ME from WPI in May 2013.

## 2001

**Jimmy Cook** writes that he left his job at General Dynamics Electric Boat in late 2010 to seek new adventures and a new career path. After traveling around the U.S. and a bit of Europe, he hired on with Médecins Sans Frontières (Doctors Without Borders) in 2012 to perform technical logistics work in the field. Assignments since last June have taken him to South Sudan, Uganda, and Swaziland. He'll soon be back in South Sudan, primarily working in vehicle and generator maintenance/management.

**Jim and Dina (Carreiro) Konz** just had their fourth child: second daughter, Celeste, joins Colby, 6, Lillian, 3, and Logan, 2. They say, "The minivan is full, so we think we're done."

**Frederick Tan** joined the Bioinformatics Research faculty at the Carnegie Institution of Washington, Department of Embryology, in Baltimore.

## 2002

**Jessica Caron** writes, "Sometimes in life unexpected things happen. For instance, my garage... I never expected my car to roll into it and take out both garage doors."

**Prashant Masand (MS OIT)** started out at Deloitte's Boston office, then moved to its Toronto office a couple of years ago and has been there since. He stays in touch with the current events at his alma mater through The Bridge, WPI's alumni newsletter. He says, "When I saw the chance to win the Gompei watch, it brought back memories of Gompei's Pizza, which was open briefly when I started in the MS program and was subsequently closed. I still keep in touch with several of my WPI classmates and meet up with them. At present, I am training for the 220-km Ride to Conquer Cancer from Toronto to Niagara Falls, and have raised \$3,000 for it."

**Robin Ngo** writes that he's working and starting a family.

## 2003

**Ari Carlin Copeland** works for Black & Veatch as an environmental scientist in the Denver office, where he assists in troubleshooting water and wastewater facilities and helps water and wastewater operators obtain training to better run their processes. Ari recently left the American Water Works Association in 2012 as their water engineer. He assisted various utilities and volunteers with water quality questions and edited AWWA's technical content to provide better products and services to the membership. Ari will be relocating this summer to his home town of Waterbury, Conn., be closer to friends and family.

**Chris Gordon** started Mission Driven Research (mission-drivenresearch.com) at Thanksgiving of last year. After working six months on his own supporting the Missile Defense Agency, the company appears to be preparing for expansion as various contracts near award. The goal is to use company profits to sponsor charitable missions activities around the world based on the interests of the employees. To that end, Chris recently took a two-week trip to southern Nepal to assist in the redesign of a hand-powered bicycle built and distributed by a nonprofit organization for handicapped people. While there, he also participated in several medical camps in rural villages. On the trip back, he flew through Seoul where he took a quick tour of the Demilitarized Zone at the border of North and South Korea, which was quite an experience given the current political climate.

**Andrew Hudon** will be riding cross country, from Oregon to Massachusetts, to raise funds and awareness for The Colon Club and Colon Cancer Alliance. Leave It On The Road is a two-man, 3,450-mile, 23-day ride, with sponsorship from his employer, Coviden. He has been using his bike to combat cancer since 2006 and has ridden nearly 5,000 miles on three previous fundraisers. Follow his progress at [leaveitontheroad.com](http://leaveitontheroad.com).

**Richard Jorgenson** is a mechanical engineer for Aerodyne Research Inc. (ARI), a provider of scientific research and development services and advanced instrument and software products in Billerica, Mass. He recently started in ARI's Center for Energy and Propulsion Technology.

**Rob Pantazelos** is global IT manager at IPG Phototonics. He and his wife, Jessica, welcomed their daughter, Thea Marion, in November 2013. They live in Upton, Mass.

**Scott Wallace** is finishing up a year of studying Hindi in Monterey, Calif. Next he will spend two years in New Delhi, where he'll study at Jawaharlal Nehru University.

**Sarah (Linderme) Xavier '05 (MS EE)** and her husband, Jeffrey, welcomed their second child, Josephine Evelyn, into the world on April 14, 2013. Big brother Nathaniel is excited to have a little sister!

## 2004

**Frank Gerratana '05 (MS CS)** is practicing patent law at Fish & Richardson PC in Boston.

**Krystal Tam** and **Jeffrey Yong** became engaged on Jan. 1, 2013.

## 2005

**Paul "Red" Emery** has worked for 5½ years at Calloway Laboratories, a clinical toxicology lab located in Woburn, Mass., where he was recently promoted to the position of QC/lab aide team leader.

**Christopher Kopec** and his wife, Erin, announce the birth of their son, Alexander Paul Kopec, Jan. 29, 2013.

**David LeRay** graduated in May 2013 from Harvard Law School. He will begin work as a full-time associate at Quinn Emanuel Urquhart & Sullivan's New York City office in September, where he will focus his practice on patent litigation.

**Nathan Meryash** began working for Quirky, a start-up that aims to make invention accessible to anyone with a great idea. Nathan is responsible for developing the company's consumer electronics and frequently bounces between the NYC and Hong Kong offices. Quirky has since doubled in

headcount during his first four months. Submit your ideas, and get paid at [quirky.com](http://quirky.com).

## 2006

**Justin** and **Katrina (Van de Berg) Mattern** are happy to announce the birth of their daughter, Evelyn Grace, Jan. 13, 2013. She joins a line of WPI grads including her aunt, **Rebecca Mattern '10**, and proud grandfather, **Hans Van de Berg '79**.

## 2007

**Geoffrey Batstone** says, "Since graduating back in 2007, I've had a couple of jobs in civil engineering, most recently as a transmission line engineer for National Grid in Waltham, Mass. At National Grid, I've been involved in large-scale reconductoring projects, tap line extension to new substations, and a number of transmission structure replacement projects, mostly here in New England. On a personal note, this past fall I married Meghan, the love of my life, and couldn't be happier to be calling her my wife. For our honeymoon we visited Playa del Carmen in Mexico, where we stayed at an all-inclusive resort and had a blast soaking up some sun and embracing Mexican culture. The two of us now live in Bedford and look forward to tackling whatever life will bring us in the years to come."

**Ashley Mossa Lindeman** accepted a technical project management role with EPRI (Electric Power Research Institute). She will support industry research activities associated with fire probabilistic risk assessment for commercial nuclear power plants. Previously, she worked for Westinghouse performing fire risk assessments for domestic and international nuclear power plants.

**Hillary Perkins** says, "I have been at Boston University Medical Campus in a pathology lab that works on bio-defense since August 2010. Last September I went back to school part-time, through the Graduate Medical Sciences division of the School of Medicine at BUMC, for my master of arts in pathology, which I hope to complete by 2015."

**Pamela Springer** and **Robert Brooks '08** were married Sept. 23, 2012, in Avon, Conn. They enjoyed their honeymoon in Barbados and are now settling into their new home in Bristol, R.I.

**Derek Williams '11 (MS MFE)** is currently employed as a measurement systems staff engineer at Pratt & Whitney in East Hartford, Conn. He lives in Middletown.

## 2008

**Andrea Portnoy** writes that she and Michael Mitchell became engaged in February. They look forward to their wedding next summer.

## 2009

**Nicholas LeCompte** writes that after graduation, he attended the University of Waterloo for postgraduate study in mathematics, but after two years his lifelong health problems had become deathly serious. He says, "It is not an understatement to say that my illness wrought massive havoc on my life; I had to leave graduate school to seek treatment, and was soon faced with the unflinching reality of finding work while battling a serious illness. Given a tough economic climate and a need for flexibility, I was enormously thankful to have a degree from WPI. Employers know the university well, and were happy to hire me with reasonable accommodations for my health. More important, it allows me to seek challenging and rewarding work, tasks that employ a variety of skills and knowledge. Today, I work part-time as a data analyst for a health insurance company and as a tutor in Greater Boston. And, of course, I'm still teaching myself new mathematics and physics (and literature). Four years sometimes doesn't feel long enough!"

**Samantha McGill** is currently working as a senior business and technology analyst at the College of the Holy Cross and as the assistant director of the WPI Concert Band. Since graduating, she has conducted concerts in Massachusetts, and in Europe at Smetana Hall and the Church of St. Ignatius of Loyola in Prague and at the Kaiser Wilhelm in Berlin. Sam is also a flutist who has been performing in ensembles in Massachusetts, Rhode Island, and Europe.

**Nelson Nogueira** reports that he became engaged over this past winter and just received his five-year award at Raytheon. He says, "It's been a pretty awesome year so far."

**William Stanney** writes that he has been working at UMass Medical School for the past two years in the laboratory of Dr. Craig Mello. This summer, he will be officially enrolled in the PhD program in the Graduate School of Biomedical Sciences at UMMS.

**Erica Stults** is working on her PhD at WPI.

## 2010

**Wayne Anderson** says, "It was an honor to have been selected to give one of the baccalaureate speeches the night before our commencement ceremony. One never knows what opportunities will be placed before you; you just can't imagine my surprise when, after delivering my speech (which is on YouTube: [search gadgetmason.com](http://search.gadgetmason.com)), I was asked to work for Oasis Systems Inc. as a government contractor as a



project lead for the U.S. Air Force at Hanscom AFB in Lexington, Mass. I've already deployed one \$10 M system and am now working on a project 6-10 times that size. Without the training and leadership skills I learned at WPI, I'm not sure I would have been able to make the leap right into my dream job. Thank you to all the professors, teachers, teachers' aides, and staff at WPI for teaching an old dog some new tricks and expanding his horizons!"

**Bryan Rickard** says, "I worked for Tau Kappa Epsilon International Fraternity from January 2011 to March 2013. Working for TKE allowed me to travel the country as well as gain a broader perspective on how undergraduates and alumni interact. In March, I became associate director of alumni relations at WPI. Major projects include planning and executing Alumni Weekend and Homecoming."

## 2011

**Andrew Black** says, "I am pursuing a PhD in chemical engineering at the University of Delaware. I am using computational tools to develop a hierarchical, multiscale microkinetic model for hydrocarbon conversion within zeolites that will be applied to the design of reactors that can cool the engines of jets traveling at supersonic speeds. I have also been practicing Taekwondo, running, and road cycling."

**Melanie Donahue** entered her second year with The Broad Institute, where she is doing cancer research.

**Richard Emberley '13 (MS FPE)** has begun his PhD in civil engineering with a specialty in fire safety engineering at the University of Queensland in Brisbane, Australia. His research will be looking into the fire performance of structural steel connections with varying levels of fire protection applied to them. "Ever since my IQP in Melbourne, I've wanted to go back. I never thought it would be for three years for my PhD!"

**Kyle Sarnik** is a software designer/developer for Bohemia Interactive Simulations (BISim) in Orlando, Fla., where he is developing content for BISim's flagship product, VBS2, a virtual, tactical military battlefield simulator for training military and civilian organizations.

**Skyler Whorton '13 (MS CS)** says, "Wow, how the last two years flew by. I've been working full-time on my MS at WPI as a research assistant, developing software to help K-12 students learn math and science. I've just completed my thesis and was thrilled to walk a second time across Earle Bridge at Commencement. Now I'm pursuing an incredible opportunity with an Eric & Wendy Schmidt Data Science for Social Good summer fellowship in Chicago. I hope to use my analytical skills there to make an impact in issues like education, crime, transportation, or poverty."

## 2012

**Jared Broberg** has been working in manufacturing and process development at Hepregen, a biotechnology company in Medford, Mass.

**Sam Hilerio** says, "Since last May, I've been at Pratt & Whitney in Middletown, Conn., designing and analyzing high-pressure compressors for both commercial and military engines. I plan on getting my master's this coming winter or next year (probably through WPI), though I haven't done much work or research on that opportunity yet."

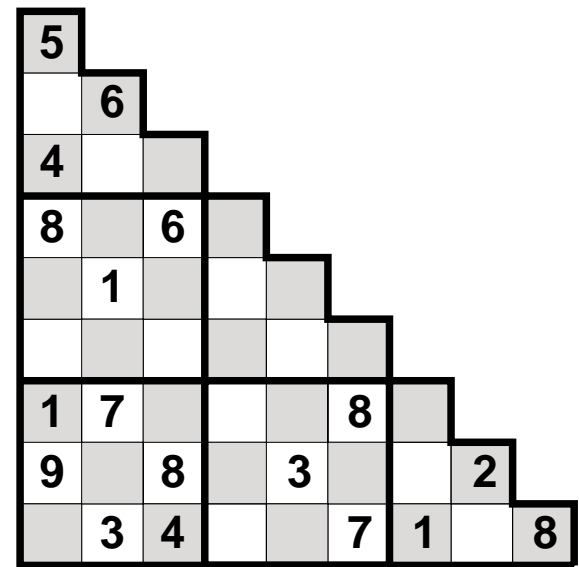
**Monica Mohtasham (MS SE)** has worked at Pratt & Whitney in East Hartford, Conn., since December 2010.

**Yura Pyatnychko** traveled to Ukraine to visit her family before beginning her position at Intel in Hudson, Mass. She writes that she is applying the skills picked up at WPI to execute interesting assignments at work, and enjoys snowboarding and attending concerts.

**Caitlin Quinn** has spent the past year teaching geometry, algebra 2, advanced algebra, and trigonometry in Greenville, Miss., with the Teach for America program, where she also coaches varsity softball team. She writes that living in Mississippi has allowed her travel to New Orleans, Texas, Memphis, and Nashville for the country music marathon.

## Sujiken

By George Heineman



Place digits from 1 to 9 in the triangular grid such that:

1. No digit repeats in any row, column, or diagonal
2. No digit repeats in any of the outlined boxes and triangles

PUZZLE ANSWER ON PAGE 76

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### WPIIndex Sources

#1, 2, 3 <http://www.ncdc.noaa.gov/>; #4, 5, 6 IPCC Synthesis Report, Yale University & George Mason University; #7, 8 [http://www.lohmann-information.com/content/l\\_i\\_45\\_artikel17.pdf](http://www.lohmann-information.com/content/l_i_45_artikel17.pdf); #9, 10, 11, 12, 13, 14, 15, 16 [http://www.ic3.gov/media/annualreport/2011\\_IC3Report.pdf](http://www.ic3.gov/media/annualreport/2011_IC3Report.pdf); #17, 18, 25, 26, 27 Facts About Goats, Bulletin II. Volume I, Florida A&M University; #19, 20, 21 <http://www.esrb.org/about/video-game-industry-statistics.jsp>; #22, 23, 24 <http://www.statisticbrain.com/footwear-industry-statistics/>; #25, 26 27: Facts About Goats, Bulletin II. Volume I, Florida A&M University; #28 <http://wiki.answers.com/>; #29, 30: WPI Annual Fund

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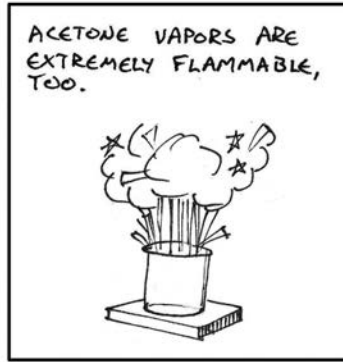
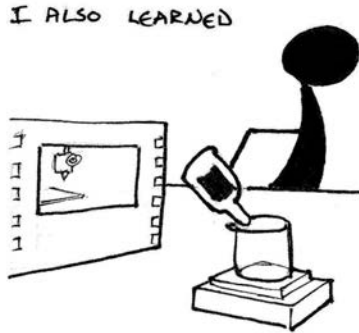
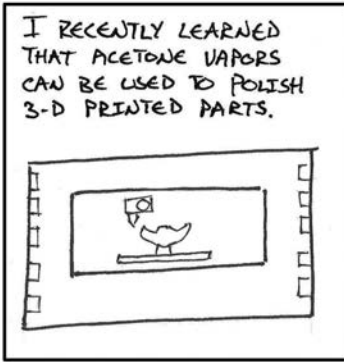
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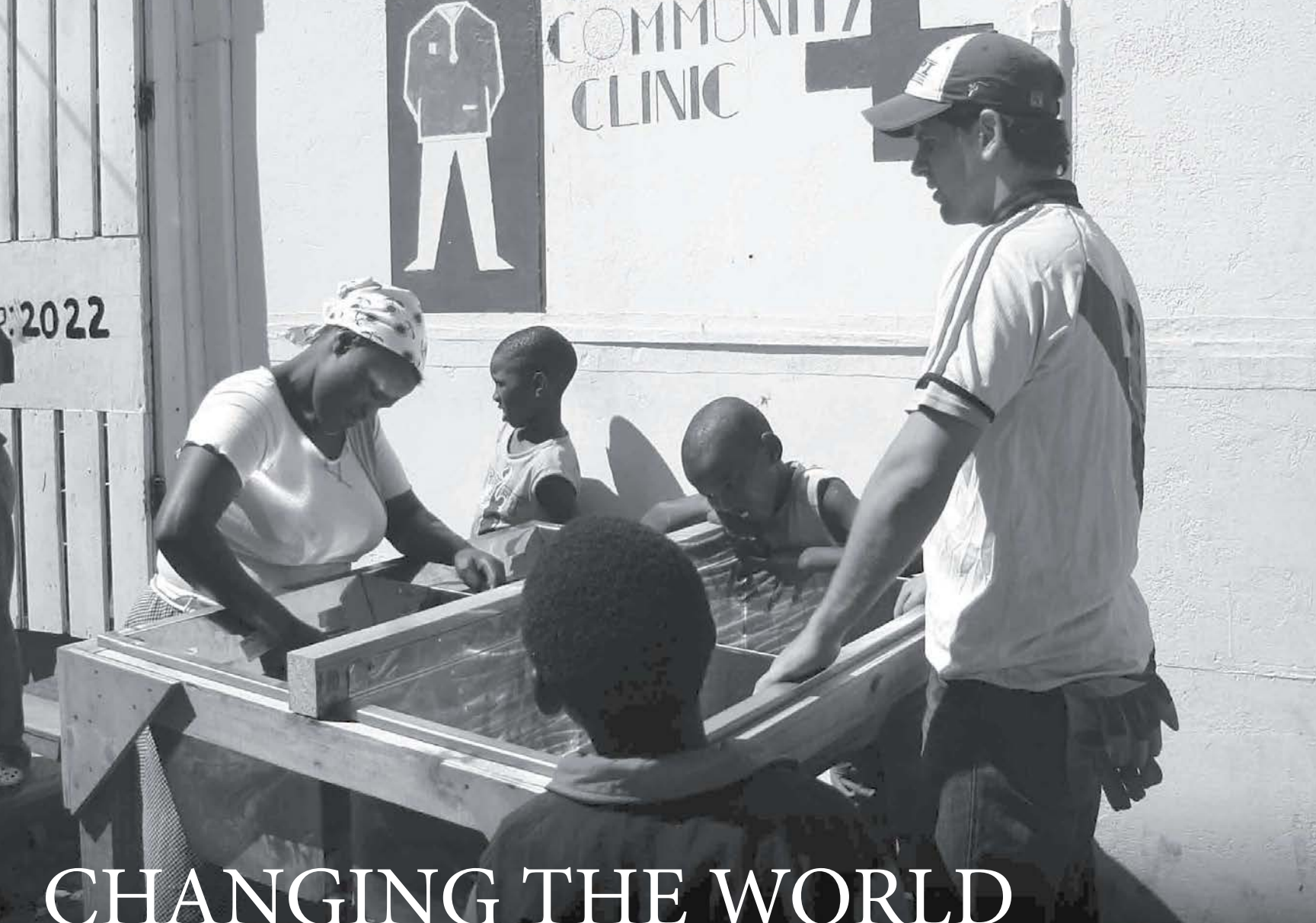
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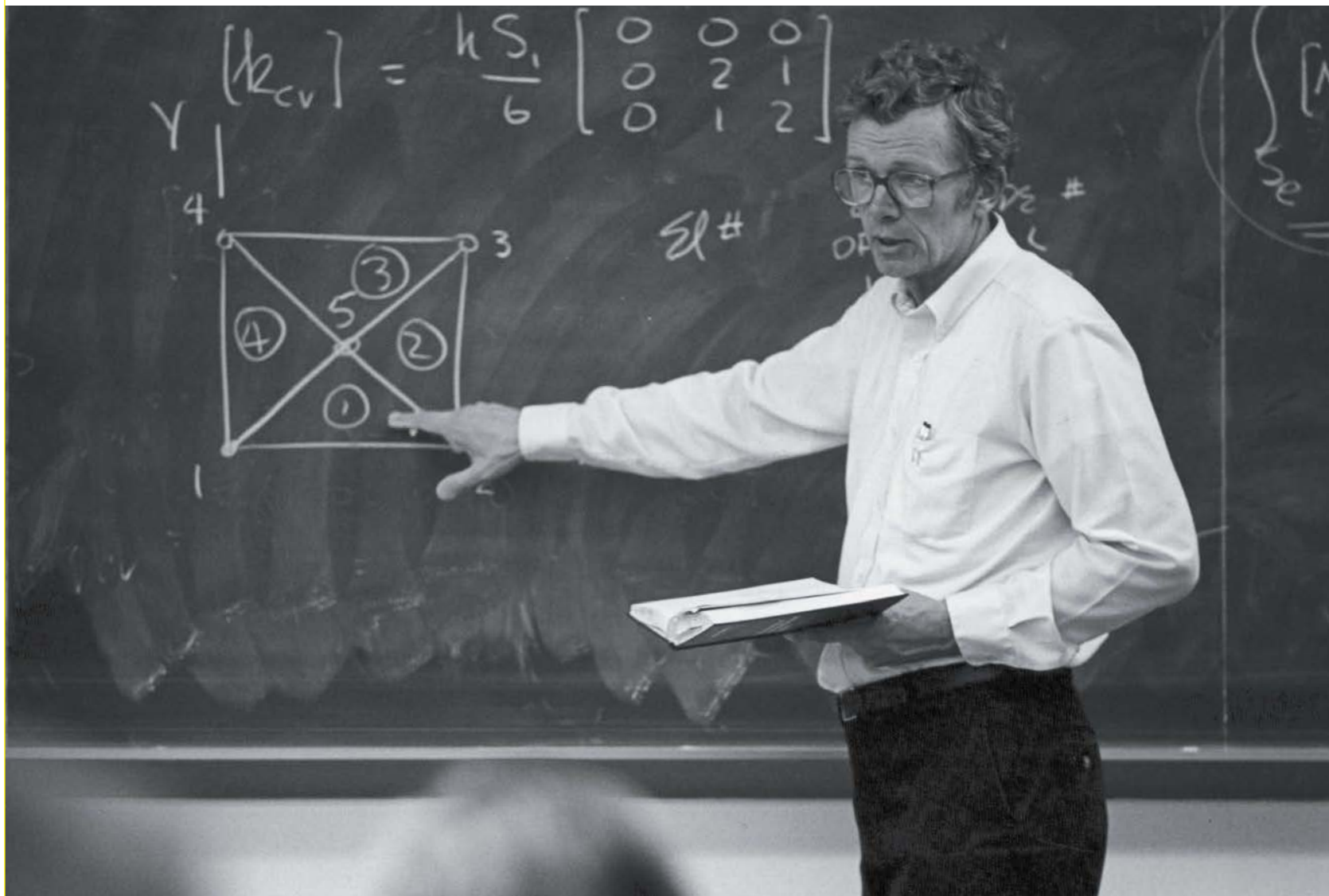
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## Hartley T. Grandin

**Hartley T. Grandin '55**, professor emeritus of mechanical engineering, died March 20, 2013, at the age of 80. He leaves his wife, Diane, two children, and two grandchildren. After receiving his bachelor's degree from WPI, Grandin began his career at Reed Rolled Thread Die Co., then joined the WPI faculty in 1957. He later earned a master's degree in mechanical engineering at WPI and a PhD at Michigan State University. Grandin retired from WPI in 1996 but continued to teach a course each year for more than a decade. The author of two textbooks and the architect of a unified course in the mechanics of materials, he was honored in 1983 with the Trustees' Award for Outstanding Teaching.

Nathan Levine '36 (Alpha Epsilon Pi)  
 Frederick Burg '38 (Alpha Epsilon Pi)  
 John Lancaster '39 (Alpha Tau Omega)  
 Carl Lewin '39 (Sigma Phi Epsilon)  
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 Robert Holby '41 (Phi Gamma Delta)  
 Henry Durick '43 (Alpha Tau Omega)  
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 Truman Dayton '46 (Phi Sigma Kappa)  
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 Lemuel Manchester '48 (Theta Chi)  
 Richard Bartlett '49 (Alpha Tau Omega)  
 Robert Wallace '49 (Sigma Alpha Epsilon)  
 John Williams '49 (Sigma Phi Epsilon)  
 Aharon Aharonian '50 (Sigma Phi Epsilon)  
 Edgar Carpenter '50 (Sigma Phi Epsilon)

Robert Busch '51 (Phi Gamma Delta)  
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 Daniel Bernatowicz '52  
 George Borski '52 (Sigma Phi Epsilon)  
 Michael Essex '52 (Phi Kappa Theta)  
 Donald Stewart '52  
 Emil Larson '53 (Lambda Chi Alpha)  
 Hartley Grandin '55 (Sigma Phi Epsilon)  
 Norman Fischer '56 (Alpha Tau Omega)  
 Arthur Freedberg '56 (Alpha Epsilon Pi)  
 Donald Butterworth '58 (Lambda Chi Alpha)  
 Thomas Hill '59 (Phi Kappa Theta)  
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 Leon Husisian '60  
 Jon Fox '62 (Lambda Chi Alpha)  
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 Peter Craugh '63 (Tau Kappa Epsilon)  
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 Charles Buck '64

Robert Johnson '65  
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 Robert Gagne '69  
 Richard Sanford '69  
 Paul Miller '73 (Sigma Alpha Epsilon)  
 Kenneth Therrien '73  
 Scott Wilson '74  
 Eric Hertz '77 (Lambda Chi Alpha)  
 Thomas Ryan '80  
 David D'Addario '83 (Alpha Tau Omega)  
 David Johnson '87 (Phi Sigma Kappa)  
 Boris Greenberg '94

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WPI also notes the passing of the following friends: Michael Ferraro, Jean Hazzard, Robert Laventure, and Gordon Marshall.

In the previous issue, the year of death for Christine Drew, William Densmore, and John Nelson was incorrect. All three died in 2013, not 2012 as stated.



## Thomas H. Keil

**Thomas H. Keil**, a longtime professor of physics who twice served as department head, died Feb. 28, 2013, at the age of 73. The husband of Elinor "Nora" (Boynton) Keil, he is also survived by two children and three grandchildren. Keil is remembered for his belief in liberal education and his work to develop and implement the WPI Plan. He helped establish WPI's Frontiers in Science and Mathematics program and the Massachusetts Academy for Mathematics and Science. Although he taught nearly every WPI physics course, freshman to graduate level, at one point or another, Keil remained devoted to the freshman courses, believing in the importance of the foundation. "While there were many dedicated people who conceived and implemented the WPI Plan, few were as committed to it or understood it as completely as Keil," says department head Germano Iannacchione. "His dedication to WPI and especially to WPI's students was a significant factor in making WPI what it is today. His spirit is everywhere around WPI."

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



## My Weather, Our Planet

By Roger S. Gottlieb

As a child growing up in the remarkably rural New York City suburb of White Plains, I was fascinated by nature; and that meant being fascinated by the weather. It wasn't an intellectual fascination—that part of me focused on reading five to ten books a week, starting with dog stories, moving through sports and science fiction, and ending up (I'm still there) with trying to figure out the meaning of life—but an almost hypnotic attraction to the way the outside, which means to a great extent the weather, made me feel.

There was the excitement of the first cool days in October, with a brilliant blue sky, the magically transforming red and yellow leaves, the first frost on my lawn, the sliver of a crescent moon far sharper and brighter than the summer's heat and haze had allowed. There was the spectacular show of the few hurricanes we had. Hours securing lawn furniture and windows, double-checking the porches and the sump pump that kept the basement dry. And then staring as a howling wind made the familiar trees take bizarre shapes. There were snowstorms, through which I'd drag my wooden (yes, wooden!) sled a mile and half to get to the nearby hill where we all took advantage of cancelled school. There were blisteringly hot July afternoons: I'd ride my bike on the tree-lined streets in search of a pick-up softball game at one of the nearby athletic fields.

Each particular combination of temperature, moisture, wind, and light, with the associated sky and seasonal vegetation, had its own emotional magic: cool, crisp enthusiasm; hot and humid relaxation and placid enjoyment; the bitter cold that aroused youthful determination; the pure joy of spring flowers after an April rain. Much older now, I have experienced a bit more of what the world's weather has to offer: a perfectly clear night sky that showed me the Pleiades meteor shower when I hitchhiked into Spain; thunderhead clouds building up over Mt. Everest as I walked (staggered, really) up to Base Camp's 19,000-foot altitude: a spectacular lightning show that lit up 20 miles of the Mediterranean watched from a sheltered cave on the tiny island of Formentera. I still treasure the emotional meanings all the world's weather has to offer.

And yet, it is now completely changed: my fear, despair, anger, and guilt reflect the transformed world in which I live. Because of what human beings, myself included, have done to the world's ecology in the last 50 years, the significance of heat and storms and punishing drought has changed forever. Our green-



house gas emissions have transformed “nature” from something separate to processes and experiences that are affected by our industry, economics, transportation, and amusements. What we did to the ozone layer made the sunlight more dangerous (cataracts, skin cancer, etc.); CO<sub>2</sub> not only makes the earth warmer, the storms bigger, the droughts longer, and threatens countless species with extinction, it also acidifies the oceans and brutally disrupts the oceanic food chain. Instead of living on a planet in which there are humans *and also* an encompassing non-human reality, it is now—at least to some extent—all us, all the time. As May flowers bud in March, August insects swarm in late November, and Pine Bark beetles, relishing warmer temperatures, kill tens of millions of acres of western forests, we now face the world with a kind of basic, existential dread.

There is no way back to the simple pleasures of childhood. Not for me, and not for humanity. Yet with adult powers come adult responsibilities—and the possibilities of the difficult but deep satisfactions of being a grown-up. As we are now powerful *partners* with nature, co-creators of the weather, let us face up to our new powers and be ethical, caring partners. Let us join with the age-old forces of wind, rain, sun, and water to serve, as best we can, all of life.

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*Roger S. Gottlieb is professor of philosophy at WPI and author or editor of 17 books on ethics, political philosophy, religious studies, and environmentalism. His two most recent books, Engaging Voices: Tales of Morality and Meaning in an Age of Global Warming and Spirituality: What It Is and Why It Matters, both received Nautilus Book Awards.*

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*— Jennifer '94 and Donald Wyse '92*



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