# THE STEVENS INDICATOR







### **PRESIDENT'S CORNER**

### INNOVATION & ENTREPRENEURSHIP: STEVENS' LEGACY, SOCIETY'S FUTURE

The university's founding family established a legacy of technological innovation and entrepreneurship that persists in our academic culture many decades later. It inspires our research, contributes to the stellar outcomes of our graduates and undoubtedly distinguishes Stevens as an institution that has had a significant impact on industry and society.

Today, perhaps more than at any time in our history, technological innovation and entrepreneurship are critical to economic growth and competitiveness, and universities play an essential role in advancing these priorities. First, universities produce the highly educated and highly skilled technical talent that is in demand across many industry sectors. In addition, through technology transfer, these universities

bring cutting-edge research and new technologies from the laboratory to the marketplace. Where Stevens maintains a competitive advantage, however, is in its distinctive curriculum, which embeds innovation and entrepreneurship as integral elements of its technical education. This differentiator positions Stevens and its graduates to have a transformative and profound impact on the economy — present and future.

Stevens' unique ecosystem of innovation and entrepreneurship has educated generations of graduates over many decades whose small startups have grown into multi-national enterprises. Today, students gain experience as early as their freshman year creating a business concept and transforming it into a viable venture in a required course on entrepreneurial thinking. An eight-semester "design spine" further infuses entrepreneurship into design courses throughout the undergraduate experience. Students may choose to hone these skills through a minor in entrepreneurship, and as a result of the required senior design capstone course, many put these skills to the test by filing for patents or launching new businesses.



Stevens provides other tools to promote entrepreneurship as well, including the Stevens Venture Center (SVC). Established in 2016 and located just a few blocks from the campus, the SVC provides member companies with experience-based guidance and education by a group of entrepreneurs-inresidence, access to a network of industry leaders, legal and accounting services, as well as office space and a design and prototyping center. Students also learn from successful thought leaders in innovation and entrepreneurship throughout the year in the President's Distinguished Lecture Series, the Thomas H. Scholl Lecture Series for Visiting Entrepreneurs and the Stevens Venture Center Speaker Series.

Whether they launch a startup company of their own or begin their corporate career with an entrepreneurial mindset, Stevens graduates enter the workforce with a solid academic foundation and real-world experience in entrepreneurship. And, because economic vitality will depend on technological innovation and entrepreneurship for the foreseeable future, Stevens graduates are an essential national resource. As the university executes on its ambitious strategic plan, increases enrollment, and further strengthens its educational offerings, facilities and research, our impact will only increase in the coming years.

Per aspera ad astra,

Nariman Farvardin

President, Stevens Institute of Technology president@stevens.edu

201-216-5213

### FALL 2017 VOL. 138, NO. 3

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Published three times a year by The Stevens Alumni Association, member of the Council for Advancement and Support of Education. © 2017 Stevens

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### STEVENS ALUMNUS STILL IN FLIGHT

The profile of Ann Azevedo '79 and her world travels while working at the Federal Aviation Administration that appeared in the Spring/Summer '17 issue brought back a series of memories that relate to that agency, but in a different category. I enrolled at Stevens with the first complete undergraduate civilian class after the GI Bill veterans had taken up most of the undergraduate spaces between 1945 and 1952. Many of those veterans had earned their pilot training and formed the Stevens Flying Club, with funding from the Alumni Association to purchase a two-seater Piper Cub that was tied down at Teterboro Airport. The club also offered lessons to student pilots and charged \$3.50/hour for the plane and \$2/hour for instruction. I wonder if any of the members are still around to tell the story about the club in more detail. I know of about a half-dozen alumni who have had a pilot's license, including Bill VandeVaarst '50, who sold me his Cessna and was a flight instructor at the time. I would like to know who among the alumni still fly under their private pilot license and maybe we recreational pilots could hold a "fly-in" during the next Alumni Weekend. I regularly fly a Cessna out of Essex County Airport, having met all the medical and training requirements mandated by Ann's agency. • — Charlie Schnabolk '53

### **SOCIAL MEDIA**

Stevens welcomed the Class of 2021 to campus this fall, but not before some dedicated alumni threw bon voyage parties for members of the new freshman class. Two "send-off" parties this past August, in Texas and New Jersey, gave these newest members of the Stevens community and their families a chance to meet fellow freshmen, students, alumni and parents before heading to Hoboken. Thea and Tony Bazzini '81 hosted an event at their home in The Woodlands, Texas, while Rachele Grasso Smith '81 and Dave Smith welcomed everyone to their home in Warren, New Jersey. The Smiths and the Bazzinis both have children who attend Stevens, and Rachele and Tony are members of the university's Parents Council. To see more photos, and to share your memories of freshman year at Stevens, use #StevensAlumni.

■ Rachele Grasso Smith '81, front row, far right, with her husband Dave (behind her), hosted a send-off party at their Warren, New Jersey, home. 
■ The Houston Club gathered at the home of Thea and Tony Bazzini '81 to wish luck to the Class of 2021. Tony is third from the left. 
■ Stevens freshmen get acquainted in Warren, New Jersey.















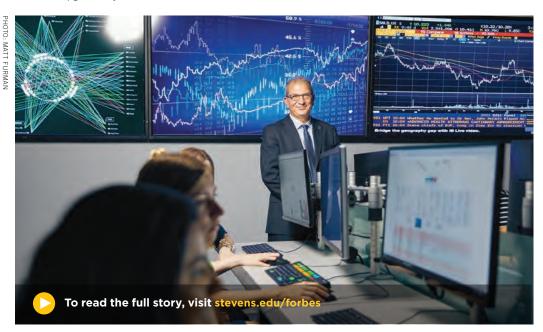




### **GRIST** FROM THE MILL

### FORBES STORY PRAISES 'QUANT SCHOOL ON THE HUDSON'

A recent Forbes article applauds Stevens' leading-edge program in quantitative finance and the Hanlon Laboratory for Financial Analytics and Data Visualization, noting the university has become one of the most desirable STEM institutions in the nation. The article, "Turnaround University: Quant School on the Hudson," which appears in the Sept. 5 issue, highlights the hot quantitative finance major on campus and also applauds some overall impressive numbers and facts: more than 90 percent of students securing employment or a spot in graduate school; record numbers of applicants and undergraduate enrollment up 28 percent over the past five years; and SAT scores up more than 50 points in the past five years. "It's part of an impressive turnaround orchestrated by Stevens' president Nariman Farvardin," the article states, noting that operating revenues are on the rise and, despite major campus construction projects now happening or planned for the near future, Stevens' bond rating has been upgraded by Standard and Poor's to A-. .



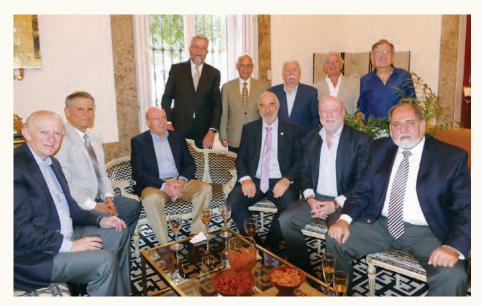


#### UPCOMING LECTURE TO FOCUS ON AI

The next speaker in the President's Distinguished Lecture Series will be Dr. Oren Etzioni, CEO of the Allen Institute for Artificial Intelligence, who will present "Is Artificial Intelligence Good or Evil?" on Oct. 4 at 4 p.m. in DeBaun Auditorium. The lecture will examine whether AI research results in threats to society or whether it will yield beneficial technology. Etzioni has been a professor at the University of Washington's computer science department since 1991 and focuses his research on solving fundamental problems in Al. Looking ahead, Dr. Tom Mitchell, Machine Learning Department, Carnegie Mellon University, will be the lecture speaker on Jan. 31, 2018. To register for the Oct. 4 lecture and for more information on the series, please visit stevens.edu/lecture. ❖

### LATIN AMERICAN CLUB TO REUNITE DURING **ALUMNI WEEKEND 2018**

The Stevens Latin American Club will hold its sixth summit in Hoboken during Alumni Weekend 2018 in June. This past June, the club held its fifth summit meeting in Madrid, with activities such as a dinner at the Colombian ambassador's residence and a visit to Santiago Bernabeu Stadium, home of the Real Madrid soccer team. For more information on the upcoming summit, please contact Carlos Linares '71 at ctlinares@gmail.com. (Editor's Note: Alberto Furmanski '72 MMS '74 currently serves as the Colombian ambassador to Spain. For more on Furmanski, see page 28.) �



### **CALDER AT THE WHITNEY**

The work of world-renowned artist Alexander Calder, Class of 1919, is enjoying a new and critically acclaimed exhibition at New York's Whitney Museum of American Art, where visitors have the rare chance to see the works as Calder intended — in motion. "Calder: Hypermobility" focuses on "the extraordinary breadth of movement and sound" of Calder's work, with regular activations to



allow movement of his mobiles, the kinetic form of sculpture that he invented in the 1930s. The exhibition includes key sculptures and covers major examples of his work, including early motor-driven abstractions, sound-generating gongs and standing and hanging mobiles. "Calder: Hypermobility" will run through Oct. 23; see whitney.org for the museum schedule and more information. .

1 Calder in his New York City storefront studio, winter 1936. © 2017 Calder Foundation, New York / Artists Rights Society (ARS), New York. Photograph by Herbert Matter, courtesy Calder Foundation, New York. 2 Alexander Calder, Aluminum Leaves, Red Post, 1941. © 2017 Calder Foundation, New York / Artists Rights Society (ARS), New York. Photograph by Brian Kelley.



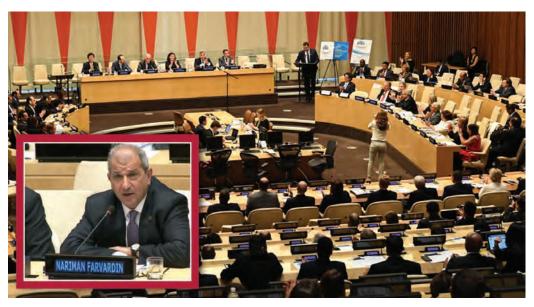
### **JAPPEN NAMED AMONG '35 UNDER 35'**

In recognition of his leadership achievements, Owen Jappen '13 M.Eng. '13 was recently honored as one of the American Institute of Chemical Engineers' (AIChE) "35 Under 35," which honors the earlycareer successes of its young professional members. Jappen, a former member of the Stevens Board of Trustees, is a senior process engineer with Evonik in Dusseldorf, Germany, and focuses on process optimization and new process development for superabsorbent polymers as well as sustainability and responsible energy consumption. He has long been an active leader within the AIChE, both in the U.S. and abroad. He will be honored at the 2017 AIChE Annual Meeting in Minneapolis this fall. \*



### **FARVARDIN SPEAKS AT UNITED NATIONS**

Stevens President Nariman Farvardin addressed business, political and academic leaders at United Nations Headquarters in New York City on May 11 as part of an international small business summit, outlining innovative means of nourishing entrepreneurial ecosystems and smaller-scale ventures — including some deployed on the Stevens campus. Portions of the event were webcast to more than 100 nations worldwide. Speaking at the International Council for Small Business' (ICSB) day-long MSME Knowledge Summit, Farvardin participated in discussions of micro-, small- and medium-sized enterprises, delivering remarks as part of an hour-long panel discussion among university leaders. Using Stevens' programming as an example of academic institutions' potential to nurture entrepreneurial qualities and ventures, Farvardin described the university's required freshman-level and doctoral entrepreneurship courses; its unique "design spine" course sequence, which blends technical design training with entrepreneurial training; the creation of a Stevens Venture Center to inspire and support new ventures by students and faculty; and required senior-year capstone design projects. �



### **GRIST** FROM THE MILL



### RECENT GRAD SECURES **FULBRIGHT AWARD**

In late August, Veronica Pidduck '17 headed to the lakeside town of Visaginas, Lithuania, for a ten-month assignment in the Baltic state as an English teaching assistant through the Fulbright U.S. Program, one of the most prestigious scholarship programs in the world. Making the trip even more special to Pidduck who received her degree in mathematics and will be working with students in after-school activities in math, science and coding — is that her mother's side of the family has deep family roots in Lithuania. "This Fulbright opportunity allows me to apply my teaching skills in a way that will allow me to travel and see a country that's important to me and my family for the very first time," she said. ❖

### **DALTON HONORED BY NJHA**

John Dalton '60 was named by the New Jersey Hospital Administration (NJHA) as Hospital Trustee of the Year and was honored by the NJHA earlier this year. Dalton, who has spent more than 45 years in the field of healthcare finance and operations, joined the board of trustees of Children's Specialized Hospital in 1986 and served a three-year term as chairman and multiple terms on its executive board. He joined the board of St. Joseph's Healthcare System in 2003, has served as its vice-chairman and currently chairs its Strategic Planning Committee. �

### **FACULTY EXCELLENCE HONORED**

Six Stevens faculty were recognized with the university's annual faculty awards, and one member was awarded an honorary master's degree, this past spring. Business professor Edward Stohr was awarded an honorary Master of Engineering degree in honor of his longtime contributions to Stevens teaching and research. Stohr proposed and served as the first director of Stevens' MBA program, and later spearheaded the successful effort to accredit the School of Business with the Association to Advance Collegiate Schools of Business. Computer science professor Samantha Kleinberg received the Provost's Early Career Award for Research Excellence, honoring her pathbreaking work in causal inference, the analysis of time series data and other big data, and biomedical informatics. Electrical and computer



Dr. Edward Stohr

engineering professor Yingving Chen received the Henry Morton Distinguished Teaching Professor award, the university's highest award for teaching. Professor Hongjun Wang, of the Department of Biomedical Engineering, Chemistry and Biological Sciences, received the Provost's Award for Academic Entrepreneurship & Enterprise Development. Business professor Keyin Rvan Ph.D. '96 received the Alexander Crombie Humphreys Distinguished Teaching Associate Award: he served more than two decades as a researcher for AT&T Bell Laboratories. Mathematical sciences professor Jan Cannizzo '07 M.S. '07 was named the Harvey N. Davis Distinguished Teaching Assistant Professor. And business professor Michael Parfett received the Provost's Award for Excellence in Online Teaching. �

#### TEAM LAUNCHES EXPERIMENTS AS PART OF NASA PROGRAM

A Stevens student team recently launched two experiments 75 miles into space as part of NASA's Rock-Sat-C (Software Assurance Technology Center) program, which mentors ten to 12 collegiate teams from all over the country through a full engineering space flight design process life cycle. Advised by Stevens professors Joseph Miles and Nicholas Parziale, the team of students - Sam Yakovlev, Jesse Stevenson, Stephen Kontrimas, Doug Sholander '17, Joshua Gross, Arun Aruljothi '17, Aidan Aquino, Chris



Blackwood and Robert Fea '17 — spent a year analyzing, designing, building, testing, redesigning, rebuilding and retesting a sounding rocket pyramid. "Year after year, students agree that the value they get from the Rock-Sat-C program is being able to work with an agency like NASA," said Miles. ❖



For the entire story, visit stevens.edu/space\_program

#### **NEW ONLINE MASTER'S PROGRAMS OFFER ALUMNI DISCOUNT**

Stevens has expanded its online offerings and now offers complete master's programs through its new StevensOnline initiative. And for alumni who enroll part-time in these new programs, there's an added incentive — a 10 percent discount. Beginning this fall, StevensOnline students are able to enroll in an online-only master's program in many of the university's top technology-focused fields, including computer science, enterprise project management, financial engineering, systems engineering and software engineering. StevensOnline students follow the same curricula as their on-campus counterparts and will study with the same Stevens faculty members. Tens of thousands of Stevens students have already taken at least one online class through the university's WebCampus platform, which underpins StevensOnline. WebCampus has been honored seven times by the U.S. Distance Learning Association for its innovative and effective online learning platform. ❖



about the alumni discount, please visit stevens.edu/online-alumni-discount.

### STEVENS GRADS ARE TOP NJ EARNERS

Among New Jersey's colleges and universities, Stevens graduates earn the highest average salary ten years after enrollment, according to a report published this summer by nj.com. The median annual earnings of a Stevens graduate ten years after enrollment is \$83,700, higher than graduates of Princeton University (\$77,900), New Jersey Institute of Technology (\$64,500), Rutgers University (\$54,500) and the rest of the state's colleges and universities. The data cited in the Aug. 11 story came from the College Scorecard, a website created by the federal government that uses statistics gathered by the U.S. Department of Education. The national average salary for college graduates 10 years after enrollment is \$33,500, according to the report. The salary numbers were compiled from the tax returns of former students, including both graduates and students who drop out, who received federal financial aid while in college, according to nj.com. The paper noted that the data do have limitations, according to federal officials. �

### TICKETS FOR ONSTAGE AT STEVENS **2017-2018 SEASON ON SALE**

OnStage at Stevens, Stevens' performing arts and cultural series, has released its 2017-2018 schedule and tickets are now on sale. First up is "An Evening of Aria and Song" on Oct. 27 at 8 p.m. in DeBaun Auditorium. The show will include

selections from Puccini operas and more sung by friends of the New Jersey Symphony Orchestra. \*





For the full schedule, including information about the special holiday concert on Dec. 12, and to purchase tickets, please visit stevens.edu/onstage





### **ROOKIE TEAM MAKES WAVES AT SOLAR BOAT COMPETITION**

In June, a team of Stevens students competed in the university's firstever entry in the intercollegiate Solar Splash competition in Dayton, Ohio, and took home a number of awards, including first place for Outstanding Hull Design and first place for Outstanding Drive Train Design. The team — Spenser Swanton, Austin Swain, Mason Reimer, Brad Applegate, Leo Wortman, Jesse Squier and Christina DiGiacomo — received almost \$50,000 worth of equipment, materials, fabrication, expertise and time from nearly a dozen sponsors, including Viking Yacht Company, which helped in manufacturing the custom hull design. Along with the two first-place finishes, the team was also awarded third place for both Solar Slalom and Outstanding Technical Report, and fourth place overall. ❖



For the full story, visit stevens.edu/solar\_boat

### ATHLETICS ALUMNI DAY CELEBRATES ATHLETES, PAST AND PRESENT

Athletics Alumni Day will be held on Saturday, Sept. 30, and Sunday, Oct. 1, and will feature three student games, four alumni games and the Stevens Athletics Hall of Fame induction ceremony. On Saturday, women's soccer will face Elmira, men's soccer will take on Houghton and field hockey will face Utica. Women's lacrosse and swimming will also hold their alumni competitions that day, with Saturday evening presenting the Athletics Hall of Fame ceremony at 7:30 p.m. in DeBaun Auditorium. This year's honorees include Kara Borzillo '10 M.Eng. '12, Mark Cardillo '64, Salme Cook '09 M.Eng. '12, J.R. Maehler '09 M.S. '11 and Christine Smith '11 M.Eng. '12. On Sunday, men's lacrosse and baseball will hold their alumni games. ❖

For times and more information and to register, visit stevens.edu/athleticsalumniday or email alumni@stevens.edu



## **DOING IT** DIFFERENTLY

### ALUMNI ENTREPRENEURS MAKE THEIR MARK

General Motors. Texas Instruments. BJ's Wholesale Club. Sealed Air Corporation (which gave the world Bubble Wrap). All companies launched by Stevens alumni entrepreneurs armed with a fresh idea, the talent and drive to put it out in the world, the "iron stomach" to risk, the resilience to survive and thrive.

Some call it "startup DNA," and a new generation of Stevens entrepreneurs has it. They are serving customers and meeting needs, discovering new needs, driving the economy and, in some cases, changing the world, from defending companies against cyberattacks to bringing fairness to Wall Street.

The six entrepreneurs featured in our cover story were all taught at Castle Point to think creatively, solve problems and look beyond the classroom to real-world needs. And this Stevens focus on "entrepreneurial thinking" has only accelerated over the past several years.

Since 2013, all freshmen engineering students have been required to take a course in entrepreneurial thinking that has them launching and running sample companies — and looking into the community to identify and address its unmet needs. The eight-semester "design spine" for engineering students includes more entrepreneurial courses and continues to educate students in entrepreneurial thinking and innovation, culminating in both the senior design project and the annual Innovation Expo's pitch competition, which include students from all of Stevens' four schools.

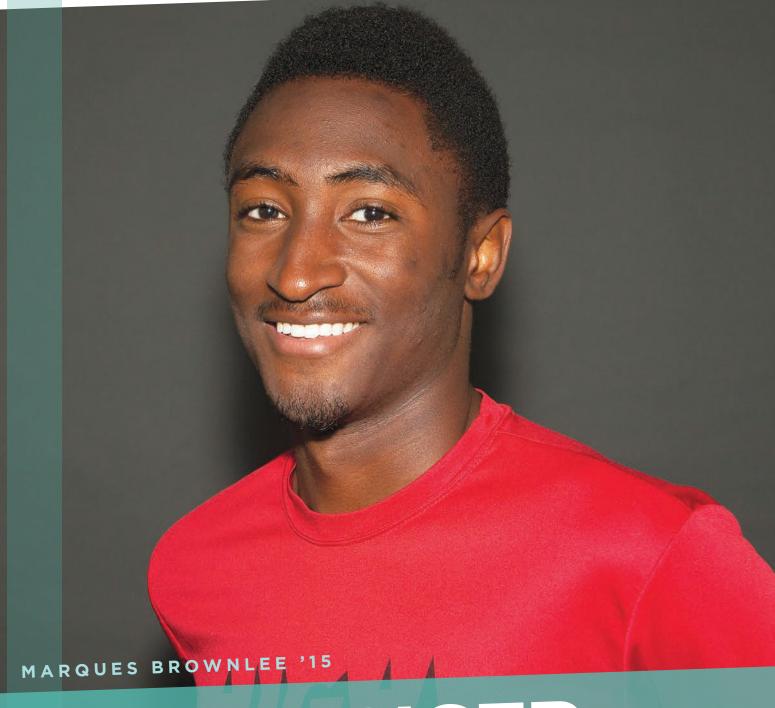
Fostering entrepreneurial thinking greatly benefits all students, says Kishore Pochiraju, associate dean for Undergraduate Studies and founding director of the IDEaS program (Program for Innovation, Design and Entrepreneurship at Stevens). This includes the majority of students who won't go on to launch companies but who will enter the workforce armed with the ability to think creatively, imagine new and valuable ideas and get buy-in for their ideas. The specific learning goal of entrepreneurial thinking and the number of courses focused on this make Stevens unique among universities, he says.

So one student team this year set out to

design a better, more affordable hearing aid; another, an award-winning brain scanner that could replace the common practice of surgeons actually reaching in and touching the human brain with their finger to detect swelling and other sudden changes during open-brain surgery. (See page 22.)

These entrepreneurial students carry their skills with them after graduation, when they join an alumni community that so often credits Stevens for helping them to become formidable problem-solvers, whether they are starting businesses or improving the company for which they work.

Whether they have reached beyond this world by launching private satellites into space, or have stayed earthbound by introducing discount, wholesale prices on food to the masses, Stevens alumni entrepreneurs are a force in the marketplace. Meet a diverse group of entrepreneurs — from promising beginners to seasoned experts — who are leading game-changing companies in their industries, making life better and more interesting, and continuing the Stevens entrepreneurial tradition. ❖ — Beth Kissinger



# HINFLUENCER

4.9 million YouTube subscribers.

684 million views.

1.46 million Twitter followers.\*

An internet sensation, absolutely; an overnight one, not quite.

Marques Brownlee '15, or MKBHD — a moniker made up of his initials and HD, standing for high definition — as he is known to his millions of followers, put in quite a few years and several hundred videos before he became one of the most recognized and trusted voices in the tech review world. Now, at the ripe old age of 23, he's certainly arrived, gaining thousands more YouTube subscribers each day and earning the respect of some major players in a variety of fields: His video submission for Tesla's Project Loveday fan commercial contest won first place, an honor that was personally approved by Tesla CEO Elon Musk; former Google VP and current CEO of AliveCor Vic Gundotra referred to him as "the best technology reviewer on the planet right now" (this was back in 2013 when Brownlee had a paltry 460,000 followers); President Obama took a question from him during a Fireside Hangout on Google+; and he's been a guest on astrophysicist Neil deGrasse Tyson's StarTalk Radio podcast and radio show.

But it's Brownlee himself who's the real draw. His followers have come to know and trust him, and his personable nature shines through in each of his videos as he offers honest assessments of tech products that everyday people use (and the occasional tech product that everyday people dream of using). Below, Brownlee shares some thoughts on his business and the tech world in general.

You started uploading videos to YouTube back when you were in high school. What inspired you at such a young age?

A: At that starting point, I was inspired by other videos I'd watched that led me to the decision to purchase my first laptop. Once I got it, I wanted to make more videos about it so that if another person was trying to choose which laptop to buy, they'd have more information to look through. It was all about giving valuable information for that all-important purchase decision.

You've been at this since 2009 and have posted more than 900 videos. How do you keep things fresh?

A: Lucky for me, the tech companies are the ones that keep it fresh and interesting all the time. My biggest challenge is getting my hands on [the technology] and showcasing it in a way that lets the viewer appreciate it in all its glory.

How do you decide what to review?

A: Most of the "reviews" come from products I use and tech I like. Can't review something without using it, and can't use new stuff without trying new things!

You use the term 'dope tech' pretty often. Can you define 'dope tech' for me?

A: Dope Tech is the bleeding edge of what's practical and useful in the tech world. Stuff that pushes the limits of what's even possible. In 2017, it's 8K cameras, supercars, pocket-sized drones, crazy wallpaper-thin TVs, etc.

What are the latest trends in technology? What are you excited to see more of?

A: One of the more noticeable trends in consumer tech has been dual cameras in smartphones. It could be a micro-trend that ends in two years, but most major smartphones are joining the dual-camera club to produce better portrait photos, better depth perception and other sweet photo and video effects.

What are your thoughts on artificial intelligence? There's a lot of Al research happening on Stevens' campus, and I'm curious to know what you think about it.

A: I think AI is awesome — especially when it becomes useful to the everyday person. Stuff like Google Assistant and Siri and Alexa and Cortana are super interesting to me because it has literally become a challenge of who can provide the most useful information in the most useful way to the customer. There have been so many conversations about how much companies know about their users from data collection, but seeing it actually given back to us in a useful way is under-appreciated.

What is the best part about your job?

A: The best part of my job is playing with new tech every day. It doesn't get old. I feel like a kid in a candy shop sometimes.

What's on the horizon for MKBHD? Where do you see your business/brand going?

A: The immediate future of MKBHD is covering more tech — a wider variety of things. More car tech, home tech, artificial intelligence, computers, accessories, etc. Anything with an on button is game.

You've mentioned that sometimes when you critique a product, manufacturers will follow up with you to get your insight on how to improve their products. How does it feel knowing that you have such influence?

A: Yeah, it's a good feeling knowing manufacturers actually care enough about the quality of their products to make follow-up improvements so they can keep buyers happy. Whether that's in the form of software updates to smartphones or new design decisions in future generations of products, that type of influence comes with a sense of responsibility that I don't take lightly.

**Q** Do you have any advice for those out there thinking about starting their own business?

A: For those starting their own business: Persistence is key. I was doing this as a hobby for six-plus years with zero financial incentive before graduating and making it my full-time job. This obviously means you also have to pick something you love to do. Best of luck! .

Rebecca Markley

# **ECONSCIENCE**

If you ask IEX employees how they came to work for a group of scrappy entrepreneurs set on reshaping Wall Street, they'll tell you it was scary to leave behind jobs at the dominant financial houses — but that the idea of staying was just as unpleasant, as they saw firsthand the design of new systems that could unfairly exploit average investors.

In other words, they started seeing the world the way John Schwall '95 M.S. '98 sees it.

In a story about bringing justice and fairness to Wall Street, Schwall is the kind of guy you'd expect to play the role of protagonist; in fact, he plays a key role in the Michael Lewis book Flash Boys. The men of Schwall's family have a long history as firefighters — Schwall enrolled at Stevens at the advice of an uncle, also a New York City fireman — and while he doesn't rescue people from burning buildings, his work at IEX has him protecting the pensions and retirement plans of people around the country.

Flash Boys explores the rise of IEX from a small group of highly talented managers who saw how certain trading venues and high-frequency trading — or HFT — market participants were exploiting loopholes in regulation and market design to create and profit from unfair advantages, largely because regulators failed to anticipate how transformative technology's impact would be on investors.

Some people who hear this story may assume IEX and Schwall, a co-founder and its chief operating officer, are Luddites intent on eliminating HFT, which couldn't be further from the truth. IEX is a technology company first, with more than half its employees working in STEM fields.

"The problem isn't high-frequency trading, it's exchanges who knowingly fragment the market, create structural inefficiencies with their technology, then sell expensive low-latency technology for market participants to take advantage of those structural inefficiencies," Schwall said. "Technology will continue to evolve, and people will continue to leverage technology to establish an advantage. And that's great, that's capitalism. But it's also capitalism to try to come up with a solution to solve the problem of certain people taking advantage of regulatory and technology loopholes to profit when trading against traditional investors."

Flash Boys offers an excellent primer on the problem. The short version: A regulatory loophole allowed certain market participants to use technology to anticipate orders and make money by executing trades microseconds ahead of other investors, like

IEX's solution is its "speed bump" — a coil of fiber-optic cable that slows access to its market by 350 microseconds. That coil

protects orders on IEX from being exploited by traders who have purchased faster access to information from rival exchanges, and prevents traders on IEX from reacting and racing ahead of orders being routed to other exchanges.

"It all comes down to something very simple," Schwall said. "We wanted to build an exchange that was faster than its fastest participants."

#### **INNOVATION DRIVEN BY FAIRNESS**

Other exchanges — many of which sought to block IEX's exchange application, arguing the speed bump was itself an unfair advantage - are now seeking approval for variations of the speed bump on their own subsidiaries. And while imitation is the sincerest form of flattery, at IEX, innovation isn't just slowing down; to Schwall, the company's greatest innovation is fairness. Unlike other exchanges, IEX doesn't pay rebates, doesn't sell faster access and doesn't sell market data - points the company's founders emphasized in their quest for startup capital.

"We were trying to build a company that would last more than a generation — and HFT may not even be an acronym three years from now," Schwall said. "But there will always be this level of unnecessary intermediation because rules will change, market structure will change, technology will change — and new market participants will emerge to exploit another structural inefficiency. And so we're going to continue to evolve and continue to innovate to protect investors from unnecessary intermediation."

This new breed of high-tech intermediation that gave IEX its start was created through a rule called Regulation NMS, but it's just a modern version of an old problem. In Flash Boys, Lewis details how Schwall skipped a few days at work to research the history of market corruption and front-running dating to the 1800s.

Recalling the episode in IEX's World Trade Center offices, Schwall said his trip down that rabbit hole was more than just an obsession.

"I wanted to prove to myself that this problem existed throughout history, as long as there have been capital markets," he said. "It convinced me that we had to find a way to bring brokers and investors directly together on a common platform without providing select participants with informational or speed advantages."

#### A UNIQUELY STEVENS SKILL SET

Schwall's experience includes roles at Pershing, Bank of America and Royal Bank of Canada, where he worked across teams in finance, operations, compliance and technology management; he credits Stevens with "giving me such a broad education with core analytical problem-solving types of skills." As a student, he was a high performer who was president of Sigma Phi Epsilon fraternity and also the Gear & Triangle and Khoda honor societies; today, he has two Stevens alumni on the payroll, and given the unique skills taught at the School of Business, he expects to add more.

"There is a core set of skills that we're looking for — someone that has an understanding of finance, of technology, and who has worked with large data sets," he said. "The students with backgrounds in quantitative finance understand this perfectly, because so much of what you do in markets today has to do with finance, technology and big data sets. Stevens almost always comes up as a school that we're going to try to target for potential talent."

Schwall gets his thirst for fairness from his mother, who he said taught him the importance of doing the right thing, whether popular or not.

"Early in my career, there was an uncomfortable business decision we had to make, and I can remember my manager saying to me, 'You should have confidence, because what you're doing is the right thing for the organization.' And so one of the things I've said to the IEX team is that what we have to do is what's right for the company — and to do that, at IEX, we have to do what's right for the investor."

That attitude has become woven into the culture at IEX, which was born from the ashes of the financial crisis. Schwall's ultimate goal is to become the most trusted brand in finance; in speaking to the team, he emphasizes how important trust is in avoiding legal gray areas in the industry.

"There is this element of social justice and reform that people are looking for, and in many ways, Wall Street is going to be a part of that, because people are crying out against the corruption and the injustices we see on a daily basis," Schwall said. "After 20 years in this industry, and seeing certain things get taken advantage of, it's a pleasure to come to work and try to close those loopholes through a technology-driven free-market solution." \* — Joe Arney





## #GUARDIAN

It was during her sophomore year at Stevens when SPHERE Technology Solutions founder and CEO Rita Gurevich '06 made a life-changing decision: to seek a cooperative-education internship — the first of three — at the famed Lehman Brothers investment bank in New York City.

"You're generally meant to do various internships and co-ops as you go through school, to get a variety of experiences," she recalls. "But I had created such strong relationships at Lehman that I asked Stevens to continue placing me there if possible. And Stevens did that, which I appreciated tremendously, because it ended up completely shaping my career."

Hired immediately after graduation, Gurevich swiftly rose to a role as associate vice president in Lehman's IT department, where she worked in a technical role supporting internal communications and data-sharing among brokers and other Lehman employees. For a Russian immigrant who had double-majored in math and computer science when few of her fellow female high school classmates were pursuing tech studies, it seemed a huge step toward a career in the financial services industry.

Except it didn't work out the way she expected. And, in the end, that turned out to be a blessing in disguise.

Less than two years later, the company would be out of business, filing for the largest bankruptcy in U.S. history, a victim of a global financial collapse that cratered the market and shuttered a long list of financial titans in its wake.

But during those last months of the fire sale of Lehman business units, helping the hundred-year-old company untangle huge, complicated data sets and delivery to a multitude of buyers, Gurevich learned something that would eventually transform her into one of the state's leading women entrepreneurs.

"It was a terrible time for so many who had invested their lives' savings in these banks that they worked for," she remembers. "I feel so deeply for what they went through. And as we all worked through it, around the clock in these incredible, close-knit teams, it also became an opportunity to learn the importance of data governance and security — and the power of skilled teams and networks — in a very direct way."

#### **BUILDING CYBERSECURITY FROM THE INSIDE OUT**

Once the dust had settled on Wall Street, Gurevich launched her new venture simply: Working out of her own kitchen, she began reaching out to friends and former colleagues who had moved on to other financial institutions, offering to consult in data security.

"It was just me," she recalls. "When the first clients bought the service 'we' were providing, I came on site to do the project, and they said, 'Wait a minute, aren't you the sales person we spoke to before?' I had to tell them, yes, I was — and that I was also the company lawyer, the accountant and the receptionist."

Gurevich concedes her youth likely gave some of her early clients and sales prospects pause.

"They were listening to this relatively young person, talking and presenting about cutting-edge technologies where you'd better know what you are talking about. It was a little bit intimidating for me," she says. "But I kept at it, secured my first major client, and things began to take off. Soon, my age became just another number."

Today, in a Jersey City high-rise office packed with scooters, hula hoops and plenty of hardware and software, Gurevich runs SPHERE — managing 50 employees, offices straddling two continents, and a 250 percent growth rate over the past five years.

The firm provides governance, security and compliance solutions for a growing collection of clients, including a number of Fortune 500 companies, and has been named one of the fastest-growing female-owned businesses in the nation by both *Inc.* and Deloitte.

"Everyone talks about cybersecurity and data breaches these days, but we were dealing with these before it was cool," chuckles

Gurevich. "The advantage to being a little more mature, a little more experienced is that we have a number of customers now — and we're always *learning* from our customers. They're sharing with us what they're experiencing. We get to leverage the real world for R&D. We're not so much thinking about 'What threat may be next?' as we are seeing it happening right in front of our eyes, and adapting to it."

The company, says Gurevich, is different from other cybersecurity firms because it is founded on the unorthodox yet key principle of defending institutions from *within* rather than simply building new walls to keep attackers outside the reach of sensitive data and critical assets.

"We've all learned by now that there's no way to keep every intruder out," she explains. "No matter what, people will get in, by accident or because of a vulnerability you didn't or couldn't address. Or you may have a few bad seeds within your own walls, or a few naïve employees who can be successfully attacked through social engineering — and that's all it takes to be breached. We see these stories all the time."

SPHERE's teams audit its clients' data and systems completely, providing a scorecard, road maps, remediation exercises and products to monitor ongoing concerns — including a new analytics and reporting framework that helps self-diagnose data security issues and provides metrics to address them.

Business is booming, including at a new London office SPHERE opened in the heart of that city's Old City financial district in early 2017.

"Unfortunately, it's far easier to hack into a network and steal data or credit card numbers than to rob a bank," Gurevich says. "And you're far less likely to be caught. So you're seeing this kind of activity and these threats on the rise everywhere. Our clients have more challenges than ever to tackle, and we are there for them 24/7."

### **BUSINESS SKILLS SHARPENED AT STEVENS**

As she looks forward to her company's next big innovations, new clients and an imminent move to a new headquarters space, Gurevich credits her Stevens education with preparing her to successfully launch a startup and then scale it up to a thriving enterprise. The university, she says, provided both key connections and skills that would very shortly turn out to be invaluable in the world of work.

"Stevens not only got me into the financial industry at a young age, which is how I began my career, but it taught me to be comfortable with the uncomfortable," she explains. "In the real world, on day one in your first job, you will use almost nothing of what you actually learned in class. Every situation, every challenge will be new, particularly in my line of work. Things are always changing and adapting, and we have to grow and adapt with them. I was prepared to do that, because at Stevens we were thrown into real projects, such as programming courses in our freshman year, right away.

"It wasn't always comfortable, but we learned to adapt and quickly *become* comfortable with challenges. That's the value of a Stevens education." • — Paul Karr

## **ENEW KID**

Never one to follow a predictable path, signs pointing to Daniel Van Schaik's '12 entrepreneurial journey were noticeable during his time at Stevens. "Nobody I knew was a business owner, but I always had the desire to go my own way. Even for my senior design project, I chose to make my own, not pick from a list," he says. "I took a job as a mechanical engineer at Becton Dickinson and moved to Maryland right away, but six months in, I got the itch and thought, 'Now what?'"

That "itch" led the Franklin Lakes, New Jersey, native to start exploring his own ideas — "some tangible, some engineering or software based" — and learning how to program through online courses and small web design projects. A promotion at Becton Dickinson was Van Schaik's catalyst to finally forge his own path.

"I was moved to R&D, which oddly didn't appeal to my creative side but I liked the freedom of programming, and I thought to myself that there's never going to be a good time to leave my job," he says. "I wasn't married, I didn't have kids, so I figured it was probably the best time. I gave a month's notice and took a leap of faith."

Started on May 1, 2014, only two years after his graduation from Stevens, Van Schaik's company, FiveOne Development, is a web design, development and software firm. The company landed a contract to develop an app — Beyond Main, which connects local businesses to local shoppers — and brought on fellow Stevens alumnus Danny Sanchez '12. To date, though, FiveOne's most potentially successful venture may be GoSpotter, a service where Van Schaik and his team broadcast interactive profiles for companies.

"We had a client tell us that he wanted to advertise and we offered to put standard ads on his website, but he asked for more than a banner. There wasn't really anything more, so we thought, 'Can we offer a service to clients to have powerful ad

placements that they choose on their sites?" he says. It was then that GoSpotter started. "We wanted to make our ads extremely useful — think ads on steroids — and take what consumers hate about a banner ad and get rid of it so that it doesn't look like an ad, but instead looks like part of the content."

The service proved valuable not only for businesses, but also for nonprofit groups to add value to their sponsors and members. It was such a success that Van Schaik, in another spontaneous move, decided to apply to the prestigious incubator Connect in San Diego. After multiple rounds of pitching the business to selection panels, GoSpotter was accepted and Van Schaik and company headed to the West Coast this past spring.

"One of the reasons I applied is because of the weather," he says, not joking. "It's 70 degrees, plus or minus 10, all year round. There's a bit of season change, great proximity to the ocean and the city is not too large to get lost in, but large enough to have extreme opportunities."

With a strong foundation and upward trajectory, Van Schaik's role has shifted to steering the company as well as building it. He's working to establish relationships with "people of influence" and focusing on client/customer relations, as well as sales and ensuring that deals close.

"As an engineer, I'm very detail-oriented, but I have to have a 10,000-foot view of what could come up and what can be done to prevent us from becoming obsolete. It's important we have a plan to stick to without being prideful in our decisions if a better route is available," he says.

And while the technicalities of his Stevens mechanical engineering degree don't necessarily apply to his current position, other aspects of his education have come into play. He says having his degree to fall back on was extremely liberating and that several

He says having his degree to fall back on was extremely liberating and that several small lessons compounded to help him develop during his time at Castle Point. The co-op program, particularly, was "a growth accelerator for me," he says.

> small lessons compounded to help him develop during his time at Castle Point. The co-op program, particularly, was "a growth accelerator for me," he says.

> While his own company continues to progress, Van Schaik is aware that being your own boss isn't for everyone. It requires a lot of self-discipline and self-motivation, and you have to be willing to endure long hours and sleepless nights, he says. But if you really want it, or if you're in a position where you want to switch careers altogether, you can take the risk and be successful.

> "I want to give some light that if someone is feeling that way, they're not the only one; successful people have changed disciplines," he says. "There was always a lot of doubt, but through past experience I've learned that with persistence, I'd always eventually succeed." 
>
> — Rebecca Markley





# #STORYTELLER

Reptile visitors to the reception. People literally dancing down the aisles — and dancing in the streets. Whispered vows full of joy and hope. Some unfortunate moves on the dance floor.

All of these wedding day moments — and thousands and thousands more — have been captured on professionally edited videos created from a wide range of candid videos and photos shot by scores of wedding guests, thanks to an entrepreneur who launched her company partly out of regret; Ariane (Kaufman) Fisher '95 never had her own wedding captured on video 16 years ago.

But today, she and her company, Storymix Media, deliver professionally edited wedding videos to couples, as well as business videos to a growing list of corporate clients like the Chicago Blackhawks and the Anaheim Ducks. But their big differentiator and biggest seller — crowdsourced videos and photos gathered from hundreds of wedding guests that the Storymix team transforms into high-quality wedding videos set to music and a story. Since launching the Chicago-based company with her husband, Mike, in 2011, Fisher and

with her husband, Mike, in 2011, Fisher and the Storymix Media team have produced some 5,000 wedding videos, 2,000 alone in 2016.

"From an emotional side, I really love to help people tell a story, through video," Fisher says. "It's beautiful."

The company — Fisher is chief operating officer and her husband is CEO — also provides the deep reward of bringing jobs and opportunity to its West Loop Chicago neighborhood and beyond.

"We wanted to build something together, something that provides jobs for peo-

ple," she says. "We wanted to be an active part of the community. And we always envisioned that we would build a tangible item." Today, the company employs 15 people — among them video editors, tech people and sales staff — and three interns.

#### NOT YOUR EVERYDAY WEDDING VIDEO

Storymix's main product is its WeddingMix packages for couples. Couples can first obtain a free, specially designed app that friends and family and the couple can use to capture an entire love story, from the proposal to the wedding day to the honeymoon. Storymix then provides rental GoPro cameras and HD cams to help even more guests capture video and still photographs on the big day. Hours and hours of video and thousands of images are then gathered by the Storymix editors, and the artistry begins. Couples can select their video style — from "offbeat" to "traditional" — and then music is blended in. Online storyboards are also available to couples who want to create more of a narrative video.

Fisher spends much of her COO time on marketing, managing social media, sales and help desk support. She's also the lead on higher-end motion graphics. Her husband concentrates on business trends and development.

Their formula is working, as Storymix Media was named the top videography company in the country in 2016 by Weddingwire, and also won the publication's "Couple's Choice" award for five years in a row, including in 2016. Fisher was named a Top 10 Entrepreneur of the Year by Entrepreneur Magazine in 2014.

And the couple is doing all of this while raising seven children, ages 1 to 16.

The secret to running this business with her husband with seven children for them to care for?

"No sleep," she says.

They also do a swing shift, with Fisher homeschooling four of their seven children in the morning and early afternoon at home on the west side of Chicago, and being downtown in the office by 2:30 p.m., with her husband taking over with the kids.

The idea for the company came when Fisher began making home videos for family members. She and Mike — whom she met when they both worked as engineers at Ford — briefly ran a business that edited home movies, but they soon realized that they needed a more specific and defined market.

They had brides writing them checks before they even had a product and were soon accepted into the Capital Factory incu-

"From the analytics on our sales to email marketing, to reverse engineering XML code, I'm constantly forced to learn new things, and that's wonderful," she says. "As an entrepreneur, no matter your specialty, you are forced to learn marketing or you will fail. I was constantly challenged to push myself and look at things analytically at Stevens. If I didn't understand something, I needed to find the right people, ask the right questions and figure it out."

bator in Austin, Texas. Mike was in Austin and Fisher commuted from Detroit, where the kids stayed with Mike's family. The incubator's mentors, many of them established CEOs, offered a valuable, tough love education.

"It was kind of like Stevens," she says. "They didn't sugar coat anything. It was really hard, but they prepared us."

The couple was determined. Fisher joined a second business "accelerator" in Chicago and learned to edit video through special classes offered by her local Apple store.

She uses much of what she learned at Stevens — approaching challenges as an engineering problem, using the scientific method, pure perseverance — in her role as an entrepreneur today.

"From the analytics on our sales to email marketing, to reverse engineering XML code, I'm constantly forced to learn new things, and that's wonderful," she says. "As an entrepreneur, no matter your specialty, you are forced to learn marketing or you will fail. I was constantly challenged to push myself and look at things analytically at Stevens. If I didn't understand something, I needed to find the right people, ask the right questions and figure it out."

As Storymix looks toward the future, its COO and her team are working to develop more cloud-based products. One new platform, VideoStitch, allows people to crowdsource photos and video and turn them into an edited video in the cloud. She excitedly describes a "soft launch" of another new product that allows couples to submit their wedding budget and see what weddings in their budget, in various parts of the country, look like, viewing actual wedding videos shared with permission by former clients.

Ask her how she does it all, and Fisher looks back at Stevens. 
"My semester with the highest GPA was when I was taking 23 credits," she says. "I got a 3.7. The more that I cram into my day, the more I accomplish." 

→ Beth Kissinger

# **ESEASONED PRO**

Work at what you love. Frank M. Fawzi '84 MMS '87 has always lived by this simple creed. "I love what I do. I'm driven by the desire to build, grow and create," says the CEO of IntelePeer, a leading provider of cloud-based business communications services based in San Mateo, California, with offices in Denver and South Florida.

This ceaseless drive to exceed his own expectations and past achievements has propelled Fawzi to start and grow wildly successful enterprises. From 1990 to 2001, he founded, built and later sold CommTech Corporation, an early leader in the communications software sector, for \$178 million.

His track record for attracting and retaining exceptional talent, as well as his proven ability to raise the necessary venture funding, earned him a reputation as a strategic thinker and visionary in the entrepreneurial world. So it was no wonder that he was asked to lead IntelePeer, a venture capital-backed company he joined in 2006 as a board member.

Since Fawzi assumed the role of CEO in 2007, IntelePeer has enjoyed tremendous growth and received numerous awards for its products and services, including being named to the prestigious Inc. 5000 list as one of the fastest-growing U.S. companies and to the "Deloitte Technology Fast 500" list.

"We just rolled out services in Canada and have an aggressive plan to do the same in 12 other countries," he said.

#### **BUILDING A KNOWLEDGE BASE**

Although home is technically Boca Raton, Florida, Fawzi averages 40 weeks a year traveling between IntelePeer's three offices and meeting weekly with partners and customers across the U.S.

Yet, despite his intensely busy schedule, Fawzi always makes time for his alma mater, generously contributing valuable advice and perspective to the university as a member of the President's Leadership Council, and speaking to the Stevens community on topics related to entrepreneurship and innovation. In 2015, Stevens honored him with the Charles V. Schaefer, Jr. Entrepreneur Award. He says his dedication to Stevens stems, in part, from a responsibility to pay back for what he feels was an essential component of his extraordinary success.

"What differentiates Stevens from a lot of other competitor schools is the well-rounded education you receive due to the breadth of courses available. For example, I specialized in electrical engineering and computer science but was able to expand my knowledge to other areas, such as business. This has served me well in my career since engineering is the core of almost everything you do in business, whether it is creating a software product or other widget."

After those formative years at Stevens, Fawzi started his career at Merrick Corporation as a software developer. He later joined

AT&T Bell Laboratories, where he served as the lead data communications architect on a team responsible for the company being awarded a \$1.4 billion contract from the Internal Revenue Service. The ethos of that legendary research and development institution made a lasting impression on him, he recalls.

"What I value most about my time at AT&T was the opportunity to work with a lot of really smart people who had the discipline and knowledge of how to do things the right way in business. Bringing that perspective to the startup mentality, which sometimes can make you feel pressured to take shortcuts, was instrumental in helping me scale the business and build a large successful company with a culture that centered around delivering quality services and products to our customers."

### PLAYING THE LONG GAME

Growing up with an entrepreneur father with business ventures in different parts of the world, Fawzi says he always intended to start a business of his own.

"I learned by his example that if you plan well and have the persistence and tenacity to get something done, you will be rewarded."

It's an example that Fawzi, a father of two, set for his own children. His older daughter Laura co-founded an online retail store selling women's apparel and jewelry with her college roommate while a student at the McDonough School of Business at Georgetown University. She graduated this past spring.

His younger daughter Leah seems on track to follow a similar path. She started college this fall, also at Georgetown University.

Fawzi is quick to note that entrepreneurial success is determined not by DNA, but by the wisdom that comes only from experience.

"I believe that most things related to starting and growing a business are learnable but need to be learned over a long period of time. The amount of experience you bring to any business venture is very critical for success."

He is often asked what he would do if he were to sell Intele-Peer tomorrow. His response: do what he has always done start and build another company.

"In my mind, so long as you're seeking new challenges, setting new goals and having fun with it, you're constantly climbing upward from where you are. There is no such thing as reaching the pinnacle of your career." ❖ - Young Soo Yang





### SAFER SCANNER FOR BRAIN SURGEONS

ULTRASONIC SENSORS POWER CEREBROSENSE'S MEASUREMENTS — WITHOUT EVER TOUCHING THE BRAIN

uring more than 160,000 open-brain surgeries in the U.S. each year, surgeons and anesthesiologists must monitor the brain's pulsatility, or changes in radius, for swelling, trauma, decreased blood flow and other sudden changes that might necessitate immediate medication, hyperventilation or other measures.

Doctors monitor these changes using a surprisingly low-tech method: by placing a finger directly on the brain and using their experience to guess how much, if any, the

brain is changing in size moment to moment.

In collaboration with Dr. Glen Atlas '82, an anesthesiologist and adjunct clinical professor at Stevens, three Stevens seniors set out to find a better way to measure and report brain changes in real time - without actually touching it.

The trio, David Ferrara '17, Andrew Falcone '17 and Maria De Abreu Pineda '17, was awarded first prize in Stevens' annual Innovation Expo Elevator Pitch Competition this spring, as well as the top prize at an undergraduate-poster competition

at Johnson & Johnson's 2017 Engineering Showcase for their senior design project.

"This project has the potential to significantly improve outcomes in craniotomy surgeries," explains biomedical engineering professor and program director Vikki Hazelwood Ph.D. '07, who advises the team. "These students have embraced the opportunity that this project offers to extend far beyond the classroom. It's a great example of our academic ideal, where students impact society while they are learning."

(Left) Maria De Abreu Pineda '17 rejoices, with team members David Ferrara '17, left, and Andrew Falcone '17, as they are announced winners of Stevens' Innovation Expo Elevator Pitch Competition this spring.

### Sound-wave echoes provide a safe, detailed picture

Brain surgeons' traditional technique of measuring the brain's pulsation during surgery by touching the brain directly with a finger or probe and guessing at the size of the pulses carries a small risk of stroke, ischemia or other complications after surgery.

The Stevens team's scanner addresses those concerns head-on.

It can be quickly brought into an operating room and safely pointed at exposed brain tissue from a distance of two to 20 inches, sending sound waves toward the surface of the brain. Powered by a small Raspberry Pi computer, the device reads the echoes of those waves, giving instant readouts.

"One of our big selling points is that this device can be rolled into an operating room, take a reading in 30 to 60 seconds, and be rolled out again," notes Ferrara.

The team initially tested the device on an air-filled balloon within a plastic housing, slowly filling the balloon with additional air to simulate changes in the brain. The CerebroSense device accurately detected and measured volumes that dilated the shape of the balloon as little as 1 millimeter, proving the concept in principle.

More recently, using a more sophisticated, higher-resolution sensor, detection accuracy of the system increased to less than 0.3 millimeters — a range that approaches the target resolution needed to actually deploy the device in an operating-room situation.

"This is novel," says Falcone. "This is not something that's ever been done quantitatively before, so far as we can tell; we did extensive research, and nothing else measures the pulsations of the brain in a non-contact manner. The other methods require direct contact."

### Future enhancements: wireless, lasers, camera views

With the sensing technology now verified, the team says the next logical steps include the development of a complete prototype; addition of a camera; continued improvements in accuracy; eventual wireless capability to transmit the data; and future extension of the technology to take in additional cranial measurements with, for example, laser sensors.

During this past summer's scholars program, a fresh group of Stevens students continued developing the project toward commercial readiness, in a collaborative lab between Hazelwood and Stevens biomedical engineering professor Marissa Gray M.Eng. '11 Ph.D. '14. As the three original team members prepared to head in separate directions — De Abreu Pineda obtaining clinical experience in preparation for medical school, Ferrara and Falcone working in industry — they met with the new team to share their knowledge and experiences on the project.

"Being that it is the first quantitative measurement of pulsatility, and non-invasive, and being done in real time, we are very excited about what this device can eventually become," says De Abreu Pineda. .\*

— Paul Karr



The CerebroSense team at the Innovation Expo, from left: Andrew Falcone, Maria De Abreu Pineda and David Ferrara, all Class of 2017.

### **A Growing Venture**

The Stevens entrepreneurial spirit also thrives within the Stevens Venture Center, which opened in Hoboken in 2016 and has since grown to include 11 companies as of August 2017. The SVC's mission is to educate Stevens students in entrepreneurial thinking and to provide students and faculty with the chance to explore the commercialization of their ideas, with support for everything from mentoring to office space to networking. There are also hackathons, start-up weekends, guest speakers - with a goal of opening the SVC to alumni entrepreneurs and community entrepreneurs by early

For more information on the Stevens Venture Center, email svc@stevens.edu or visit www.stevens.edu/svc.



### FIGHTING FLAT-HEAD **SYNDROME**

### PROTOTYPE SYSTEM MEASURES HEAD AS BABIES SLEEP, SENSES CHANGES IN SHAPE

ince the early 1990s, when medical guidance was issued to lay babies to sleep on their backs to prevent sudden infant death syndrome (SIDS), countless young lives have likely been saved.

One side effect of this guidance, however, has been an increase in the number of young children who develop abnormally shaped skulls as they grow. Worldwide, tens of millions of infants may be affected each year to some degree.

Now a Stevens student team thinks they have the solution.

#### Sensing sleeping patterns

Flat-head syndrome, or positional plagiocephaly (PP), may now affect nearly one in every two infants aged 7 to 12 weeks, according to one Canadian study of more than 400 infants published in the journal Pediatrics. Even when detected in time, correction of PP requires an expensive and obtrusive helmet.

"Our goal is to make parents realize you can detect PP before you need a helmet," says Joseph Falvo '17, one of a five-member team of Stevens biomedical engineers who

developed Cribtonite under the mentorship of professor Tony Valdevit.

Over their senior year together, the team, which also included Chris Sciancalepore '17, Leah Spaulding '17, Julia Stika '17 and Michelle Zanone '17 (Zanone has since moved on) came up with a patent-pending system that measures infants' heads periodically while they sleep during the first year of life. It takes only a few seconds for the device to obtain a pressure map of an infant's

head, using a dense grid of thin, flexible piezoresistive sensors integrated into a mattress pad to collect the data. (A corrective alert still in development would help guide parents to correctly place their children on the sensor mat to ensure accurate readings.)

A lightweight multiplexer in the device then collects and routes the data to Cribtonite's software, producing graphical output that can be used to infer the shape of the head.

"The contact area between a baby's head and the sensor grid will increase if the infant's head begins to flatten," explains Falvo.

Now the team is developing an algorithm that might, if it works, be able to detect early signs of PP by comparing each reading with the infant's previous pressure profiles. Unusual patterns of growth could be set to trigger an alert via smartphone, and parents could then follow up with physicians to for example — seek guidance on repositioning their children or make other changes to prevent the progression of PP.

"This would be a preventative measure, rather than a corrective measure," emphasizes Sciancalepore, who is continuing master's studies in mechanical engineering at Stevens while he helps the team develop the venture.

### **Future iterations could include** child wellness, geriatric care

The team filed a provisional patent application with Stevens in May, and was also recently inducted into the National Academy of Inventors' Stevens student chapter.

The software, note the team members, could also potentially be adapted to signal serious health issues with sleeping infants or to power a monitor that would alert caregivers of hospital, hospice and other bed-confined patients that those patients should be repositioned to avoid decubitus ulcers ("bed sores") or other complications caused by remaining in one position for long periods of time. ❖ — Paul Karr



The Cribtonite team, from left, includes Class of '17 members Chris Sciancalepore, Julia Stika, Joseph Falvo and Leah Spaulding. Top photo: Falvo at the Innovation Expo.

### BUSINESS STUDENTS PREVENT FLIPS FROM BECOMING FLOPS

### INNOVATIVE SOLUTION MEANS FASTER, BETTER CHOICES ON TURNAROUND PROJECTS

ven if you've never seen the show, you're probably familiar with "Property Brothers," the HGTV series about a real estate agent and a contractor who help couples purchase fixer-uppers and transform them into dream homes, all without mussing their perfectly coiffed hair.

On the show, the biggest surprise the buyers find might be how hard it is to rip out a set of cabinets during kitchen remodeling. But ask investors who specialize in flipping properties, and you'll get a real list of horrors, like buried oil tanks, rooms full of trash and unstable roofs.

Now, a team from Stevens' School of Business is confident it's hit on a way to make it easier for flippers to do their business. The team developed an algorithm, FlipTrack, that scans websites where sheriff's sales are posted to create a customizable, searchable database of the thousands of homes moving through the foreclosure process.

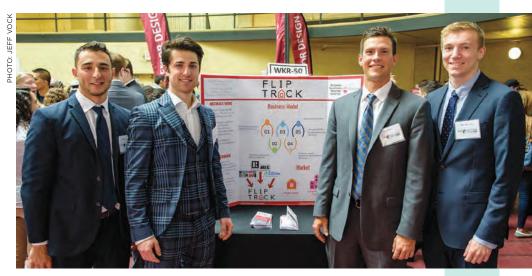
### Bringing flipping to the 21st century

For the team, the biggest surprise was that no one has done this before. Or, as Bill Bonifacic '17 said, "It's like someone forgot to bring the foreclosure real estate market into the 21st century."

The idea for a tracking service came to Garrett Wells '17 as he was helping a family friend whose retirement career is in flipping houses; Wells started watching him to learn about the business.

"The more I watched him, the deeper I got into the details, the more I realized how much time he was spending on tedious work that could be automated," Wells said. Wells and Bonifacic, along with Michael Mulé '17 and Thomas Marchese '17, created an algorithm that automatically gathers and organizes the relevant data into an Excel sheet.

"As Stevens students, we're so engaged in data visualization and technology that we have a real advantage in doing things faster



Members of the FlipTrack team at this year's Innovation Expo, from left, include Michael Mulé, Thomas Marchese, Garrett Wells and Bill Bonifacic, all from the Class of 2017.

and more efficiently," Wells said.

Mulé agreed. "Especially being business majors, we've been taught to think of new ideas when we look at how companies do business." he added.

Foreclosure listings can be fluid — if back rent is paid, for instance, a property could come off the list, only to be set for auction again months down the road — so just to manually track properties is a full-time job. The Excel-driven solution, Mulé said, "keeps it simple while making it easier for the client to track the houses he wants, and give him a better chance of getting them."

### Influence of faculty

Many small investors in this industry are reluctant to embrace technology-driven solutions. Mulé credited Stevens Professor George Calhoun with "making us smarter on the data and numbers side, and preparing so that we know what data points will resonate strongest with a client."

"When you show them the numbers, and you can tell them — we're going to increase your speed by 20 percent, we'll cut the time it takes you to flip a house from a month to a week — it really engages them,

and that's something we learned in Dr. Calhoun's classes," Wells added.

The project's advisor, Professor CV Harquail, encouraged them to attend sheriff's sales as they thought about a market for the service. "That was when we realized everyone is having this problem that should have been fixed years ago," Wells said. "She pushed us to grow our project in a direction that really makes sense."

Technology-based services do exist, according to the team's research, but they charge around \$100 a month, offer very limited functionality and are complex — some come with user manuals — to an audience that isn't tech savvy. As the focus of the project turned from coding to marketing, the team said it could charge a monthly fee as low as \$20. Marchese, who is pursuing a future in marketing, designed a logo and branding standards for the service.

"Stevens marketing classes have definitely helped my thought process and visibility to know the steps to a successful project," he said. "FlipTrack has definitely made me use the processes and programs I've been taught to visualize the data. I think our team has all the pieces to make it successful." ❖ — Joe Arney

# WEEKEND

### **Images and reflections of Alumni Weekend 2017**

"What interested me is how well so many of us have done. It is deeply satisfying to understand on a real substantive level how meaningful all of our lives have been personally, professionally. We have been solid citizens." — Jeff Seeman '67









"70 is the new 50. I bumped into a few of my classmates and they changed so much, they didn't recognize me!" — John Spaziani '67

"This is why I continue to volunteer my time at Stevens — because in our own little corner in Hoboken, we are continuing to produce the engineers and scientists who will help mold the future of our country." — 2017 Stevens Alumni Award winner Enrique Blanco '72



"Stevens is definitely growing. I'm glad to hear there's a plan for housing accommodations." — Elizabeth Hromada '17



### CALENDAR

### **OCT4**

### WEDNESDAY

President's Distinguished Lecture Series presents Oren Etzioni, chief executive officer, Allen Institute for Artificial Intelligence stevens.edu/lecture

### ост6-8

### **FRIDAY-SUNDAY**

Digital Healthcare
Hackathon, sponsored by
the Stevens Venture Center
stevens.edu/svc-healthhack

### ост18

#### **WEDNESDAY**

The Center for Science Writings lecture, "How Sugar Kills," with science journalist/diet expert Gary Taubes, author of The Case Against Sugar

### ост21

### SATURDAY

The Excellence Through Diversity Lecture Series presents
Carla Harris, vice chairman of
Wealth Management and senior
client advisor, Morgan Stanley

### ост25

### WEDNESDAY

Oktoberfest, sponsored by the Stevens Alumni Association

### ост27

### FRIDAY

OnStage at Stevens "An Evening of Aria and Song," with selections from Puccini operas and more sung by friends of the New Jersey Symphony Orchestra stevens.edu/onstage

### DEC9

Stevens Alumni Association holiday party

### DEC12

#### **TUESDAY**

"Holiday Brass," with members of the New Jersey Symphony Orchestra brass section stevens.edu/onstage



For all Stevens events, visit stevens.edu/events

# PLASTICS TO POLITICS

### **ALUMNUS TAPPED TO SERVE AS AMBASSADOR**

"IT WAS A SHOCK
AND A BIG HONOR
TO BE ABLE TO
DO SOMETHING
FOR MY COUNTRY,
WHICH HAS GIVEN
ME EVERYTHING."

When Colombian president Juan Manuel Santos asked Alberto Furmanski '72 MMS '74 to serve his country as the Colombian ambassador to Spain, Furmanski took some time with his decision. "I'm not involved in politics, but in Colombia, the custom is that 60 to 70 percent of ambassadors are not from a diplomatic career. Being chosen by the president to represent my country was a great honor," he says, "but I had to talk it over with my wife."

Starting a new chapter in a foreign country is nothing new to Furmanski, who came to the U.S. from Colombia in the late '60s. After studying chemical engineering at Universidad de los Andes in Bogota for a year, he decided he wanted to study in the States, even though he didn't speak English. Two universities later — he took English courses at Columbia University and completed a summer at Rutgers — Furmanski landed at Stevens, where he experienced a whole new way of life.

"Sophomore year, I tried to get on the soccer team and I broke my foot, so I was on crutches for a couple of months. It was quite an experience walking through campus on snow and ice," he says, laughing at the memory. "And the Friday night mixers were fun. You know, they would bus all these girls from nearby colleges. It was...surprising."

Also surprising to Furmanski was the "freedom you felt in the education." Explaining that he was used to a very strict and rigorous sys-

tem, "On one of the first midterm exams, the teacher told us it was open book and that was a shock. It's just something I wasn't used to."

But Stevens would become Furmanski's home, at least until he graduated with his master's degree. After that, it was back to Colombia, where he started working as a chemical engineer focusing on the manufacture of plastic films. Eventually, he moved on to become a production manager in a small plastic films company.

"I saw the need to have different films to be used in packaging," he says. "So I started a little project."

That "little project" would become Minipak, a flexible packaging manufacturer, which employs about 600 people (380 in Bogota and 210 at a second plant in Cartagena, Colombia) and exports its goods to more than 20 countries, including the U.S. After nearly 40 years of building and running the company, Furmanski resigned to take on the ambassadorship, being instated on Oct. 3, 2015.

As ambassador, Furmanski says that his primary role is to ensure that the relationship between Colombia and Spain remains strong, and he spends much of his time focusing on the important economic ties between the two countries.

"Because we speak the same language and have the same culture, Spain has become a second home to many Colombians; there



Alberto Furmanski '72 MMS '74 in his office at the Colombian embassy in Madrid, Spain. Furmanski has served as the Colombian ambassador to Spain since 2015.

are 400,000 Colombians living in Spain and 200,000 have double nationality citizenship. Spain is the second largest investor in Colombia in the last five years, and more than 420 Spanish companies work in Colombia," he says. "Spain's economy is twice the size of Colombia's, but Colombia has a larger population. The balance of trade is favorable to Colombia — we export oil and coal to Spain — so the commercial relationship is very important. And there's the Free Trade Agreement with the European Union... many things have to be dealt with, and it's a continuing process."

So Furmanski keeps busy, attending presentations given by CEOs from large corporations, interacting with visiting politicians or meeting with the rest of the diplomatic corps. And then there's the mail.

"The mail is incredible," he says. "I get invited to 40 or 50 events per week, which I attend, if possible, or delegate to someone else in the embassy."

But Furmanski finds that he truly enjoys his life in Spain. He recently attended a reunion in Madrid to celebrate the 55th anniversary of the Stevens Latin American Club, where roughly a dozen alumni met up for four days of events, including a dinner hosted at his ambassador residence. His three children and his grandkids also visited for a few weeks this past summer.

"We love it. People have been very nice to us, and we've made a lot of new friends. The day we leave will be very hard for my wife and me, but we'll definitely be back for vacations."

Furmanski's mission as ambassador will likely end in 2018 when Colombia changes governments (although nothing is definite, as ambassadors from Colombia are appointed and can be freely removed). Once his term is completed, he plans to return to Colombia and Minipak, at least in some capacity.

"Two of my sons are working in the company and they're doing great...I don't think they need me anymore," he jokes.

But until then, Furmanski will continue enjoying the perks of working in Spain. "It was a shock and a big honor to be able to do something for my country, which has given me everything," he says. "And I do siesta at my desk, so it's not so bad." • — Rebecca Markley



### ALUMNUS MARKS EXTRAORDINARY SIX DECADES ON CAMPUS

n a recent summer day, Peter Brady stands atop Castle Point, crown jewel of the campus where he has learned and worked for close to six decades; where he has stood more times than he can remember.

"You never tire of the view," he says. It's a view that has unveiled astonishing changes over the years, whether he looked out over the Hudson or gazed upon his alma mater, where he grew from student to teacher and returns for his 56th year of teaching this fall.

From this perch on the cliffs, he has seen the Holland America's noon departures for

Rotterdam each Friday, tugboats churning up and down the harbor all day long, and heard the morning call of the longshoremen to work.

And on campus, Brady '61 M.S. '63 worked under four presidents, saw the Stevens Castle open for business (then gone forever), taught three generations of students mathematics, including women later, who made Stevens a better place.

This stalwart of Stevens and stability — he has lived in his West Orange, New Jersey, home for 65 years — teaches differential equations for what seems pragmatic reasons.

"I certainly enjoy teaching. I think I've



Brady — who celebrated his 56th class reunion this spring — began teaching as a graduate student and joined the mathematics department in 1965, serving as an instructor, lecturer and administrator. In 1973, Davidson Laboratory came calling, and he switched gears, still teaching but also rising to chief of the laboratory's methodology and analysis division. His research, mostly government supported, involved analyzing the performance on land of vehicles, including amphibians like the U.S. Marines personnel carriers, with a focus on the software side. He later served as assistant dean of the faculty in undergraduate academics from 1988 to 1995, when he retired from full time work. But he was invited back to teach math and returned as an adjunct professor in 1999.

He mentions numerous changes over the years, from the curriculum, which introduced engineering specialization and brand new majors like business and technology and music and technology; a greater focus on research; and more faculty members with Ph.D.s, when master's degrees and industrial experience were once the norm.

He applauds the overall greater diversity of today's student body, though he wishes that the university had more African-American students. Diversity has been good for Stevens, he says emphatically.

"This is the world in which they're going to live," he says of his students.

He worries about the financial pressures that his students face, moreso than when he was a student, he says. But he also recalls an earlier period when students going into STEM fields—and enrollment at Stevens—was down. He's delighted by the country's re-emphasis on STEM, and the rising quality of the Stevens student body.

"The top part of the class is getting larger, and it's very high quality these days," he says. "They're inquisitive, they're focused — it's fun to teach at Stevens." He finds his students' work ethic always inspiring.

Like many of his students, Brady needed financial help to attend Stevens and won several scholarships. In 2011, he established his own scholarship to help promising math majors and to give back for the help he had received. He's been long involved with his class' active reunion committee.

While Stevens could be third on his list, Brady reveals the two main loves of his life. when he is outside of the classroom.

"I have two passions in life - opera and fine wine," he says. Many of his travels around the world — this June, he traveled to Budapest, Vienna, Amsterdam and Cologne - are centered around opera, as he has attended perfor-

### "I feel I'm doing something useful for society, in an area I am reasonably good at."

mances at the world's great opera houses, from Munich to Milan to Sydney. He is a Wagner devotee and has traveled the globe to see performances of "The Ring Cycle" — the composer's 18-hour, four-opera masterpiece.

True to his loyal nature, Brady has averaged one opera performance a week for the past 55

But even this great love is rooted in a Stevens connection. Brady attended his first opera during his senior year, while taking Professor Bill Ondrick's music appreciation class.

"The expression of emotion through music, especially the human voice, combined with a full orchestra, for me, is something very special," he says. ❖ — Beth Kissinger

proven effective at it over the years," he says. "I feel I'm doing something useful for society, in an area I am reasonably good at."

Finding deep satisfaction in his work keeps him going.

"It's rewarding to see...sometimes, you say something, you see the class, you try to maintain eye contact, and if you get that second time through, to (help them) understand, you begin to see the lights turning on," he says.

Brady also attributes his long Stevens tenure to luck. As one door closed, another opened, and people seemed to always want his help, he says, for work that was interesting and fulfilling.

# LIVINGLIFE COMPASSION

### ALUMNA LEAVES BEHIND A LUCRATIVE BIOTECH CAREER TO HELP THE MOST VULNERABLE IN SOCIETY

"I WANT TO MAKE A SUSTAINABLE CHANGE. **RIGHT NOW I MIGHT BE SAVING SOMEONE'S LIFE** FOR ONE DAY, BUT I WISH I COULD DO SOMETHING MORE ABOUT IT SO THAT THE PEOPLE I SERVE **DON'T HAVE TO GO BACK** ON THE STREET."

Hunger in America. It's a national crisis that goes largely ignored, according to Falak Zaffer Ghatala '03 M.S. '06, national program director of Muslims Against Hunger, a New Jersey-based network of volunteer communities in North America, Africa, Haiti, India and Pakistan.

"The population in America is about 300 million, and more than 40 million of those people don't know where their next meal is going to come from. It's an astonishing number in what is the richest country in the world."

The problem, she says, is getting worse. Steep budget cuts to public assistance programs in recent years have led to greater numbers of people living with food insecurity.

Ghatala has been with Muslims Against Hunger for nearly two years, leading a project known as "Hunger Van," a mobile soup kitchen that operates in 30 U.S. cities, including Washington D.C., where she currently resides, to feed homeless individuals who are unable to travel to a traditional soup kitchen.

"In many instances, they may not be able to drive or have someone to take them, or are unable to prepare meals due to health issues."

Before it can hit the road to deliver food to

those in need, Hunger Van brings food supplies to a host site where volunteers gather to prepare the meals they themselves distribute into the community.

"This way all the volunteers get to see firsthand what is happening out there. Our goal is to start engaging people so that they become aware that there is an issue of homelessness and hunger in our backyards."

### **CHANGING COURSE AND FINDING PURPOSE**

Ghatala's current occupation is a significant departure from the biotech career she enjoyed for more than seven years, having worked as a chemist at mega pharmaceutical giants like Schering-Plough. She graduated from Stevens with a bachelor's in chemical biology, later earning a master's in the discipline.

After she got married, she and her husband moved frequently, mainly in Texas, a state less known for Big Pharma and more for the oil and gas industry. The lack of biotech opportunities led Ghatala to evaluate what she wanted to do with her life.

"I always knew in the back of my mind that I needed to serve people. So I began teaching

in a lot of rural communities in Texas, helping immigrants, refugees and parolees obtain their GEDs."

Witnessing her students' tireless pursuit toward improving their lives was an inspiration to her, she says.

"Seeing how relentless they were in trying to make something of their lives, I realized I had to change my career and become more passionate about my purpose in life."

Her most recent move — to Washington, D.C. — brings her closer to the people who can make policy decisions that affect millions of lives, she says.

"Because of the work I do right now, it's the central place to be, especially if I want to start lobbying on behalf of homelessness and hunger issues," she says. "I want to make a sustainable change. Right now I might be saving someone's life for one day, but I wish I could do something more about it so that the people I serve don't have to go back on the street."

As a grass-roots organization that is entirely volunteer-based, Muslims Against Hunger (muslimsagainsthunger.org) is currently challenged in its lobbying capacity, she says.

"We don't receive any government funding, and we still don't have an office space in D.C. So we're working on that."

### THE ROOTS OF ACTIVISM, CHANGING **HEARTS AND MINDS**

Ghatala describes her work with Muslims Against Hunger as a calling deeply rooted in her faith.

The Indian-born American Muslim began life in the U.S. as a high school student in Edison, New Jersey, when she and her family immigrated from Chennai, India. The transition, she admits, was difficult.

"Initially there was some bullying in school. Also, I didn't want to move because all my friends were in India and I was an athlete at school there. I was a state champion in the sprint relay (4 X 100 meter) and about to compete in nationals when I had to leave."

In the past year, she began wearing the hi-



Falak Zaffer Ghatala '03 M.S. '06, right, serves as national program director of Muslims Against Hunger, which operates a mobile soup kitchen program, Hunger Van, in 30 U.S. cities. Here, she and a volunteer for Muslims Against Hunger help prepare meals on the Sept. 11, 2016, National Day of Service in Washington.

jab so that people could identify her as Muslim, she reveals.

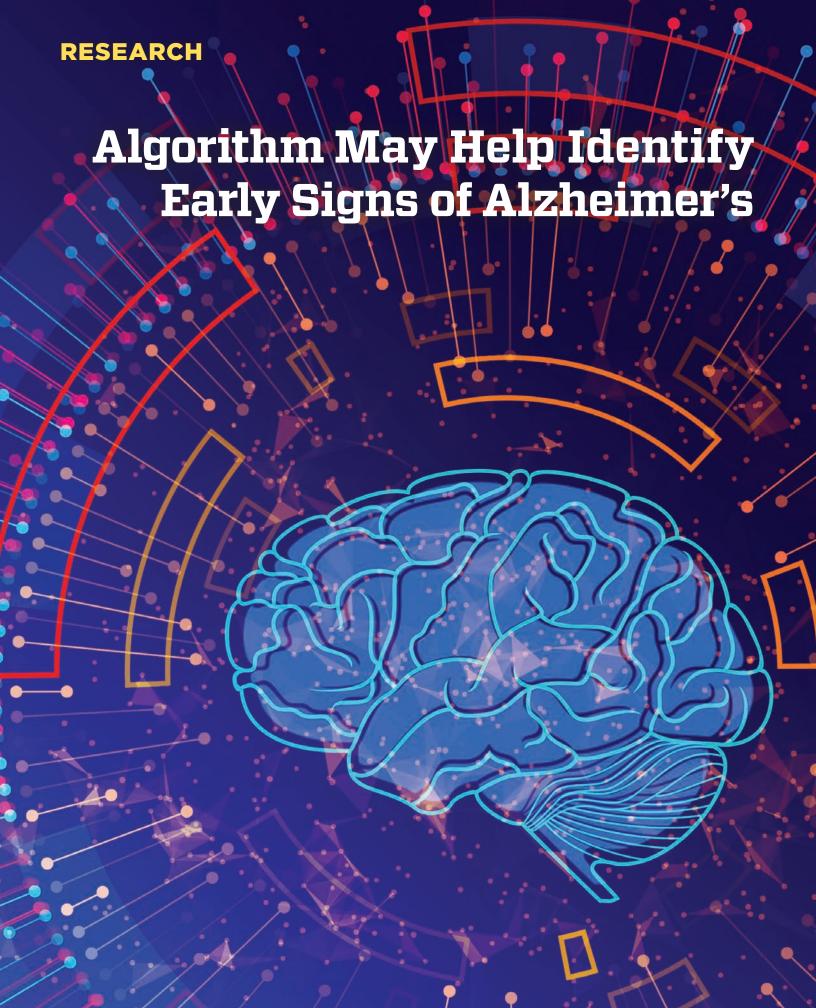
"I wear the scarf as a personal statement because there are people out there — terrorists — who are hijacking my religion. The only way I can stand up against that is to be the compassionate person that I think I am. I can't stop the wars and the killing. But at least I can try to present a positive image about my religion so that people who have preconceived notions about Islam can become more tolerant and accepting."

The seeds of her willingness to speak out and affect change were planted at Stevens, she says.

In stark contrast to her high school years, she says her time at Stevens was one of great

personal development. She assumed leadership positions with the Indian Undergraduate Association and the Ethnic Student Council, engaged in a host of service activities, including raising funds for the Red Cross after the September 11 attacks, and made lifelong friends.

"Stevens helped me to open up. I was really active on campus because I felt at home there. I didn't feel threatened by anything. There were professors who helped me gain confidence in my field and see the best in myself, and I felt comfortable approaching anybody, including all of the deans. Stevens really did help me to find who I am. Anytime I'm in New Jersey, I try to visit Hoboken because I love my alma mater." ❖ — Young Soo Yang



lzheimer's disease, dementia and aphasia afflict tens of millions worldwide, and the incidences of Alzheimer's and dementia are rising. In some nations, as many as 90 percent of cases may go undiagnosed.

Why? Alzheimer's and other neurological disorders are difficult to diagnose during their early stages, when they may resemble forgetfulness or the normal aging process. And tests used to diagnose the disorders, such as magnetic resonance imaging (MRI), computed tomography (CT) and other procedures, can be prohibitively expensive for some.

Now Stevens researchers have developed a new algorithm based on natural language processing and machine learning that may inexpensively help warn patients and physicians about the early signs of Alzheimer's, dementia and aphasia.

"We're excited to address this significant public health challenge," says Stevens electrical and computer engineering professor and lab director Rajarathnam Chandramouli, who is developing the application with Stevens professor K.P. Subbalakshmi and computer engineering Ph.D. candidate Zongru Shao.

### MINING TEXT FOR WARNING SIGNS, WITH HIGH ACCURACY

The technology works by analyzing speech and writing, mining text for patterns or linguistic "cues" that may hint at health issues.

"We are trying to extract both linguistic and content features from these texts, and trying to do machine learning based on that," explains Shao.

To test the method, the team acquired sets of clinical data from several settings. That data included transcribed recorded interviews with confirmed Alzheimer's, dementia and aphasia patients as well as interviews with a control group of those unaffected by the three disorders. Interview subjects described pictures and discussed their lives, among other topics.

The Stevens team then created and ran proprietary new big data algorithms to scan and compare the text databases against each other, searching for differences between the transcripts of healthy and affected subjects.

"Some of the features we find to be different or theorize may be different in these patients include the less or more frequent use of emotion in one's language; unusual repetition of the same words, known as word frequency; differing frequency or uses of pronouns; and differing lengths of sentences," notes Shao.

Among the group of algorithms now being tested, one — the best performer — can already distinguish an Alzheimer's patient from a healthy individual with 85 to 90 percent accuracy, notes Subbalakshmi.

"This is a remarkable rate of success," she says. "We are not diagnosing conditions; we are not doctors. But what we have been able to do very well so far is teach the algorithm to look for and identify complex patterns, even sometimes hidden patterns, of our speech and text that appear to be very useful in detecting a tendency to develop these types of disorders."

### CALLING A HELPFUL COMPUTER, SCANNING FACEBOOK POSTS

Next, the Stevens team will consult with psychologists and neurologists, including at Georgetown University, to further refine targets of inquiry and the application. At first, says Chandramouli, the Stevens algorithm will likely be used to sample extracts of voice conversations.

"You might have a person phone in to a number that is loaded with an automatic set of questions the caller must answer," says Chandramouli. "Your answers could be recorded, encoded and analyzed by our algorithms, and you would receive a secure email back with the results. Then you can make a decision, based on those results, about whether to bring this information to your physician. The physician could then decide to follow up and order MRIs, CT scans or other tests."

The same technology will soon be adapted to test a similar application, scanning electronic text such as social media posts on Facebook or blog entries and searching for the same types of predictive patterns. (Chandramouli and Subbalakshmi previously patented a lie-detecting software that scans text in a similar way.) Pilot trials with human volunteers would be the logical next step; it's also possible the Stevens team will perform future investigations of the text-mining technology to try to identify post-traumatic stress disorder (PTSD) at an early stage, as well.

The researchers plan to apply for a patent for the technology. ❖
— Paul Karr



Professor Rajarathnam Chandramouli



Professor K.P. Subbalakshmi

PHOTO: BOB HANDELMAN

### AVOCADOS FOR OPIUM

### HOW A STEVENS FRESHMAN'S IDEA IMPRESSED THE U.S. DEPARTMENT OF STATE

here is quite a lot that makes up Anthony Rios Class of 2020: He's a rising sophomore at Stevens Institute of Technology, a firstgeneration Mexican-American, an aspiring lawyer and now, he's officially a wonk.

Rios, a business and technology major and pre-law minor from Houston, was chosen as the winner out of three student finalists for the U.S. Department of State's Wonk Tank Competition, a foreign policy pitch competition similar to the hit TV show "Shark Tank."

According to the U.S. Department of State, a "wonk" is an individual who has a keen interest in and aptitude for the details of public policy. Like "Shark Tank," future wonks were invited to pitch policy proposals addressing a specific international problem or challenge requiring attention, a nuanced solution and next steps to consider.

On April 7, 2017, Rios flew to Washington, D.C. to present his pitch live for a panel of State Department officials at the Diplomacy Lab Fair. As the winner, Rios was offered a paid summer internship at the Center for Strategic and International Studies (CSIS) with the Project on U.S. Leadership in Development.

Rios presented his pitch, "Avocados for Opium," which is an idea

to use crop replacement to help break the economic dependence of isolated farmers in Northern Mexico on the drug trade, where a significant portion of the opium that enters the U.S. is grown.

"I really feel we have a moral and ethical responsibility to attempt to mitigate the damages of the drug trade here and around the world," Rios said. "Crop replacement is a great fit for this problem and it's already being done in other places around the world."

After consulting with Professor Lindsey Cormack of the College of Arts and Letters' Diplomacy Lab, Rios spent time researching each detail of his idea: farming climates in Northern Mexico; the technological advances already used to grow avocados in abundance in California; the implications of introducing genetically modified crops; and how a broad-based collaboration between nonprofit groups, the Catholic church and the state could actually execute this idea — just to name a few.

> Rios was quite nervous before the final Wonk Tank competition, as he was the lone freshman business student amongst the two other finalists, who both had studied international relations and both had post-graduate degrees. Professor Cormack reassured him

that they may have had more experience, but Rios had the better idea.

"I went up there and did my best attempt at sounding confident and convinced," Rios said. "I won't lie — coming down off that stage, I was convinced that not only had I lost but that I had lost badly. When the deputy secretary announced the winner, I started to congratulate one of the other finalists when I realized, quite to my surprise, that he had actually spoken my name."

As an intern at CSIS, Rios worked in the Prosperity and Development office, where most of his work was related to foreign aid and the effects the aid has on its recipients. He helped work on research-

> ing and developing a program to reform the Afghan Civil Service and to help ensure the administration does not cripple the United States Agency for International Development with budget cuts.

> Winning the coveted spot at CSIS as his first summer internship was a big step toward Rios' ultimate goal of a career in public service.

> "Ultimately, I do envision a career in public service for myself, and ideally one which leads to elected office," he said. "The internship provided me with a host of great policy knowledge...and the golden opportunity to network with D.C. dignitaries while also getting to know my political generation better." ❖ — Lina Kirby



### **SPORTS** UPDATE

### 'DUCKSPY' AWARDS HONOR ATHLETES, TEAMS

he Stevens athletic department livened up its annual year-end awards program for the 2016-2017 academic year with a new theme in a new location at the end of the spring semester. Re-branded the #AllRise Awards (informally the "Duckspys") after the athletic department's unifying social media hashtag, the awards show was less of a stuffy dinner and more of a fast-paced, multimedia whirlwind modeled after major awards shows like the Oscars and ESPYS.

Assistant women's soccer coach
Emily Ottenhoff and assistant men's
basketball coach Chris Thompson served as
the night's emcees, while field hockey head
coach Meredith Spencer-Blaetz spearheaded
the committee tasked with reimagining the
awards night.

"The student-athletes wanted something more engaging, something to celebrate their achievements rather than simply have the winners process on and off the stage all night," said Spencer-Blaetz. "We wanted it to be interactive—to have them involved as much as possible—while recognizing not just the top athletes, but also the athletes who serve the school in many different roles."

To that end, the May 2 program was moved from Canavan Arena to the DeBaun Auditorium, spiced up with video interviews and highlight tapes interspersed throughout the program; an opening monologue; and studentathlete award presenters, complete with their

own jokes. Both hosts and presenters were encouraged to showcase their per-

sonalities during the evening.

"We were excited to create a really good setting for our student-athletes," said Ottenhoff. "That was our goal from the beginning: to create a fun environ-

ment for our student-athletes that celebrates our athletic department and all our accomplishments. We've got a ton of really talented and hard-working student-athletes at Stevens, so we wanted to celebrate everything that was accomplished this season."

In addition to the traditional awards — like "Best Athlete" and "Outstanding Team" — that have been handed out since the '50s, new categories, such as "Breakthrough Team of the Year," "Game of the Year" and "Play of the Year," were added this year, complete with video highlights of each nominee.

"The night was exceptional," said Thomp-

son. "The student-athletes really enjoyed the 'Duckspy' aspect, with more awards and highlights. There was more of a chance for student-athletes to see themselves or their teammates up there, so that was a stellar way for the athletic department to connect to our student-athletes."

Numerous athletic departments around the country are shifting to this style of postseason awards, and the Duckspy planners used some of them for inspiration while adding a unique Stevens flair. It seems to have worked.

"Sitting in the auditorium that evening, there was a lot of cheering, people were excited, talking and there was a good buzz in the air," said Ottenhoff. After this year's success, look for the #AllRise Awards to become an annual tradition on Castle Point. • — Jon McCue

### SOME HIGHLIGHT AWARDS FROM THE 'DUCKSPYS':

Play of the Year: Gabby Saade and Zisi Komar (Women's Soccer) for their game-winning goal against Ithaca in the Empire 8 Championship

**Breakthrough Team of the Year:** Women's Cross Country

Female Max Klimkeit Award (exemplifying the ideals of sportsmanship and spirit): Erica Guketlov (Women's Basketball)

Male Max Klimkeit Award (exemplifying the ideals of sportsmanship and spirit): Michael Mule' (Baseball)

John Davis Award (exemplifying loyalty and devotion to the Institute, self-control and modesty, perseverance under adverse conditions, fairness to opponents, and observance of the rules of the game): Carly Bean (Women's Soccer)

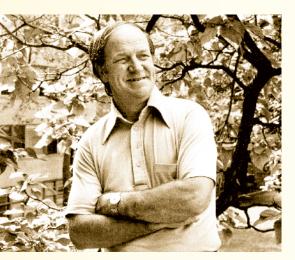
**Game of the Year:** Men's Lacrosse defeats No. 3 Ithaca (April 1, 2017)

Outstanding Team of the Year: Men's Volleyball



# SUPPLO MO

### **MEMORIES OF MY** UNFORGETTABLE COACH AND FRIEND



▲ Irvin "Buzz" Seymour on campus.

Editor's Note: Irvin "Buzz" Seymour, who worked with Stevens from 1951 to 1989 as a coach and athletic director, passed away last year at the age of 92. Stevens Athletics Hall of Famer Bruce Boylan '63 offers a remembrance of his lacrosse coach and longtime friend.

When I look back over the many years, that's when it hits me. My Stevens lacrosse coach, Irvin "Buzz" Seymour - Pennsylvania native, World War II veteran, coach to 13 USLIA All-Americans — made me feel special.

What he was to me, he was for many other people. The difference? Our relationship lasted close to 50 years. Buzz was always my coach.

It was the fall of '62 on the Cleveland leg of our senior trip of Rust Belt manufacturing plants, stretching from Hoboken to Buffalo to Cleveland. True to my reputation, I was getting rowdy on the bus. Three friends and I sang a salty ditty that was not appreciated by our chaperone, the athletic director. I thought I would surely lose my captaincy of the lacrosse team. Later, I had many conversations with Buzz, telling him what I did. I knew it was trouble, but I'm sure Buzz used all of his influence to help me. I got disciplinary probation but stayed on as captain.

And we ended up having a good season that spring, winning the conference championship. Buzz nominated me for the senior North/ South lacrosse all-star game, and playing in that game was one of the highlights of my lacrosse career.

When I first came to Stevens in the fall of 1958, I intended to play lacrosse, even though I had never played the game. Neither had 95 percent of the guys who would later play for Buzz. He first taught me the game in gym class,

during my freshman year.

We became friends, and when I would visit him, he was never one to sit at his desk, but would come up to you and shake your hand. Buzz always encouraged us, and he was full of enthusiasm.

When I played on the freshman team (Buzz coached varsity, and freshmen could not play varsity at that time), I would occasionally run into him on campus and he might say, "Bruce, I heard you had a good game on Wednesday. How many goals did you get?" I strongly suspect he already knew. He just asked to make me feel good. That was Buzz.

By the end of spring of my sophomore year, after too much lacrosse, too many parties and too little studying, I had to repeat the semester. But Buzz never lectured me on my troubles with schoolwork. He encouraged me, but he also accepted me for who I was, hoping that my love of lacrosse would inspire me to do well enough to stay in school and graduate.

At the end of my junior year, I was elected captain. Buzz wanted me to have a co-captain to keep me out of trouble — Dick Magee '63. I liked my Friday night frat parties with the Delts, but the lacrosse bus left bright and early Saturday morning. So Buzz told him: "Dick, you have one job — make sure Bruce is on the bus for away games." The captaincy meant so much, as we walked onto the field with the coaches and captains from the opposing team, at the start of every game.

Buzz often made a point of introducing me to the opposing team's coach and/or star player after a game. This type of acknowledgement would go on long after graduation, at alumni games, when he would bring me to meet top Stevens professors like Dick Cole M.S. '61 Ph.D.

'71, Teddy Gela '38 M.S. '43 and others. I think he was proud of me.

During my years at Stevens, I often stopped by the gym to chat with Buzz and occasionally knocked on his River Street apartment door. I got to know his three kids and his wife, Jess, and they warmly welcomed me into their home. Buzz and I chatted about lacrosse, his kids and my future.

After graduation, Magee and I came back for the annual alumni game for 35 years. We played until we were in our late 50s.

While Buzz was still coaching and after he became athletic director, he would grab me after the game to introduce me to someone, usually the new star player, such as Nick Heinrich '68, Jon Wort '70, George Weekes '69 and others.

In the early 1970s, when Buzz was athletic director, I gave my first gift to Stevens. I mailed a check (a whopping \$100) to Buzz, with a note that it was for the athletics department. He called to thank me. When I returned for the next alumni game, he found me and said, "Bruce, I want to show you something." He took me to the old fieldhouse and showed me a new stainless steel whirlpool used for sports injuries. He said it was my gift that paid for it. (It was probably supplemented, but he would never say that.)

After the 100th anniversary lacrosse game in 1983, then lacrosse coach Frank Rotunda asked if I would like to become his assistant coach. Buzz had suggested me, of course. I took the job and stayed for 15 years.

Following that anniversary game, Buzz took me over to introduce me to a gentleman, who starting talking to me. I turned to Buzz, who had a smile on his face, and said, "Buzz, who is this?" As Buzz's eyes turned perplexed, the gentleman said, "You know who I am." I turned to Buzz again. He said, "This is President Rogers." Talk about embarrassed. I had only come back to Stevens for lacrosse and my fraternity. I didn't really reconnect with the school until the '62 reunion weekend in 1987.

When Buzz retired in 1989, Magee and I arranged a testimonial dinner inside the Bissinger Room, with more than 200 people coming from as far as California and Texas. Bob Koudelka '60, a baseball player, came from

Florida. Lacrosse Hall of Famer Dick Rogers '54 brought a dozen roses for Jess.

After Buzz retired, Jess came down with cancer and passed. It was around then that Magee and I started taking Buzz to dinner at least once a year in Millburn, New Jersey. We would bring surprise guests: Bob Schwab '60, Dick Sard '62, Pete Zimmerman '61, Dennis Blahut '62, even Frank Perrotta '62 and Mike Gupko '63, both baseball players. Buzz loved to reminisce with us. He always offered to pay, to no avail.

In 2000, I organized a 125th Delt reunion with more than 100 Delts, who also honored Buzz on becoming an honorary Delt.

Buzz would later find excuses to stop going to dinner. We discovered that he had serious health issues, so I would call him once a year or so, typically during lacrosse season. It went something like, "Bruce, it's good to hear from you. How are you doing? Have you watched any games?" He was always very private about himself. But I would ask about his kids, and he would open up. When I would call him, I could hear the smile on his face.

As his illness set in, he stopped taking my calls.

I had a special connection with Buzz, but so did many other players, including my co-captain. Magee remembers Buzz as the man who made him a goalie, spending hours shooting lacrosse balls at him, believing in him. "Buzz was a man of great character, who taught us to

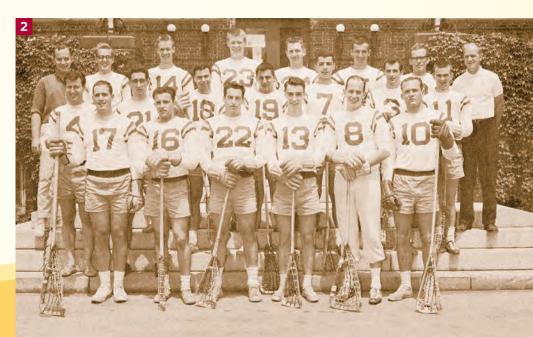


■ Bruce Boylan '63 provided this photograph of his coach and friend Buzz Seymour. ② In this lacrosse photo from the 1962 *Link*, Bruce Boylan '63, No. 13, and Dick Magee '63, No. 8, gather for their team shot, with Coach Seymour standing in the back row, far right.

live our lives with purpose and integrity," Magee said recently.

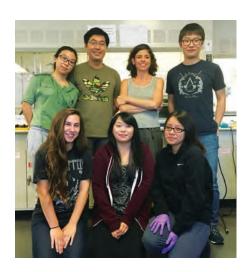
Writing this has brought up a lot of stuff for me. Buzz was one of a kind. When I think of him, it's "Give it your all." He was about doing the right thing, always.

I miss him. ❖ — Bruce Boylan '63



# BRINGING Best Brightest

### STEVENS, STUDENT SCHOLARS WIN WITH PINNACLE PROGRAM



▲ Pinnacle Scholars and chemical engineering majors Kaitlyn Zak (front row, left) and Mia Walton (front row, center), both Class of 2019, studied polymers in Stevens' Soft Materials Lab, headed by professor Pinar Akcora (back row, third from left).

ow in its third year, the Pinnacle Scholars Program — a package of scholarships and opportunities for the most academically high-achieving students Stevens can attract — has become a thriving presence at Castle Point, one that leading donors are supporting during The Power of Stevens campaign.

"We're looking for well-rounded students," said Jackie Williams, dean of undergraduate admission. "Usually, Pinnacle Scholars have SAT scores exceeding 1400 and excellent high school records. Most have done exciting things outside of the classroom, excelling in competitions, athletics, First Robotics or debates. Many have organized community service projects or even created their own companies."

Each year, Pinnacle Scholars receive \$5,000 stipends to pursue research, entrepreneurship or study abroad, plus faculty mentoring, conference opportunities, tuition support for fifth-year graduates, and a cultural passport to experience arts and events. A select group also gets to take a course on leadership with President Nariman Farvardin.

With the program in place since the 2015-2016 academic year, it's now a powerful tool Stevens can use to recruit students. "With an increase in applications, we can now increase our selectivity rate, not only matching our traditional peer institutions, but also competing with the most selective universities in the

country," said Marybeth Murphy, vice president for enrollment management and student affairs. "With the Pinnacle program, Stevens is in a better position to recruit the very best students."

### STUDENTS PRAISE PINNACLE **BENEFITS, FROM RESEARCH TO TRAVEL**

Students in the first two Pinnacle cohorts are grateful for the opportunities they've received.

"Being a Pinnacle Scholar means so much to me," said chemical engineering major Mia Walton Class of 2019. "It acknowledges the hard work and dedication I have put toward my studies in the past and holds me to a high standard for the present and future."

Ryan Little, a computer science major from Carlsbad, California, with the Class of 2019, agrees. "Being a part of a program that provides such incredible benefits as Pinnacle Scholars motivates me to challenge myself by taking on as much as I can in all aspects of life, academically and otherwise."

This summer, Walton used her stipend to intern for a biology startup in England. "I learned about grants and funding and partnering with other labs on projects. I studied the research projects and analyzed what types of grants would work well to get that research into commercialized results based on amount, duration and the fine details of



the science behind it."

Little used his first summer stipend to pursue a career interest, interning with a game development company. "It was inspiring to see what goes on in an environment that I may attempt to join in the near future. Without Pinnacle Scholars, I would not have had the means to take a summer to participate in that research."

### WELCOMING A NEW SCHOLARS CLASS THIS FALL

Meanwhile, the incoming cohort is excited to begin.

"I am so excited to receive an amazing education and take advantage of the opportunities given to me through Pinnacle," said engineering major Kaylee Shepard Class of 2021. "I also plan on using my cultural passport as often as possible because I cannot wait to explore New York City and see all it has to offer."

As the son of alumni Elizabeth '83 and Paul von Autenried '83 M.S. '86, Kurt von Autenried Class of 2021 already heard great things about Stevens. "With my interests in computer science and engineering, combined with my love of competitive swimming, Stevens seemed the ideal place for me to go, and the Pinnacle Scholars Program sealed my commitment to attend. I am especially looking forward to the academic challenge, the exposure to additional subjects and the opportunity to

pursue research over the summers."

The Pinnacle program is only possible because of philanthropy. In fact, it started through a gift from Josh Weston, the retired CEO of ADP and celebrated friend of Stevens. Anyone can donate to the program, and some donors have created their own scholarship funds that go to Pinnacle Scholars.

Along with his wife Joy, Richard Spanier '61 M.S. '62 Ph.D. '68, a retired professor and emeritus trustee, established two Pinnacle scholarships, which during 2016-17 benefitted mechanical engineering major Ann Collins and cybersecurity major Dylan Iuzzolino, both Class of 2019.

Collins, who hails from Fairfax, Virginia, believes she found a future career during a Pinnacle summer. "Due to my positive experience studying prosthetics and their design in France, I would like to concentrate in that area using my artistic side as well as my engineering education to better the products and experience for those needing such a surgery or product."

"What I have found most rewarding about the program is the great exposure I get to various cultural experiences," Iuzzolino said. "Having the ability to attend these works with the accompaniment of my fellow scholars is a great privilege that I have deeply cherished during my time as a Pinnacle Scholar." - Alan Skontra





tevens commemorated the graduation of more than 2,100 undergraduate and graduate students, the largest in the university's history, at the Meadowlands Expo Center in Secaucus, New Jersey, on May 24. Two celebratory ceremonies were filled with Stevens pride and tradition, and attended by approximately 7,000 family members, friends and invited guests.

The milestone day began with the graduate Commencement ceremony, where Commencement speaker Dr. Jean Zu, the newly appointed dean of the Schaefer School of Engineering and Science, urged graduates to "dare to dream" and to embrace the hardships and setbacks that come in pursuit of their goals.

"Persistence and perseverance will reward

you eventually," she said.

Later in the day, the Expo Center was again a sea of Stevens red and gray. President Nariman Farvardin introduced this year's undergraduate Commencement speaker and recipient of the honorary doctor of engineering degree as a distinguished statesman in the great tradition of ship classification societies. Christopher Wiernicki, chairman, president and CEO of the American Bureau of Shipping (ABS), is an accomplished naval architect and business leader who leads one of the world's foremost ship classification societies.

"Leadership is about valuing relationships and connecting with people," Wiernicki said, encouraging the graduates to treat everyone with dignity and respect.

"Behind every smartphone is a person,

someone with feelings, emotions, dreams and \( \frac{1}{2} \) desires. Over the years, technologies have g changed and will continue to change, but never forget these technologies are useless without § people."

At the close of the ceremonies, President Farvardin told graduates that their Stevens educations have prepared them with unique and distinctive capabilities that differentiate them from the many thousands of students celebrating commencement this year.

"You have been immersed in technology in all aspects of your education. Whether you're a computer science, mechanical engineering or music and technology major, your deep exposure to technology gives you a perspective and an expertise that sets you apart from graduates from other universities." \*

### SAVE THE DATES

### for these exciting upcoming alumni events



### Stevens Awards Gala

APRIL 14, 2018 Join us at The Plaza Hotel for the fifth Stevens Awards Gala, as we honor the remarkably accomplished alumni and friends of Stevens. Slip into your tuxedos and evening gowns and show your Stevens pride on this most special night. Tickets and sponsorship opportunities will be available in 2018.



### Alumni Weekend - Red & Gray Days

JUNE 1-3, 2018 Return to Castle Point for our annual celebration of all of our wonderful alumni. If you graduated in a year ending in a 3 or 8, we're celebrating your class anniversary in 2018! And, as is tradition, our affinity groups will be hosting alumni gatherings, too!

For more information on upcoming events, please visit **stevens.edu/alumni**.

Stevens may be coming to your area! Join us on the road for the

### 2018 STATE OF STEVENS SERIES

featuring updates from campus leadership on the latest research and achievements by students and faculty



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**PENNSYLVANIA** 





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Visit stevens.edu/rsvp/ stateofstevens for upcoming event dates and locations.

### SAA President's Letter

### Association Welcomes New Constitution, Leader

It is with tremendous pride that we can report to you that the revised Constitution and Bylaws for the Stevens Alumni Association was approved by a landslide this past June.

We are very thankful to the thousands of alumni who participated in this monumental task to modernize the SAA governing documents. We are especially appreciative of the many

individuals who spent countless hours reviewing the constitutions of other universities' alumni associations, benchmarking the proposed draft of the new SAA Constitution against them and ultimately preparing the document that we will begin operating under on July 1, 2018. To read the revised SAA Constitution and Bylaws, visit stevens.edu/alumni\_constitution.

As many of you are aware, the SAA is a complex organization representing more than 40,000 graduates living across the nation and around the globe. Finding ways in which we can support, recognize and engage our ever-growing alumni body is vital to ensuring that our vibrant network continues to thrive. This new constitution provides us with a framework that strikes the appropriate balance between guidance and flexibility, while addressing the needs of our increasingly diverse alumni community geographically, professionally and otherwise. Furthermore, it helps us to maximize alumni participation in the SAA, by enabling us to use new modes of communication and technologies.

Of course, work remains to be done. Throughout the 2017-18 academic year, the SAA Executive Committee and Council will undertake the task of transitioning from its 1906 structure to our new one. We will call on many of you, once again, to provide your knowledge, time and talent. We encourage you, when called upon, to join us and share your voice. The more that



we actively participate in our alumni community, the more that each of us will realize the rich benefits of being part of such a successful alumni network.

Remember, while we may have only studied at Stevens for four or five years (and for some of us, even longer!), we are lifelong members of the Stevens alumni community. We all have a role to play in strengthening our network,

increasing the ranking and reputation of our school and supporting the next generation of Stevens graduates.

Again, our sincerest congratulations and thanks to all of the alumni who helped launch us into the 21st century. You have significantly strengthened our ability to engage the broader alumni community with Stevens, and we look forward to working with you in the coming weeks and months.

As Joe completed his tenure as SAA president this summer, Vicky Velasco '04, a longtime alumni leader, started her term as your president on Sept. 11. We both are so grateful for the privilege of serving you, our fellow alumni.

Proudly yours, Per aspera ad astra

Vicky Velasco '04 President, Stevens Alumni Association vvelasco@alumni.stevens.edu

Joe DiPompeo '98 M.Eng. '99 Past President, Stevens Alumni Association

### **SAA** Update

#### **THANK YOU, DONORS**

We are pleased to recognize the generous alumni, students, faculty, staff, friends and community members who supported the university in 2016-17. To view the list of our generous contributors, visit connect.stevens.edu/fy17honorroll.



#### **SAA MEETING DATES, 2017-2018**

- ▶ Monday, Sept. 11, 2017
- Monday, Nov. 13, 2017
- ▶ Monday, Dec. 11, 2017
- ▶ Monday, Feb. 12, 2018
- Monday, April 9, 2018
- Monday, May 14, 2018
- ▶ Monday, June 25, 2018

Please note that these meeting dates are subject to change. Please RSVP with the Alumni Office prior to all meetings by emailing alumni@stevens.edu or by calling 201-216-5163.

#### **ALUMNI WEEKEND 2018**

June 1, 2 and 3, 2018

### S S

#### THE STEVENS INDICATOR

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Stevens Professor E.H. Yang and his team are researching transparent, flexible nanomaterials for solar energy harvesting on a broad scale.

The breakthroughs being engineered are representative of the caliber and scope of research happening daily across our campus. Stevens is home to three National Centers of Excellence as well as dozens of collaborative, multidisciplinary research programs — all driven by faculty dedicated to developing high-tech, modern solutions to the challenges that face society.

### FACULTY EXCELLENCE. THAT'S THE POWER OF STEVENS.

