HIGH-TECH TEACHING

New technologies, new teaching methods put students at the center
Experience Stevens Red and Gray Days at Alumni Weekend. Return to Hoboken and see all the exciting happenings on campus. Reconnect and reminisce with old friends and renew ties with your alma mater. There are many activities for the entire Stevens community and their families—from special presentations by Stevens faculty, students and President Farvardin to social events such as the ever-popular beer and wine tastings and the new alumni picnic and a kids festival in the heart of campus. Special recognition will be given to alumni celebrating milestone reunions.

Are you in? Visit stevens.edu/alumniweekend
STRUGGLES, TRIUMPHS OF STEVENS WOMEN

We had a reunion this summer of Stevens ladies from the Classes of ’74–’78. (See Fall 2015 Indicator.) These were the first undergraduate female graduates of Stevens. Quite a few of these ladies became quite successful in their careers. There are a few corporate execs (IBM, ExxonMobil, etc.), two Ph.D.s, two artists and some very successful engineers and scientists. Some had children, and some did not. That’s all great, right? But, in speaking with these ladies, pretty much all of them had been offered $.79 on the dollar for a job at some point in their career. Many had been passed over in their career path in favor of men (some younger), and later got asked to help these same men out because they didn’t know how to do the job the ladies could do. Some hit the glass ceiling pretty hard. Some retired early because of that. Most, if not all, were sexually harassed at some point in their career to varying levels. While at Stevens, we all got called “co-techs.” One was consistently called “sir” by a Stevens professor as the only female in that class. One was described on a performance review as an engineer as: “She can do anything a man can do, except pee standing up.” A New York Times reporter interviewed the women of the Class of 1975 and asked if we felt badly that we were taking jobs away from men. One Stevens lady had an on-campus interview in her senior year, and the opening line from the industry recruiter was, “Well, you don’t look like the kind of gal who wants to wash diapers!” Usually these kinds of offenses were met with humor rather than a well-deserved tongue-lashing from the ladies. What wants to wash diapers?” Usually these kinds of offenses were met with humor rather than a well-deserved tongue-lashing from the ladies. What

happened next? Well, that’s all great, right? But, in speaking with these ladies, pretty much all of them had been offered $.79 on the dollar for a job at some point in their career. Many had been passed over in their career path in favor of men (some younger), and later got asked to help these same men out because they didn’t know how to do the job the ladies could do. Some hit the glass ceiling pretty hard. Some retired early because of that. Most, if not all, were sexually harassed at some point in their career to varying levels. While at Stevens, we all got called “co-techs.” One was consistently called “sir” by a Stevens professor as the only female in that class. One was described on a performance review as an engineer as: “She can do anything a man can do, except pee standing up.” A New York Times reporter interviewed the women of the Class of 1975 and asked if we felt badly that we were taking jobs away from men. One Stevens lady had an on-campus interview in her senior year, and the opening line from the industry recruiter was, “Well, you don’t look like the kind of gal who wants to wash diapers!” Usually these kinds of offenses were met with humor rather than a well-deserved tongue-lashing from the ladies. What seemed par for the course then, of course, seems outrageous now. Yet none of these ladies seem bitter, and all appreciated their time and education at Stevens, and all would do it all over again. Thankfully, conditions for working women engineers are better now than in the “good old days.” Of course, there’s still a long way to go. — Martha J. Connolly ’75, Ph.D.

Editor’s Note: Dr. Connolly is director of BioEntrepreneurship, and director, Mtech Baltimore, at the University of Maryland.
CELEBRATE WITH US
The Stevens Alumni Association is pleased to invite all alumni, whether you are celebrating a milestone reunion or not, to gather on campus June 3, 4 and 5, 2016, for Red & Gray Days at Alumni Weekend! Visit stevens.edu/alumniweekend to learn more about the exciting activities being planned.

Fee Award Winners Announced
We are pleased to recognize this year’s Harold R. Fee ’20 Alumni Achievement Award recipients. These awards are given to reunion class members from the past 25 years for their outstanding effort on behalf of the Stevens community since their graduation:

✦ 25th Reunion: Jeff Capone ’91
✦ 20th Reunion: David George ’96
✦ 15th Reunion: Martha "Patty" Torres ’01
✦ 10th Reunion: Rob Hoar ’06
✦ 5th Reunion: Tori (O’Connor) Blazeski ’11

And the Winner Is…
It also is our distinct honor during the weekend to celebrate the 2015 Stevens Alumni Award recipient, Arthur V. Ketterer ’61, for his many years of outstanding and dedicated service to Stevens and the Alumni Association.

Get Involved
Attend SAA Business Meetings
The SAA hosts seven business meetings a year in the Howe Center on the Stevens campus. Members of the Stevens administration are invited to provide updates about Stevens’ progress. SAA committees provide status reports about programs and services throughout the year and new strategic initiatives are announced for input and involvement.

Executive Committee Meeting Calendar
Monday, February 8, 2016
Monday, March 7, 2016
Monday, April 11, 2016
Monday, June 13, 2016

To register for an alumni meeting and/or to participate in the many events being offered on campus and around the country, visit stevens.edu/alumni/community/events/calendar.

QUICK FACTS
For nearly 45 years, the Alumni Association has been providing scholarships to qualified students with legacy relations to Stevens. More than 130 alumni have benefited from the generosity of the association and the many individual donors who have made this scholarship possible. To make a gift to this fund, visit stevens.edu/makeagift/.

MEETING MINUTES
Read minutes of the SAA meetings at stevens.edu/alumni/meeting-minutes.

BENEFITS SPOTLIGHT
Being an alumnus/a of Stevens entitles you to a lifetime email account with the Stevens Alumni Association. To request a lifetime alumni email, call (201) 216-5163 or contact alumni@stevens.edu.

LINKEDIN ALUMNI NETWORK
Join more than 30,000 Stevens alumni on LinkedIn to build your network, expand your professional knowledge and benefit from the incredible success of your fellow alumni.

Visit stevens.edu/alumni/linkedin to join today!
First Place for Stevens!

10-19 Best in Class
The university introduces new technologies, new teaching methods — all for a better student experience.

20-22 Toward a Stronger Stevens
Stevens is finding success in hiring and advancing top-notch female professors.

23 Building the Future
Talya Santillan ’99 balances designing complex mechanical systems with mentoring.

24-25 Stars in Her Eyes
Jo Ann Uhde Hinson ’75 reflects on her 25-year career with NASA.

26-27 Back to School
After a successful career in communications and technology, Nate Davis ’76 takes his experience to the “K12 classroom.”

28-29 Leading by Example
Professor Monika Sikand Ph.D. ’12 pedals 320 miles to combat climate change.

28-29 Focus on Family
Physician Elizabeth Suarez-Cedeño ’94 knows the importance of familial relationships.

30 Life in Space
Multiple patent-holder Neill Myers ’67 continues a 50-year career with NASA.

34-35 Coming Home
Alumni braved inclement weather to attend Homecoming Weekend.
My last letter, as you may recall, outlined a few key objectives that I promised you, the Stevens alumni community, that the Stevens Alumni Association (SAA) Executive Committee would focus on in the weeks and months ahead. It gives me great pleasure to inform you that, in the short time since I last wrote to you, we have made great progress toward our goal of creating a state-of-the-art alumni program to better serve our community.

You all have been witness to the many positive changes that have occurred at Stevens in recent years, many of which have positioned our university among the leading institutions of higher education in the country. Among these achievements are: (1.) Stevens graduates entering into many new areas of cutting-edge technology that are revolutionizing our society; (2.) a broadening of the degrees at Stevens to include a technology-oriented School of Business and College of Arts and Letters; and (3.) a more diverse and substantially increased alumni base represented by our more recent graduates. In response, the Stevens Alumni Association must seize this moment and commit to modernizing our programming, aligning with industry best practices and, most importantly, serving the needs and aspirations of the entire Stevens alumni body.

One key step in this direction was the establishment of the Ad Hoc Constitution Committee, chaired by Leo Collins ’59, in August 2015. This group of dedicated volunteers comprises alumni representatives from all decades, members of the Board of Trustees and administrators. Its chief objective is to examine closely the SAA governing documents, with an eye toward maximizing our engagement with the university and the broader alumni community. A guiding light of the committee’s efforts is the Alumni Relations Program Review Report, a study co-commissioned by the SAA and Stevens and conducted by the nationally known consulting firm Bentz Whaley Flessner. This comprehensive review of our alumni efforts was precipitated by the new Memorandum of Understanding between the SAA and Stevens, which was adopted in December 2014. In light of this positive and forward-looking MOU, the leadership of both the SAA and Stevens felt that an in-depth review conducted by independent experts would provide insights and findings that could help us not only chart the future of alumni relations, but also assess the SAA governance structure in ways that will bring the SAA and Stevens even closer together. To read more about the decision to undertake this important effort and to view the report, please visit stevens.edu/alumni/StevensAlumniRelationsProgramReviewReport.

In addition to examining the governing documents, we continue to seek new and innovative vehicles for expanding and enhancing broad-based alumni interaction. Another ad hoc committee, focused on increasing active participation at SAA meetings, has also been formed. The volunteers on this committee are dedicated to making the meetings more interesting and diverse, providing more value to alumni and, to put it bluntly, making the evening more fun! We also are in the process of rolling out new alumni benefits, which will include an improved alumni ID card that will give you ease of access to the campus shuttle, library and so much more. Stay connected to learn about these and other exciting improvements.

Following the last letter, I received so many messages from alumni who clearly care and are interested in the future of the SAA and Stevens. I welcome and encourage your input and suggestions on how we can continue to better serve you, and cultivate and maintain your interest in your alma mater. Please feel free to email me at any time.

On behalf of the entire alumni association, thank you for all that you do for the SAA and Stevens — and here’s to a happy, healthy and prosperous 2016! ♦

Per aspera ad astra,

President, Stevens Alumni Association
jdipompe@stevens.edu
"Technology at our Core." This is one of the strategic priorities the Stevens community adopted in our 10-year Strategic Plan. True to this priority, Stevens faculty and students are deeply engaged in exploring new ways to leverage technology across all disciplines and domains to develop new and better approaches to a range of problems facing our global society.

Technology has revolutionized the way we communicate, transformed whole industries and created occupations that previously did not exist. The next decades and beyond promise to be no less dynamic as technological innovation continues to provide new capabilities and create new challenges.

Technically oriented institutions like Stevens must continue and even strengthen the preparation they provide to students so that they develop the skills, abilities and agility for personal and professional success in such a dynamic environment. At Stevens, we also take seriously our responsibility to instill in our graduates not only the orientation toward incremental innovation, but also a propensity for "disruptive innovation" — innovation that changes the way we live, work, communicate, travel, invest, socialize and more.

One of the five "foundational pillars" of our Strategic Plan is STEM (science, technology, engineering and mathematics) education and research. A statement from our Strategic Plan summarizes our lofty goal: "Stevens will create a new paradigm that elegantly combines stellar learning opportunities and trailblazing research as inseparable components of a 21st century education."

We are currently deeply engaged in a number of projects that seek to radically advance teaching and learning. Of course, technology has enormous potential to improve how and what we teach and learn, and it is a distinctive feature of a Stevens education. It enables improved access to education through asynchronous learning technologies that facilitate instruction and collaboration not restricted by time or location; through virtual software and cloud-based technologies, such as the Stevens Virtual Learning Environment, which simplify continuity of research and learning without restriction by device or machine; through advanced research and laboratory spaces, like the Hanlon Financial Systems Lab, which aid hands-on learning with the latest in industry-standard technology to equip students with both theoretical and practical knowledge; and through the Co-op program and internships, Senior Design projects and many more experiences that build our students’ real-world experiences outside of the classroom.

These examples illustrate some of the distinctive features of a Stevens education that ensure that the learning outcomes for our graduates translate into career outcomes, making our graduates marketable and in demand across technology, engineering, business, finance and many other fields.

But Stevens is also advancing the frontiers of learning and thinking through innovative research programs that utilize technology in novel ways. Mathematics professor Alexei Miasnikov and his colleagues have developed a machine-mediated learning analysis and feedback system that dramatically improves the learning outcomes of introductory calculus courses. College of Arts & Letters professor Alex Wellerstein has developed visualization tools to explore and understand nuclear threats in the 21st century, and biomedical engineering faculty member George McConnell is applying engineering approaches to advance understanding of neurological and psychiatric disorders such as autism and obsessive-compulsive disorder (OCD). The potential is literally limitless.

Without a doubt, technology is a significant contributor to Stevens’ rising rankings in the ROI and mid-career salaries of its graduates, for which we are currently ranked #3 and #10 respectively, according to PayScale’s 2015 reports. Technology is a key reason that our students land successful first jobs and build successful careers at companies as diverse as Lockheed Martin, ExxonMobil, L’Oréal, Ernst & Young, Disney, Johnson & Johnson and Goldman Sachs. Technology is a catalyst for the success of Stevens graduates.

But technology also holds the promise for transformative and disruptive innovations that will change the future of teaching and learning. With the talent and dedication of our faculty and researchers, Stevens will surely be a significant player in this emerging and critically important domain. ♦

Per aspera ad astra,

Nariman Farvardin
President, Stevens Institute of Technology
president@stevens.edu
201-216-5213
Stevens received approval from the Hoboken Board of Adjustment on the 89,000-sq.-ft. Academic Gateway project, during a hearing on Nov. 17, 2015. Expected to open for the 2018–2019 academic year, Gateway is an essential component of Stevens’ 10-year strategic plan, which seeks to position the university to advance education and research in areas of significant societal need. Located on the northeast and southeast corners of Hudson and Sixth streets, the facility will be the new home for a host of leading-edge laboratories, programs and academic departments, as well as office and classroom space, all equipped with state-of-the-art technology.

Support for Stevens shattered all records in FY15, and the university is now recognizing and thanking its generous donors with the 2014-15 Stevens Donor Honor Roll. Alumni, friends and organizations contributed a record $28.6 million in FY15, from July 1, 2014, to June 30, 2015, with more than 3,500 individuals and organizations making a gift. While many alumni feel a responsibility to give back to the university that gave them so much, others donate because of their passion for a specific cause, from crucially needed facilities for students and faculty to scholarships. More than 550 students received financial aid in FY15 to help them obtain a Stevens education because of gifts for scholarships. To view the Stevens Donor Honor Roll, visit http://connect.stevens.edu/fy15donorwall.

Stevens Director of Athletics Russell Rogers was named a Division III Administrator of the Year by the Eastern College Athletic Conference (ECAC) in September. Under Rogers’ leadership, Stevens won its first NCAA team national title (men’s volleyball) in 2015 and captured its fourth consecutive Collegiate Athletic Administrators of New Jersey (CAANJ) Cup, signifying Stevens as the top performing NCAA Division III university in the state. Rogers was one of only two Division III administrators to receive the award from the ECAC, which is the nation’s largest athletic conference, with roughly 300 member institutions from 16 states.
Sigma Nu Fraternity recently awarded national honors to David J. Evans (top photo) and Mark Scalzo (bottom photo), both members of the Class of 2015. Evans, a men’s volleyball team captain, was named the fraternity’s Athlete of the Year for the 2014-2015 academic year for helping lead the Ducks to the 2015 NCAA Division III National Championship in men’s volleyball while maintaining a 3.8 GPA. Scalzo was awarded membership into the fraternity’s prestigious Alpha Alumni Chapter Affiliate program for his dedication to the fraternity, as well as his 3.79 GPA, extracurricular record and demonstrated leadership. He was one of only ten graduating seniors nationwide to receive the honor. Currently, Evans is pursuing a professional volleyball career in Europe, and Scalzo is on the technical services team at Epic, a medical software company.

STEVENS MARKS 30 YEARS WITH MACY’S PARADE

As Macy’s presented its 89th Annual Macy’s Thanksgiving Day Parade this past fall, Stevens celebrated its 30th anniversary of sending student, alumni and staff volunteers to help bring the iconic event to life. Organized by longtime women’s fencing coach Linda Vollkommer-Lynch H.Eng. ’04 and Robert Grieser ’88 M.Eng. ’93, the 130 Stevens volunteers were responsible for a variety of tasks — from balloon inflation to piloting to vehicle management — and dedicated their holiday to the parade, spending Wednesday night at the American Museum of Natural History and waking up at 4 a.m. on Thanksgiving to make sure the balloons would safely float down the parade route. Grieser has worked the parade for all 30 years, and Vollkommer-Lynch for 29 years. In recognition of this milestone, Macy’s donated $10,000 to the Stevens Scholarship Fund in addition to its annual donation. — Rebecca Markley
STEVENS PLACED FIRST IN SEVEN OF THE 10 COMPETITION CATEGORIES:
ENGINEERING
ARCHITECTURE
MARKET APPEAL
HOME LIFE
COMMUNICATIONS
APPLIANCES
COMMUTING
SURE HOUSE Triumphs at 2015 Solar Decathlon

Stevens’ SURE HOUSE team — inspired by Hurricane Sandy to design and build an energy-efficient home resilient enough to withstand hurricane-force winds and flooding — captured top honors at the U.S. Department of Energy Solar Decathlon 2015 this past October in Irvine, California.

A panel of judges honored the team for the overall design, construction and sustainable operation of the SURE HOUSE, which achieved a total score of 950.685 out of a possible 1,000 — the highest score in competition history — and outshined more than a dozen other student teams from universities around the world. SURE HOUSE captured first place in seven out of 10 categories, another competition record. (See box.) SURE HOUSE marks Stevens’ third consecutive entry in the prestigious biennial competition since 2011.

“This competition challenges the best and brightest minds from around the world to create innovative, highly energy-efficient homes that will change how we build,” said U.S. Secretary of Energy Ernest Moniz. “These homes will become the new standard in blending affordability, consumer appeal and design with optimal energy production and maximum efficiency.”

After witnessing the aftermath and devastation of Superstorm Sandy in 2012, a team of more than 30 Stevens students from various disciplines came together to build a house that would serve as a prototype for coastal homeowners in search of a sustainable, attractive and more storm-resilient building.

“This incredible victory is the culmination of a two-year journey and a testament to the hard work, commitment and ingenuity of the Stevens Solar Decathlon team,” said Stevens President Nariman Farvardin. “Their participation in this competition embodies the Stevens ethos to leverage science and technology education to confront some of society’s biggest challenges. I could not be more proud of our students and the faculty who guided them to this outcome.”

The Stevens and Hoboken communities packed Walker Gym on Nov. 4, 2015, to congratulate the team on its momentous achievement.

Sponsorship was critical to the team’s success, as more than 100 companies and individuals supported the SURE HOUSE effort. Dr. Farvardin presented a plaque to Ellen Lambert, president of the PSEG Foundation, in recognition of PSEG’s contribution as the largest sponsor of SURE HOUSE.

Chris Hamm, a graduate student in Stevens’ Product Architecture and Engineering program and SURE HOUSE’s construction manager, described the unique learning opportunity that comes with participating in the Solar Decathlon as a process that truly prepares students for career success.

“I can’t imagine anything quite like this experience,” Hamm said. — YoungSoo Yang

To learn more about SURE HOUSE, visit surehouse.org.
TEACHING, TRANSFORMED

Stevens is innovating bold new technologies and teaching methods to deliver ever-better learning experiences to students

BY PAUL KARR
Division of Communications & Marketing
This past March, The Chronicle of Higher Education trained a light on a discouraging recent trend. “Attrition is rampant,” reported The Chronicle. “Nationally, only 58 percent of all first-time students who started a two- or four-year college in fall 2012 returned to the same institution the following year ... [only] 69 percent returned to any college. That’s a ton of missed opportunities — and lost tuition revenue.”

It’s clear that learning in the 21st century has undergone tremendous change, fueled by an explosive growth in information technologies and ‘smart’ devices and in the context of the increasingly complex lives and learning styles of students, graduate students and corporate learners alike. Engaging new students to dive into rigorous course material, and remain focused through to degree completion, is more challenging than ever.

Determined to tackle this new environment and bridge the digital gap, while still keeping its graduate and undergraduate students at the center of the learning experience, Stevens has responded with technology and ingenuity to teach differently and more effectively.

“I think we all understand, especially at a place like Stevens, that the 21st century is a century of technology, the century of innovation,” noted former Intel CEO Craig Barrett, speaking at Stevens in 2014.

During the past year alone, the university has rebooted its physical campus, equipping faculty and students with the latest digital tools with which to teach and learn (see box, page 13). With support from the State of New Jersey, Stevens created and launched the Stevens Virtual Learning Environment last fall.

Stevens has created new technologies and introduced new methods to reach today’s students — but the student-teacher relationship remains at the heart of all learning. Here, Professor Jose Ramirez-Marquez speaks with students inside the Immersion Lab.
— a technical breakthrough available at only a handful of universities nationwide (see story, page 14).

To complement those upgrades, a raft of innovative teaching technologies and curricular innovations are also being deployed and tested across campus — many developed at, and unique to, Stevens. These innovations complement a rising trend of excellence — the university’s freshman retention rate (94 percent) and within-six-year graduation rate (82 percent) are stronger than at any time in the institution’s history — and further cement Stevens’ powerful commitment to fueling student success, a central tenet of the university’s strategic plan, “The Future. Ours to Create.”

“We are making significant headway in developing powerful new teaching technologies, ideas, tools and methods,” notes Provost and University Vice President George Korfiatis. “Our faculty are pushing the frontiers of development in several specific areas, and we are making great strides toward becoming a leader in a digital age.”

Here are some examples of how that is happening.

**CLICKERS, TEAMS, SOFTWARE & SELF-STUDY: THE NEW CALCULUS**

Two semesters of calculus have long been a required element of any Stevens engineering degree, and there’s a reason why.

“Effective learning of calculus, and integration of this learning with engineering science, leads directly to a better understanding of engineering principles,” explains professor Alexei Miasnikov, director of the university’s mathematical sciences department. “Preparing students to be critical thinkers is our top priority.”

But there was a problem: About seven years ago, faculty noticed that significant numbers of incoming freshmen simply weren’t grasping the material. Miasnikov, current School of Engineering & Science Interim Dean Keith Sheppard and an interdisciplinary team of mathematicians, computer scientists and educators assembled to study the issue in depth and brainstorm creative solutions.

It wasn’t long before calculus instruction at Stevens began to change.

Incoming students began to be divided into several tracks, with specially paced sections made available and taught to students who had not been sufficiently exposed to calculus in high school. Each course was split into half-semester modules to make material more digestible. Before lectures, instructors began requiring students to complete self-study projects on material that had formerly been covered only in class sessions.

Instructors also distributed ‘clickers’ (small handheld transmitters) during lectures; students could now feed live answers to questions and problems to the professor, allowing discussions to pivot in real time and address poorly understood concepts. During class time, students sometimes broke out into small teams to attack problems, workshop-style, rather than working alone.

As a result of these changes, and others, “student retention and retention of knowledge
have both soared, while the academic standards remain rigorous,” notes Miasnikov.

The data bear that out. Five years ago, one in three Stevens calculus students received grades of D or F, or withdrew entirely from a calculus course without receiving credit. Today, far fewer calculus students (about 15 percent) fall into these categories — and performance improves further after the annual January intercession.

Last year, Stevens unveiled a second dramatic innovation in the calculus classroom: Gradarius, a revolutionary new software platform.

“MOOCs [massive open online courses] are very popular, where students can watch lectures at home and a computer program automatically grades whether your answers are strictly correct or incorrect,” says Miasnikov. “But that’s not really the feedback students tell us they want. They would like to know where they’re wrong.”

The new platform accommodates that wish, managing homework assignments, administering and grading quizzes, monitoring self-study and providing meaningful feedback during the problem-solving process — showing how a solution might be partially correct and hinting at new pathways to complete it, for instance.

The software also collects data from homework exercises, reporting back to instructors on areas where classroom instruction or course materials could be altered or better focused.

“Homework and problem sets are analyzed daily to highlight typical mistakes and trouble spots,” explains Miasnikov, who was honored with faculty member and Gradarius

A screenshot of Gradarius, a revolutionary calculus software platform developed at Stevens that provides students with feedback during the problem-solving process.

CLASSROOMS, LIBRARY ADD SMART TECH TO ENHANCE LEARNING

STEVEN'S CLASSROOMS AND LECTURE HALLS HAVE BEEN SIGNIFICANTLY UPGRADED OF LATE, IN AN EFFORT TO ENHANCE BOTH TEACHING AND LEARNING ON CAMPUS.

Vice President of Facilities Robert Maffia and Vice President and Chief Information Officer David Dodd have spearheaded a drive to roll out better hardware and software across the university, including the Stevens Virtual Learning Environment (see page 14) and Canvas, the university’s new learning management system for students. The Canvas rollout required training more than 400 faculty and adjuncts in its use; since its adoption in 2014, nearly 90 percent of Stevens’ coursework, or more than 1,100 courses per semester, have been integrated with the system.

Other recent improvements to campus tech include:

- Replacement of 90 percent of the university’s classroom projectors
- HDMI support and audio system improvements to nearly half of the classrooms on campus
- Deployment of NVidia technology for video and multimedia streaming and Blackboard Collaborate technology for videoconferencing
- Integration of services and publishers, including YouTube, Khan Academy, The New York Times, Magna Commons and Biomids, into the Stevens learning experience
- Adoption of an integrated, campus-wide syllabus template
- Development of an increasingly mobile-friendly environment at Stevens for both students and faculty
- The adoption of Turning Point technology, which enables instant classroom response to questions and problem sets via small transmitting devices known as ‘clickers.’

Progress won’t stop there. To help faculty keep abreast of new and evolving technologies and strategies to support teaching and learning, Stevens’ annual Learning Technology Exposition will become a twice-annual event in 2016.

LIBRARY ALSO ENJOYS UPGRADES

The Samuel C. Williams Library is also part of the technical upgrades sweeping the Stevens campus. Under the leadership of Michael Scalero, director of learning technologies; Division of Information Technology, and Linda Beninghove, interim director of the library, recent enhancements to the Williams Library and student experience include:

- Seven new SMART kapp whiteboards that improve collaboration by sharing notes in real time, across iOS and Android devices, in formats including PDF, JPG and PNG with up to 250 approved users at once. The whiteboards also integrate with note-taking applications such as Evernote, and all notes are securely and instantly deleted when the boards are erased.
- Three mobile collaboration display carts that can be moved throughout the library to allow for breakout sessions and plugged in. The stations also contain Blu-ray players.
- Eight large high-definition ‘BYOD’ HP displays installed in carrels on the first floor, allowing users to connect most devices, extend screen and monitor space and view multiple documents.
- Five state-of-the-art LG displays, with both wired and wireless collaboration capabilities, generously donated by Sang-Beom Han M.S. ’85 Ph.D. ’91, the CEO and president of LG Display.
- Nine mobile whiteboards with divider panels to enable additional breakout sessions for collaboration and brainstorming; these can be relocated to anywhere in the library. ❑ — Paul Karr

▲ Students use one of the seven SMART kapp whiteboards in the S.C. Williams Library that were installed to help improve collaboration.
co-creator Aleksey Myasnikov by the New Jersey Inventors’ Hall of Fame in late October for Gradarius’ creation. “This is unique data on how students think, and what they don’t understand. It allows professors to focus on important concepts in follow-up lectures, and to adjust problem sets and instruction to focus on the right areas for each class and student.”

“It noticeably increased the effectiveness of homework exercises,” adds George-Douglas Price ’19, who enrolled in Calculus I as a freshman engineering student. “The software checks every step of your progress and tells you when you accomplish an essential step or when you make an error. Sometimes, it suggests clarifying something in your answer without penalizing you.

“The level of interactivity every step of the way made this, at least for me, a very powerful learning tool. Over time, I found myself actually looking forward to doing Gradarius homework. It would not surprise me to see other schools adopt the system in the near future.”

Indeed, New York City’s Hunter College and the prestigious Brooklyn Technical High School are among several institutions already piloting tailored versions of Gradarius in their own mathematics curricula.

During the first year after Gradarius was rolled out, calculus grades and final exam scores improved significantly. As a percentage, students attaining As nearly tripled while the number receiving Ds or Fs decreased by half. “We can’t say this is solely because of Gradarius,” cautions Miasnikov. “Really good

FOLLOWING LEADING-EDGE INDUSTRY’S LEAD

The seed for the idea came when Dodd discovered, in 2013, industry leaders such as Boeing, NASA and Sikorsky were deploying a specialized technology known as graphic virtualization. “We wanted and needed this technology here as well,” he recalls.

To do it, Dodd enlisted a trio from his IT team: Karen Swift, director of user support services at the university; mobile technology expert Frank Filogamo; and user services technician Devin Poore. They contacted vendors, assembled the complex pieces required to make the VLE work, and tested it exhaustively before a fall 2014 trial run.

Now, two years later, it’s a reality. “It’s intuitive, accessible and user-friendly,” says Dakota Van Deursen ’19, a freshman from Kansas City studying chemical engineering. “Overall, I am very pleased with it and how my education has advanced because of it. Graphics and Design would be a real challenge were it not for the VLE. I have been able to perform well in those classes thanks to it.”
professors have been developing the whole system and curriculum for awhile, and we teach the material much better than we did before. But Gradarius is certainly part of it. “Nobody else has this, and it’s the future of online education.”

**IRIS: AN EXPERIMENT IN CLASSROOM CROWDSOURCING**

A similar effort to develop technology that meets modern student needs is underway in the School of Business.

The applications available — everything from the entire Adobe Creative Cloud including Photoshop and Premiere to SOLIDWORKS, Mathematica, MatLab, Mimics, the Microsoft Office suite and other applications — work on nearly all devices, including netbooks and laptops (even those with minimal memory), tablets and smartphones. All operating systems are supported, including Android, Windows, Linux and Mac.

“I like the idea that a user can increase the computing power of his or her machine without having to undergo major upgrades to either hardware or software,” comments Konrad Petelski ’18, a civil engineering major. “I see the VLE as a powerful tool with a lot of potential.”

**STATE-OF-THE-ART IT**

To handle the load, the Stevens VLE is powered by 62 enclosed HP “blade” servers in two secure locations, each packing two Intel Xeon E5 multi-core processors. To distribute the constant streams of network traffic and avoid overloading any single server, the VLE also deploys four Citrix NetScalers, which provide load balancing and support high availability.

Additional back-end software powering the Stevens VLE includes Citrix XenDesktop Enterprise and Citrix Director — the core softwares creating the virtual environment — as well as RES Software One Workspace, Liquidware Stratosphere UX (to monitor and troubleshoot the system) and Login VSI (a software specially crafted for testing virtual desktops).

“This is all state-of-the-art technology,” notes Dodd. “We’re grateful for the state’s support, and the university’s foresight and support, in enabling us to go best-in-class here.”

The package of accessible softwares will continue to grow over time, he adds, and will soon include specialized professional software packages used in music technology and biomedical engineering, among other disciplines.

“The Stevens VLE is without a doubt reshaping the ways we teach and learn at our institution and beyond,” Dodd concludes. “This new technology enhances the student and faculty experience, controls our computing infrastructure costs and frees up vital resources for more strategic purposes. It is truly a win-win.” — Paul Karr
The secret sauce, which nobody else has, is the way we tailor delivery of the resources,” Lappas says. “We do that through proprietary software and a set of tools, including comprehensive demographic surveys and a system of developing and promoting those links and resources that actually help students — as defined by the very students working real-time on these problem sets and ‘liking’ whatever turns out to be the most useful information.”

Lappas’ course design encourages students to both create resources and links and evaluate the helpfulness of information on an ongoing basis by giving extra credit for helping and evaluating. Later, using an algorithm, IRIS automatically propagates the most useful online resources during future queries.

Crucially, the software can even personalize the package of links and resources delivered to each student based on usage history, problem-solving history and additional factors.

“The system also feeds back data to instructors, who can adjust lectures and quizzes to target problem areas,” adds Lappas, who will analyze data for the current academic year next summer.

If IRIS proves as useful in programming learning and knowledge retention as he believes it will, he will then seek additional funding support to build a more robust tool with a more resilient back-end.

“We began by calling these tools ‘smart textbooks,’” concludes Lappas. “But they have evolved into something much more, into an entire system that can potentially be broadened to use in other areas of STEM education. We see possible future applications of this technology to the teaching of engineering, physics and other hard sciences with well-defined problems and answers.

“It’s potentially very exciting.”

NEW NSF SUPPORT FOR A NEW WAY OF TEACHING

Stevens is also changing the way in which courses are conceived of and taught, says Koriatis, and this fine-tuned approach to teaching methods and student success is already paying dividends.

In September, Stevens was awarded $2.8 million by the National Science Foundation’s (NSF) Improving Undergraduate STEM Education program to help faculty learn to adapt their teaching of STEM topics — particularly introductory courses in core topics such as mathematics, science and engineering taken during the freshman and sophomore years — to more active, student-centered approaches that research shows can lead to deeper, more transferable learning.

The five-year project will create the Foundations Program, led by Sheppard, who will work with colleagues in the School of Business, Department of Mechanical Engineering, Center for Innovation in Engineering & Science Education (CIESE), Office of Diversity & Inclusion and Office of the Provost.

Columbia University’s Teachers College will also contribute to the research and evaluation components of the project.

“The NSF grant will help faculty learn new approaches, and also address those challenges that accompany significant changes to how they structure their classes and interact with students,” notes Sheppard.

The Foundations Program team will test a systemic strategy to implement so-called
evidence-based teaching approaches.’ These are approaches that have emerged from a large body of research, much of it funded by the NSF, on increasing student engagement in their own learning in order to improve outcomes. The new program will include educational research to measure and examine the effectiveness of the proposed interventions.

Stevens will also work to actively recognize and reward faculty and instructors working to implement the new methods, adds Sheppard.

“We have to address the institutional culture and the recognition and reward system to support the faculty in adopting transformative teaching practices while they simultaneously direct their efforts towards research, meeting dual goals of the university’s mission,” says Sheppard, adding that students will also be challenged by a new, less predictable and formalized learning environment.

THINKING LIKE A STARTUP: FRESHMEN AS ENTREPRENEURS

Stevens is also offering unique coursework and curricula aimed at teaching students to think more broadly and creatively.

A pilot course, Introduction to Entrepreneurial Thinking, has operated successfully in the School of Business since 2013. The course, taught by innovation expert Peter Koen and 10 fellow faculty, challenges freshmen engineering students to think outside the box, develop new ideas and solve problems while they are stepping into the university experience.

It’s one of only two such undergraduate courses in the nation.

“Many of our students may not wish to become entrepreneurs, but that is not the goal here,” explains Koen. “An increasing volume of research shows that entrepreneurial thinking, even within large organizations, can and does transform those organizations’ strategies and success in innovating new ideas and products.”

The freshman course is designed to be different … and part of ‘different’ means fun.

Students must pitch ideas to classmates from their very first class. Discussions alternate with teamwork sessions brainstorming ideas for new products such as smartphone apps, a system to improve sports officiating, a digital fingerprint lock, a digital ‘smart wallet’ or headphones that adjust music mixes on a pocket device to the wearer’s current heartbeat.

As the course progresses, students learn by doing, meeting with dozens of potential customers, performing real market research and developing actual prototypes. Guest seminars are taught by successful entrepreneurs on such topics as teamwork, leadership, strategy, intellectual property, finance, manufacturing and funding acquisition. Three Harvard Business Review case studies are examined by the freshmen.

There’s also a new interactive self-study module on oral communication teaching first-year engineering students to present their ideas — a concept soon tested in a required one-minute video that must be posted to social media.

“Our students have been telling us loud and clear they want more interactivity,” says Koen. “We are giving them that.”

Later in the semester, each team in the 500-student class presents a three-minute video describing a new product idea while faculty and fellow students munch popcorn and evaluate the ideas, Shark Tank-style.

“We learned that the main goal of an entrepreneur is to make your business work, not just make your idea work,” says computer engineering major Dylan Praul ’17 of his class experience. “You have to have the problem before the solution.”

Stevens will also take additional steps to integrate innovation and entrepreneurship into its curricula.

Beginning in 2016, the university will further weave design innovation and entrepreneurial thinking into curricular and co-curricular experiences. One key actor in (Continued on page 19)
A scientifically and technologically savvy workforce is now critical to the nation’s future well-being.

Studies have suggested that as much as 85 percent of U.S. economic growth may be the direct or indirect result of technological innovation, and STEM (science, technology, engineering and mathematics) occupations comprise a growing sector of the economy. Projected to create 2.4 million new jobs over the decade from 2008 to 2018, STEM fields are responsible for countless innovations in fields such as computing, aerospace, defense, telecommunications, materials, medicine and healthcare.

And Stevens has long been ahead of the STEM innovation curve.

**Educating the Educators**

Stevens created the Center for Innovation in Engineering and Science Education (CIESE) more than a quarter-century ago to begin teaching K-12 teachers how to better instruct and inspire their students in STEM disciplines, with a particular focus on the intersection between science and engineering, through rapidly emerging new technologies such as mathematics software and the Internet.

Envisioned and directed by Edward Friedman, the MIT-trained physicist who had been instrumental in Stevens becoming the first U.S. institution to require undergraduates to purchase personal computers, the Center quickly picked up steam. Beth McGrath, now chief of staff to Stevens President Nariman Farvardin, joined the Center in 1993 and became director in 2004, serving as director and executive director until 2011. Under her leadership, CIESE expanded its portfolio to include engineering, which was largely absent from K-12 offerings at the time.

The Center eventually grew to approximately 30 instructional and training programs, reaching more than 30,000 educators worldwide. Its impact — particularly in bringing STEM programming to disadvantaged youth nationwide — earned a prestigious honor in January 2011 when McGrath traveled to Washington, D.C. on behalf of CIESE to accept a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring from President Barack Obama.

“CIESE’s impact has been felt locally, through its work with Hoboken and Hudson County schools, as well as throughout New Jersey and in more than 25 U.S. states and in more than a dozen countries,” notes McGrath. “Through programs delivered directly to teachers and students, through turnkey training and scale-up programs, and through its contributions to STEM education research, CIESE has literally changed the landscape of K-12 STEM education.”

The NSF also supports another major collaborative initiative at CIESE, the Partnership to Improve Student Achievement (PISA²), through an $11.5 million grant to Stevens. PISA² engages third-through-eighth-grade teachers in approximately a dozen New Jersey school districts. The grant, part of NSF’s Math and Science Partnership Program, enables more than 300 teachers to participate in either graduate-level science course classes or a series of week-long summer institutes.

PISA² teachers also participate in school-year professional development workshops and receive in-school coaching visits from CIESE staff, as well.

“Rather than emphasizing competition,” says current CIESE director Arthur Camins, “WaterBotics teaches teamwork. The teams get together and learn from one another, rather than focusing on keeping information private and trying to defeat one another. For years, employers have been telling us that collaboration and communication are prized talents.”

The curriculum has been in use in classrooms and out-of-school settings nationwide since 2006, and is now available commercially.

One of CIESE’s most visible successes has been WaterBotics, an engineering design curriculum developed with support from two National Science Foundation (NSF) grants. WaterBotics has engaged thousands of middle school and high school students, including large numbers of girls and underserved minorities who are underrepresented in the STEM workforce.

It works like this: Students design, program, test and iteratively improve underwater robots built from LEGO® bricks and other materials to address specific mission challenges such as rescuing simulated drowning swimmers, cleaning up an oil spill, safely detonating underwater mines and salvaging materials from an underwater shipwreck. (The mines, oil slicks and swimmers are represented by such stand-ins as ping pong and Wiffle balls.)

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“Our whole method of teaching has greatly changed since our PISA² experience,” says Dr. Sylvia Piznik, a seventh-grade science teacher at Intermediate East, a middle school in Toms River. “We now include engineering design and challenges as part of the standard middle school curriculum.”

“It is rare to have professional development time to cooperatively discuss, plan and experience STEM activities,” adds Helen Cleveland, a seventh-grade teacher in Howell Township’s Middle School South in east-central New Jersey. “While this program challenged my own knowledge of the subject, it also opened my eyes to the struggle my students face daily. I learned more science during this program, but perhaps the greatest lesson learned was experiencing the classroom as a student again.”
to Stern

New STEM Academies, Classrooms, Energy

All this training and professional development has trickled down to school districts’ academic programming, as well.

In Brick Township, on the Jersey shore, the Emma Havens Young Elementary School added a special STEM classroom for third through fifth grade students.

In Bayonne, third and seventh grade students at the highly regarded Nicholas Oresko School team up to tackle simplified engineering challenges such as designing a new, improved hot-water bottle. Influenced heavily by CIESE, the city’s high school unveiled a STEM Academy in September 2014, a dedicated floor where students in grades nine through 12 convene to study biology and robotics and meet with fellow New Jersey schools for friendly science competitions. Bayonne has also added special weekend science courses for eighth-graders; constructed a ‘biodome,’ housing roughly 300 small animals for care, feeding and study; and trained teachers to deliver coursework and score tests on state-of-the-art ‘smart’ boards that would not look out of place in a corporate boardroom.

Bayonne Superintendent of Schools Patricia McGeehan says she’s grateful for Stevens’ longtime support and guidance in the technology training students crave.

“Stevens has given our teachers access to high-level mathematicians and high-level engineers and helped create a great deal of excitement here,” says McGeehan, whose school district has collaborated with CIESE since the mid-1990s. “We are now packing our gymnasium, a venue normally used exclusively for athletics events, with a different audience: parents cheering for their kids, on a Saturday or Sunday, while they build robots.”

The high school’s engineering curriculum, she points out, is drawn directly from one CIESE designed.

“I walk these classrooms and I see kids who are so intent on learning,” McGeehan notes. “Their engagement and their time on task are remarkable; nobody is sitting in these classrooms looking out the window. The technology and the new areas of curriculum have stimulated the entire community, teacher and student alike.

“And Stevens gave us the base, the foundation, for all of this.” — Paul Karr

Middle school and high school teachers test their WaterBotics robots during a simulation exercise.

Professor Kishore Pochiraju directs the new Innovation Design & Entrepreneurship at Stevens (IDEaS) program.

(Continued from page 17)

that process: the new IDEaS (Innovation Design & Entrepreneurship at Stevens) program, under the leadership of the Office of Innovation and Entrepreneurship. Directed by mechanical engineering professor Kishore Pochiraju, IDEaS will develop curricular- and project-focused learning modules at the same time engineering and science coursework is being developed.

“Stevens currently requires eight design-oriented courses during the four-year undergraduate engineering experience,” notes Pochiraju. “Three courses on entrepreneurial thinking are also taught to engineering students during the freshman and senior years.

IDEaS will coordinate these activities and work toward adding new offerings during the sophomore and junior years, in an effort to create an ‘innovation spine’ that focuses on problem definition based on customer research; identification of entrepreneurial and business value propositions for research; and design projects and elements of starting up businesses.”

IDEaS will also create and manage the new PROtotype Object Fabrication (PROOF) Lab, equipped with customized fabrication facilities capable of rapid, state-of-the-art 3D printing, laser cutting, machining and composites manufacturing. Initially the PROOF Lab will be located in the Carnegie Building. It will relocate to Stevens’ new Academic Gateway complex, which is expected to open for the 2018-2019 academic year.

“With the advent of 3D printing, ‘maker’ culture is pervading society and rapid prototyping is now key to innovation in many fields of engineering,” concludes Pochiraju. “Considering Stevens’ heritage, we expect this space to be central to kindling innovative ideas and inculcating entrepreneurial thinking within our student body.”

Joe Arney & Blythe Nobleman also contributed to this story.
More women have joined the university’s tenured and non-tenured ranks in the past three years, reflecting progress toward Stevens’ goal within its strategic plan, “The Future. Ours to Create,” to increase the diversity of its faculty. The decision to increase efforts to search more widely and more effectively to attract top-quality faculty members — both men and women from diverse backgrounds — has seen Stevens hire top women researchers from places such as Princeton University, Georgia Tech and New York University. And, Stevens administrators and faculty resoundingly agree that it is leading to a higher-quality faculty better equipped to address and solve the complex problems of our time.

The change has been noticed. In fall 2014, Stevens ranked No. 20 among 230 U.S. engineering colleges for percentage of women tenured and tenure-track engineering faculty, at 22.8 percent, according to the American Society for Engineering Education (ASEE), in its publication, 2014 ASEE Profiles of Engineering and Engineering Technology Colleges. This compares with a national average of women tenured and tenure-track engineering faculty of 15.2 percent, according to ASEE.

And to further jumpstart this strategic priority, in 2013, Stevens received a $550,000 five-year ADVANCE grant from the National Science Foundation (NSF). NSF ADVANCE was developed to implement systemic strategies to increase the representation of women faculty in science, technology, engineering and math (STEM) and the social and behavioral science (SBS) fields. Since the program began in 2001, only 130 universities have been awarded this competitive grant.

As Stevens has risen in several national rankings in recent years — from educational quality to return on investment — it has made recruiting outstanding faculty of all demographics a top priority, says Susan Metz, executive director of diversity and inclusion at Stevens. “We have had success increasing the gender diversity of our faculty, but increasing racial and ethnic diversity among the faculty remains a challenge that we are working hard to address,” she says.

The research on why faculty diversity matters is well-documented. Faculty diversity enhances teaching, research and innovation (Catalyst, 2013; Herring 2009, Page 2007; Chang et al., 2003; American Association of University Professors, 2000); provides greater access to top talent (“Beyond Bias and Barriers,” National Academies Press, 2006); and ensures access to role models, necessary to increase the enrollment, performance and retention of women and minority students who are underrepresented in STEM (Report to the President, President’s Council of Advisors on Science and Technology, 2012).

“Diversity is a key driver of innovation. The educational experience of our students and level of research and teaching of our faculty are enhanced by the presence of diversity in the broadest sense,” Metz says.

“If you don’t engage women, who represent 50 percent of the world’s population, the university enterprise is limited and suffers. Different perspectives inject energy and creativity
into the discussion — and often complexity. For Stevens, diversity really is improving the academic culture so all faculty can succeed ... If we want to attract the best and the brightest, we need a culture that offers the best to everyone.”

President Nariman Farvardin made the status of women at Stevens a priority almost immediately upon taking office when he established the Presidential Commission for the Advancement of Women at Stevens in January 2012, just several months after his inauguration.

The 18-member committee, chaired by computer science professor Adriana Compagnoni and consisting of faculty, staff, alumnae and other professionals, made a number of recommendations to improve the status of women at Stevens and to increase the number of women faculty and students. Among them was creating a president’s cabinet-level position for diversity and inclusion for which Metz, a recipient of the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring and a founder and president of Women in Engineering Proactive Network (WEPAN), was hired in January 2013.

Professor Michael Bruno, now former dean of Stevens’ School of Engineering and Science, describes what he calls an extraordinary change over the 27 years that he spent at Stevens. All of his departments have made a stronger effort in recent years to seek out a more diverse pool of faculty candidates, men and women, he says — and that has made for a stronger Stevens.

“Diversity in hiring is a huge positive for the school,” Bruno says. “It’s a force for positive change in the departments. It’s a diversity of opinions brought on by a diversity of life experiences” that are needed to deal with complex problems that the world must try to solve, he says.

“Whenever you enlarge a pool of candidates, you’re going to end up with higher quality.”

Recent efforts to improve the way candidates are recruited have led to the hiring of some top female faculty from across the country. Bruno mentions Professor Linda Thomas, a former Georgia Tech professor and international leader in construction management (see page 22); Professor Stephanie Lee, a chemical engineering professor with a Ph.D. from Princeton University, who is heading up the Lee Lab, devoted to solar energy research; Professor Samantha Kleinberg, a computer science Ph.D. out of New York University who received in 2014 NSF’s highly esteemed CAREER grant award, among others.

And as Stevens has increased the number of women faculty in recent years, Bruno has noticed a positive development: More outstanding female students across all disciplines, from physics to civil engineering, have come to Stevens. He’s not fully sure of all of the reasons, but has some ideas.

“There’s an inspiration,” he says. “There’s perhaps an affirmation that this is a field where I can thrive.”

Gabriella Green ’16, a biomedical engineering major (see below), mentions biomedical engineering professor Vikki Hazelwood Ph.D. ’07 and literature and writing professor Robin Hammerman as faculty who have inspired her.

“There’s a whole wide world of people and seeing that reflected in the Stevens faculty, it lets you see what is possible,” Green says. “You can see what you want to be, there’s no stereotype.”

Gabriella Green will never forget her “found moment” just two weeks before college applications were due.

She saw an article about the discrepancy between the number of available kidneys and the number of patients who needed them — and something clicked. She started reading as much as she could and learned that biomedical engineers are working hard to find a way to save the 12 people who die each day waiting for a life-saving kidney transplant. Now, as a biomedical engineering major in her final year at Stevens, she has discovered her calling.

“I just really want to help people — that’s my main goal in life,” Green says.

Today, Green has some impressive biomedical research under her belt, is a prolific student leader and intends to become the first female Ph.D. in her family, with plans to continue in biomedical engineering. Her dream: working for the Centers for Disease Control and Prevention, in a role that uses science to directly affect everyday people in a positive way.

Green is a Clare Boothe Luce Scholar, one of three women students at Stevens to receive this prestigious, full-tuition scholarship for her final two years of study. Stevens won a $280,000 grant from the Henry Luce Foundation’s Clare Boothe Luce Program to support these merit scholarships, and a selection committee chose the recipients. The scholarship, Green says, has made a huge difference in her life.

“Not only did I get to meet powerful and inspirational women, but I was also able to attend the largest career fair in the country,” she says. “This was a highlight of my college experience that I know would not be afforded to me without the generous stipend associated with the CBL scholarship.”

At Stevens, Green has thrived. She’s a member of Tau Beta Pi and the Alpha Phi Omega service fraternity, a peer mentor for freshmen and a founder and vice president of scholarship with Sigma Delta Tau sorority.

Her biomedical research has seen her work on nerve conduits, developing technology to bridge broken nerves so they grow untangled and healthy. Her research, conducted under Stevens Professor Xiaojun Yu, was published in the Journal of the Peripheral Nervous System.

And during a two-year co-op experience with Zimmer Biomet in Parsippany, New Jersey, she designed spine implants and proudly notes that she helped to launch more than 50 implants.

As she contemplates graduate schools, Green carries lessons from her parents.

Her mother, Rose Green, is a professor of nutrition at Montclair State and “the hardest-working person I know.”

And her father, the late Morris Green, M.D., was a scientist turned geriatric doctor. He died when Green was just 10, but his daughter’s memories of him are vivid: of his quirkiness, his joy for his work, his delight in playing chess with his elderly patients.

“That inspired me — how he loved science and loved people,” she says.

“I am, in a way, continuing a legacy of STEM in my family.” — Beth Kissinger
Some of the top new faculty, including Lee and Thomas, say that Stevens’ ADVANCE grant and commitment to diversity attracted them to the university.

“This highly sought-after grant reflects Stevens’ courage to tackle difficult questions faced in 21st-century higher education,” says Thomas. “[In my opinion, disruptive innovation is more likely to come from scholars with differing perspectives who challenge the conventional ways of thinking about problems.”

Workshops made possible by the ADVANCE grant have included one on unconscious bias in hiring and different communication styles, which Lee says have been incredibly helpful, as has a new peer mentorship group.

“Since getting here, I’ve felt very supported on all levels. Everyone wants me to succeed — that’s been really great,” Lee says.

Dr. Julie Pullen, an associate professor of ocean engineering, along with Thomas, are among 13 faculty members and staff who sit on the ADVANCE Stevens Steering Committee. Pullen has participated in NSF mentoring programs for female graduate students and early-career scientists and has seen the positive impact of such programs. So she wants to help foster this supportive network at Stevens and praises the recent activities behind the ADVANCE grant.

“It allows us to tap into the full potential of the capability of Stevens’ diverse community, and it really makes sure that everyone can reach their potential and value, leading to a greater Stevens,” she says.

Activities supported by the grant have included Office of the Provost lectures that have brought prominent women speakers to campus such as Corinna Cortes, head of Google Research, NY; a talk by Dr. Scott Page from the University of Michigan on “Improving Collective Decision Making and Performance: Why Diversity Matters,” which attracted more than 400 people to DeBaun Auditorium; EXCEL in Academia, a leadership development program which is being pilot tested by women faculty, but will be adapted and eventually opened to all faculty, among other efforts.

The ADVANCE Stevens Steering Committee includes outstanding faculty members and administrators, among them longtime Stevens professor of computer science David Naumann.

To Naumann, being involved with ADVANCE is the most natural thing to do.

“I’m faculty at Stevens. It’s a priority to me to encourage my colleagues to thrive and for us to recruit and retain the best people.

“We need great minds, we need smart people who are working on important problems, who bring good ideas, who bring innovation. We cannot afford to do things that push away half of the people in the world.

“Women faculty serve as role models to our students — all of our students.”

Metz acknowledges that increasing diversity and creating an academic culture that is a level playing field for all faculty is an ambitious goal. “It takes time but it’s beginning to happen because increasing numbers of faculty, men and women, are engaged in this process. There is energy around this issue.

“And leadership matters — and Stevens has that type of leadership at the top,” Metz says. “It’s an exciting time.” — Beth Kissinger

BUILDING A WORLD-CLASS PROGRAM IN CONSTRUCTION MANAGEMENT

Dr. Linda Thomas got the job: Turn Georgia Tech into a “village” for 30,000 people. A year to plan, but only two weeks to build.

As construction manager for the $30 million Athletes Village for the 1996 Summer Olympic Games in Atlanta, she delivered the temporary facilities required — on time — for a small city: Olympic-size pool, new or adapted residences, a kitchen to feed 3,500 in one sitting, five McDonald’s restaurants, a dance hall and coffeehouse to keep the young athletes busy, utilities, a satellite television studio for NBC’s “The Today Show.”

“It was a once-in-a-lifetime experience,” she says. “It was a unique project — we had more money than we had time.

“It was fascinating and still remains fascinating to me. Talk about the ultimate in team work.”

This is just one major construction project that the multi-talented Thomas — a former Georgia Tech professor, Navy officer and attorney — led in her earlier life as a construction manager. The Georgia Tech Ph.D. has spent the last 20 years as an educator — at her alma mater and at the NewSchool of Architecture and Design (NSAD) — and is now leading Stevens’ efforts to re-invigorate its construction management program.

The program’s new focus is her specialty — mega-projects, those projects that cost more than $1 billion, take more than a year to complete and are notorious for going over budget, Thomas explains during a recent conversation inside her Altorfer Academic Complex office.

Since joining Stevens in May 2014, Thomas has been busy, hiring Associate Teaching Professor Elyn Lester; hosting roundtables with construction firms in New York and New Jersey to discuss their research and educational needs; developing symposia for industry professionals; updating the curriculum and offering several new construction management and continuing education courses.

“Our success is a testament to how things can get done at a small school,” she says. “Stevens is a wonderful place to work.

“It’s a nice feeling to be rewarded this job at this point in my career — to be at a place where I feel I am listened to, able to do innovative things and feel supported.”

She often relies on case studies and real-life examples in her teaching, so Stevens also appealed to her because of its proud history of innovation. Thomas points toward several major innovations stemming from Stevens, including the Jersey barrier, which is used to separate traffic lanes and minimize vehicle damage, and the Gantt Chart — developed by Henry Gantt, Class of 1884, a bar chart for project scheduling and an essential tool for many construction managers.

“There are many research heavyweights in the built environment from Stevens,” she says.

Those who work with her say that Thomas has made an impact in her brief time at Castle Point.

“In a short amount of time she has built up the construction management program both in numbers (doubling the number of incoming students) and in quality. It’s more rigorous now, and has incorporated formal training in leadership and in research methods,” says Profesor David Vaccari, director of the Department of Civil, Environmental and Ocean Engineering. “I think that because of Linda, the Stevens construction management program is poised to become one of the premier construction management programs in the country.”

Before joining Stevens, Thomas founded the Construction Management Department at the NSAD and was previously a tenured professor at Georgia Tech, in its building construction program. She has also worked as a litigation attorney and a lieutenant with the U.S. Civil Engineer Corps.

For the Atlanta Olympics, she was asked to design a course that allowed Georgia Tech students to work with her on the Athletes Village. She immediately fell in love with teaching.

“I like seeing the light bulb go on,” she explains. “Twenty-somethings look like they’re all together and grown up — that’s just the exterior. There’s constant internal questioning going on, they’re coming into themselves. I am privileged to be a witness.” — Beth Kissinger
Talya Santillan '99 is one of the few privileged to have become familiar with the various mechanical systems and history of this one-of-a-kind building during a remarkable consulting engineering career that spans more than 16 years.

“Having the opportunity to investigate and learn the systems in such a world-renowned building was a great experience,” she said.

Since graduating from Stevens with a bachelor’s in mechanical engineering, Santillan has built an impressive career in consulting engineering. Last year, Santillan was named by Consulting-Specifying Engineer magazine as a recipient of the “40 Under 40” award, given to 40 building industry professionals age 40 and younger who stand out in all aspects of their lives, particularly in the nonresidential building community.

“In consulting engineering firms, our business is roughly 50 percent engineering and 50 percent being in front of clients, architects and owners who don’t necessarily understand the full technical aspect of the industry or the systems that we’re going to put in their buildings,” Santillan explained.

That ability to communicate highly technical concepts in layman’s terms is a skill Santillan says was honed during her time at Stevens, from the humanities classes she attended to the presentation she delivered as part of her senior design project.

“I think it was critical to be able to stand up there in front of a group of people and articulate not only your design, which could be great, but to be able to communicate to people who don’t necessarily understand all the technology that went behind it,” she said. “I remember several labs and presentations that we had to do in front of the professor where it wasn’t about communicating the technical, it was just speaking in front of a group and being quick on your feet in answering questions and having that knowledge base to be able to answer those questions.”

Another important function that Santillan performs at Kohler Ronan is in the training and mentoring of new hires.

“Mentoring young engineers with respect to imparting the knowledge that I have and the experience that I’ve gained in the field is critical, and definitely something that I’m passionate about. I think in mentoring you can impart your experiences, your knowledge, your faults, your strengths and weaknesses to somebody to show how they can become better.” — YoungSoo Yang
JO ANN UHDE HINSON ’75 WAS ONLY 4 WHEN SPUTNIK ORBITED THE EARTH ABOVE ELIZABETH, NEW JERSEY, BUT STILL REMEMBERS HOW EVERYONE IN HER HOMETOWN BECAME STARGAZERS AT THAT MOMENT IN TIME.

“Everyone would look up to stare at the night sky, searching for Sputnik,” she says.

This only child from a working-class family who loved to collect astronaut trading stamps went on to earn bachelor’s, master’s and doctoral degrees from Stevens in electrical engineering, enjoy a 25-year career with NASA and find herself inside a replica of the Russian space station Mir, as an engineer for the International Space Station. Her extraordinary path — among Stevens’ first class of undergraduate women — isn’t lost on her.

“I kind of got bitten by the NASA bug,” she says. “I was a person who needed to touch things.

“It was reassuring to touch something I knew was going into space and was going to be used.”

This NASA veteran, based at Johnson Space Center in Houston, worked primarily with the International Space Station on an astonishing variety of projects she says are a testament to her diverse Stevens education. Hinson served as an engineer and project manager, her work touching on simulation, avionics systems, automatic code generation and flight hardware.

This past fall, Hinson, who retired from NASA in September, took a few moments from her home in Travelers Rest, South Carolina, to reflect on her NASA years and to contemplate what lies ahead.

She generously takes a phone call, and her good-naturedness becomes obvious when she reveals that she’s rushed with final preparations for daughter Julia’s wedding in just two weeks.

“She’s my only child,” Hinson reflects. “This is it.”

She was about Julia’s age when, as a Stevens assistant professor of electrical engineering, she first worked as a summer faculty fellow at NASA in 1986. She officially joined the space agency in 1991, when she helped to launch the Rapid Development Lab, which was responsible for automatic code generation.

She later migrated to personal computer and information systems for the International Space Station. A particularly memorable period came when she worked on a wireless instrumentation system to monitor the temperature of the huge trusses used to construct the International Space Station while they were being transported in the cargo bay of the Space Shuttle.

Hinson recalls the day that she got the call to do a health check
of the shuttle’s radio system just 24 hours before launch time. Standing on the commander’s seat in the middle of the night, the shuttle fully fueled and Hinson in a flame-retardant suit, she had mere minutes to do the health check and complete her task. The shuttle, perched vertically on the pad, was disorienting — and unforgettable.

“I can’t describe how impressive it was — it was enormous,” she says. She completed her health check in time, exited the space craft and stayed for the launch.

“The thing that you never get on TV when it’s launching is the tremendous crackling in the air,” she says.

Among her most rewarding projects involved the development of a “Skype-like” system for the International Space Station. In the past, crew members had to schedule any contact with loved ones back on Earth in advance.

“(Now) they could call down to their families any time they wanted,” she said. “This was a highly important psychological boost.”

For Hinson’s final stretch with NASA — from 2003 to 2015 — she project-managed the certification of flight hardware and software, working on projects such as Space Video Gateway, the first live broadcast of high-definition video from the International Space Station, shown on a Jumbotron over New York City’s Times Square. She also led the effort in a crucial inventory management system for the spacecraft — a bar code/RFID device that floats about the spacecraft and looks for items that the astronauts have misplaced.

“They lose stuff,” Hinson says. “Inventory management is important” because it can influence the potential for future space exploration, she points out, as flying up replacement items — an enormously expensive proposition — is not an option for a mission to Mars.

Among her most memorable NASA moments — besides that night inside the shuttle — was traveling to Moscow and meeting her Russian counterparts.

NASA and Energia, located in Korolev, a town just outside of Moscow, worked on a joint local area network (LAN) project for the International Space Station. Hinson spent two weeks working in Russia in 2002, making time to visit the museum which housed the Mir and Soyuz replicas and, most memorably, strolling Red Square and meeting Russian scientists.

Over long afternoon tea breaks, she chatted with the Russian female scientists and engineers and discovered that their experiences in male-dominated fields closely reflected her own; one Russian female colleague declared them “soul sisters.”

Just as touching was the moment Hinson stood in Red Square.

“It was quite an experience as a child of the Cold War — the whole ‘duck and cover’ — and then going and standing in Red Square,” she says. “It was a little emotional. As children, we understood that when the bomb hit, that was it.”

Life is calmer now in Travelers Rest, in the foothills of the Blue Ridge Mountains, where Hinson and her husband have built a house in the woods.

For her next act, Hinson is considering something creative (she and her husband designed their new home) and, of course, technical. She may volunteer with the local schools, a NASA engineer looking to ignite that same excitement she felt when she first looked toward the stars. ✭ — Beth Kissinger
Nathaniel “Nate” Davis ’76 had enjoyed a long career as a leader in telecommunications, wireless and Internet businesses when he learned, in 2009, about a Washington, D.C.-area company, K12, that was innovating new online platforms for schoolchildren.

“My wife and I had long operated a small family foundation, assisting five to six students annually,” he recalls. “We had reached the time of life when you give back. And I thought we would be kicking back and enjoying life.

“But when I discovered K12, something happened. Maybe it’s because both of my parents were educators. It just felt right.”

Davis joined the company’s board of directors that year. Three years later, he was elected chairman of the K12 board, and in 2014 he became full-time CEO, where he leads strategy and expansion of one of the nation’s leading online providers of educational tools and curriculum for elementary school- through high school-age students.

“There’s something about that view by the point and the flags, when you’re looking out over the river and the city is all lit up before you, that just gets you. I knew I wanted to take advantage of that tremendous location.”

During his time in Hoboken, Davis would often take the PATH train into Manhattan to enjoy the arts, dining and nightlife. He also admits developing a fondness for Benny Tudino’s pizza on Washington Street.

Davis, who took an exceptionally heavy course load — “I was nearly finished with my degree by the time I became a senior,” he points out — found time to become an active student leader, serving as president of the Stevens honor society, Khoda, and co-founding Stevens’ Black Student Union.

Athletics were not overlooked, either.

“I played a lot of basketball,” he chuckles, “and my roommate, who was a top squash player, taught me squash.

“I came here from South Jersey knowing nothing about either squash or lacrosse, but when I left, I could play both.”

REACHING TODAY’S STUDENTS

WHEN I GRADUATED, I LEFT STEVENS FEELING I COULD CONQUER THE WORLD. I FELT THAT IF I COULD MAKE IT THERE — AS THEY SAY — I COULD MAKE IT ANYWHERE.”

LOCATION, LOCATION, LOCATION

Davis came to Stevens from Mount Holly, New Jersey.

“I already knew I wanted a technical career,” he says of the decision to matriculate. “I didn’t know too much about Stevens, but its reputation as an engineering school even then was superb. And what really grabbed me was the location: I could have New York City right at my doorstep.

LEADING IN TELECOM, INTERNET AND SATELLITE RADIO

His Stevens degree in electrical engineering firmly in hand, Davis took a position with AT&T.

“I really enjoyed the technical side,” he says of his first roles in telecommunications, “but I also knew early on that I wanted to be managing projects rather than building them.”

That dream soon came true. He subsequently obtained a master’s degree in engineering computer science from the University of Pennsylvania and then an MBA from Penn’s prestigious Wharton School. Later, he was named chief operating officer of MCImetro, a subsidiary of MCI, one of the nation’s largest telecommunications firms, in the wake
of legislation that forced AT&T to de-monopolize and compete with new telecom firms.

Eventually, Davis was promoted to the role of chief financial officer at MCI, where he found himself squarely in the middle of a remarkable tech revolution.

“The timing just happened to be right. This was just when ARPANET was becoming the Internet, and a little thing called MCI Mail would become email,” he recalls. “It was a very exciting time. I had become interested in wireless, and fortunately it took off, and we built out some of the largest wireless networks at MCI.”

Later, after a period in consulting and venture capital, Davis moved to XO Communications, a multi-service provider of Internet service, web hosting and local and long-distance calling, as president and chief operating officer and eventually became chief executive officer.

His next move was to XM Satellite Radio, then the larger of two dominant players in the satellite radio business.

“That was some of the most fun I’ve had at a business, I think,” says Davis. “The operational challenges were enormous, but there were so many pieces to that business: satellite networks, sports content, musical artists, selling to the auto manufacturers, selling to the consumer.”

Eventually XM merged with its competitor, Sirius, forming a single entity.

“We decided we were spending far too much time and energy trying to knock each other out, and not enough time fighting the threats to our business: the rise of smartphones, devices and streaming music services, all of which threatened to wipe out our competitive advantages,” he remembers.

The merger strategy worked: Today the two businesses operate as one, holding a dominant market position and combined licenses to a wealth of sports, music and entertainment content.

**THE VITAL IMPORTANCE OF STEM**

As Davis moves K-12 forward in a digital age, he often thinks back on his own parents’ careers and the importance of training, retaining and adequately compensating skilled educators.

“We must honor — and pay — teachers more,” says Davis firmly. “It all begins with them.”

His current company supports teachers and students alike through the K-12 years, he says, by guiding them through a newly digital world of learning.

“Some people might think an online company is taking teaching out of the equation,” he says. “Far from it. We are enabling parents and family members to be more involved in their child’s education, including the choice of what kind of education they want, and equipping the student with more tools. Since a student will use the Internet to do research in the world of work one day, why don’t we let them bring a laptop to class — with some controls on browsing, of course — right from day one, and let them explore the world as they learn?

“This is how the world works today, and I believe it’s our responsibility to teach students how to use the best technological tools available,” he says.

He also feels passionately about STEM (science, technology, engineering and mathematics) education in America.

“Our children spend a great deal of time entertaining themselves, but in other countries, this isn’t necessarily the case,” says Davis. “Children in foreign countries are generally very serious about math and science homework, from an early age, and I’d like to see us get back to that place. It is vital for the competitiveness and future of the nation.”

As for Stevens’ own emphasis on STEM, Davis remains grateful for the mark it made on him.

“It was absolutely useful. It was tough, it was hard, but I learned that you have got to put in the time and work to succeed,” he recalls of those years on Castle Point. “I can still remember specific problems we had to solve, such as for the angular velocity of the helicopter blades of a helicopter going a certain speed and turning. This was not easy to do.

“But when I graduated, I left Stevens feeling I could conquer the world. I felt that if I could make it there — as they say — I could make it anywhere.” — Paul Karr

“I HAD A PASSION TO CONTRIBUTE, AND I FELT I COULD DO SO BY HELPING THE COMPANY HIRE GREAT TEACHERS, BUILD GREAT EDUCATIONAL CONTENT AND SUPPORT SYSTEMS WITH THE STUDENT ALWAYS IN MIND.”

— NATHANIEL “NATE” DAVIS ’76

PHOTOS:  K 12

REACHING TODAY’S STUDENTS   THROUGH ONLINE TEACHING

NATE DAVIS ’76 COMBINES HIS PARENTS’ PASSION FOR EDUCATION WITH A LIFETIME OF EXPERIENCE IN TECHNOLOGY

ALUMNI

PROFILE

WINTER 2016  27
PROFESSOR CHALLENGES HERSELF TO COMBAT CLIMATE CHANGE

As a physics and astronomy professor with a research interest in climate science, Monika Verma Sikand Ph.D. ’12 has delivered the lectures, published the research papers, adhered to good practices at home — from turning off lights to conserving water — to help the planet and shine the light on climate change.

But while teaching hundreds of students at Stevens and Bronx Community College, and raising three young daughters, she still feels compelled to do more.

“I wanted to ‘walk the talk,’” she says. “I’m a role model to my students. If I do something, they’re going to notice.”

So this past fall, this novice bicyclist biked 320 miles, from Bar Harbor, Maine, to Boston, to raise money for organizations that support research and educate young people about climate science. She herself raised $4,000 for the American Geophysical Union and the Alliance for Climate Education, while the five-day event, Climate Ride Northeast, brought in nearly $425,000 for these and similar organizations.

Her recent “ah-ha” moment to act came from her 2-year-old daughter, Sohila. Sohila adores a mulberry tree in their Weehawken, New Jersey, neighborhood but one day couldn’t find any more berries.

“What if we lose all of this? It took me to that thought process,” Sikand says.

“I cannot just benefit my own children like this. I need to make it an effort for everyone. It’s

ALUMNA KEEPS THINGS PERSONAL IN PRACTICING MEDICINE

Living and working in College Station, Texas, as a family physician practicing obstetrics for the past 11 years, Elizabeth Suarez-Cedeño ’94 is realizing a dream she didn’t think possible when she was growing up in New Jersey.

“I always had in mind that I wanted to become a physician since I was a child, but I didn’t think it was possible, mostly for financial reasons.”

It wasn’t until the Newark, New Jersey, native got to Stevens Institute of Technology that the dream started to become a possibility.

“I ended up speaking to people who were in medical school, as well as my advisors at Stevens who told me, ‘You know, there is financial aid, you don’t have to be rich to go to medical school,’” she says. “That’s when it hit me that it was possible!”

After that realization, Suarez-Cedeño enrolled in additional biomedical science and biology courses while pursuing a mechanical engineering degree, in order to satisfy the prerequisites needed to get into medical school.

After graduating from Stevens, Suarez-Cedeño attended the Robert Wood Johnson Medical School at the University of Medicine and Dentistry of New Jersey, and followed with a residency at JFK Medical Center in Edison, New Jersey.

After completing her residency, she moved to California to pursue an obstetrical fellowship at the University of Southern California. Although Suarez-Cedeño intended to return to New Jersey, a recruiter helped her land an interview for a position in Texas.

“When my husband and I came out to Texas, we never expected to like it, but we ended up loving it. And we’ve been here ever since.”

For this mother of an 8-year-old daughter, the idea of forming relationships with patients was very appealing. It was the reason she decided to focus on family medicine, she says.

“I just fell in love with the whole family unit,” she says. “In my practice, I take care of the pregnancy, deliver the baby, and follow that baby throughout its life. So I see the parents, grandparents, and so forth. So it
not only my house. It doesn’t stop here. It needs to go to the neighborhood, society, the community level.” Action and political will on climate change will never come from politicians, she says, but from the grassroots, from people.

Sikand carries this passion for climate education with her at Stevens, where she teaches physics to business students (she teaches physics and astronomy at Bronx Community College) and is also a visiting scientist with Stevens’ Light and Life Laboratory, inside the Burchard Building.

One of the lab’s main focuses is developing highly sophisticated algorithms for remote sensing retrievals. Sikand’s research — part of the lab’s research, supported by the National Science Foundation — has examined the optical properties of mixed-phase Arctic clouds. This research is based on a unique study conducted at Ny-Ålesund, Norway, in the Arctic using a tethered balloon system (TBS) and collected radiometric and high-resolution cloud data to understand the radiation balance of the earth and the melting of ice in polar regions.

Sikand clearly has a passion for research and teaching, and Stevens allows her the joy of working with highly motivated students and helping them achieve their dreams, she says. BCC, meanwhile, gives her the privilege of helping many first-generation college students make it through school, despite many obstacles.

“How can I make a difference in this person’s life who has economic and family challenges?” she says.

Making a difference as an educator — and advocating for the environment — were fostered at home in India, where she lived until age 26, before coming to the U.S. to attend Stevens. The natural world and science always interested her. “Physics helped me understand everything,” she says. But as she grew up in the town of Chandigarh, in the north, she saw the “old ways” of riding bicycles of her youth replaced by driving cars, and these lifestyle changes concerned her.

“I CANNOT JUST BENEFIT MY OWN CHILDREN LIKE THIS. I NEED TO MAKE IT AN EFFORT FOR EVERYONE.”
—MONIKA VERMA SIKAND ’12

“We were following western civilization; something was missing,” she says. “In the name of comfort and lifestyle, we compromised a lot for the next generation.”

Sikand, who has extensive family in India, hopes to one day contribute to the further development of her country’s educational system, to help more people have access to a quality education. She dreams of running her own lab devoted to climate science.

Sometimes, she sees climate education happening one person at a time.

Some of Sikand’s extended family members deny the existence of climate change, she says. But recently, one of these relatives sent her a story about the world experiencing the highest record so far of glacier meltings in 2015.

“No, there’s a pause, instead of denying completely,” Sikand says with a smile. — Beth Kissinger

“It was really great to be able to connect with people who also had disadvantages. But what I loved about STEP was that it was so multicultural. There were people from all different backgrounds and cultures,” she recalls. “We’d cook on the weekends. With students from the Dominican Republic, Haiti, Vietnam and India — I mean what a potluck of different kinds of foods!”

Lest there be any doubt, Suarez-Cedeño says she and friends were focused when it came to academics.

“We had a good time and we had fun. But we studied and got our work done. And we really formed a camaraderie and appreciation of our different backgrounds and different struggles in life. For me, it was priceless having that.” — YoungSoo Yang

Dr. Elizabeth Suarez-Cedeño ’94, a family physician who practices obstetrics in Texas, saw her dream to become a physician begin to become a reality at Stevens.
Neill Myers ’67 was two years into his career when his employer did something pretty interesting: it landed men on the moon. The recent Stevens grad contributed to the famous lunar mission as a propulsion engineer at the Marshall Space Flight Center in Alabama.

He had traveled from his lab in Huntsville to Cape Canaveral to see Armstrong, Aldrin and Collins lift off in Apollo 11, and he was watching with his colleagues on NASA screens when the craft touched the moon four days later on July 20, 1969.

“Everyone was really enthusiastic and excited,” Myers remembers. “It seemed like most of the problems with the Saturn V rocket had been worked out, and everyone was pretty confident the mission would succeed.”

Myers ended up at NASA after meeting a recruiter at Stevens, and nearly 50 years later he’s still there, having worked on a variety of projects, space-related and otherwise. In fact, he holds the most patents, 27, of anyone who’s worked at the Marshall Center.

His first patent involved duct coupling for zero gravity operations on Skylab, the first American space station, which orbited from 1973 to 1979. “We had to shut the airlock door quickly and needed coupling in the duct that the astronauts could undo quickly in zero gravity situations.”

His most challenging project was to help design the 60,000-pound-thrust Fastrac Engine, a success that landed seven patents. “We were trying to simplify a rocket engine design in-house by making the combustion chamber, nozzle and everything from one piece. That was pretty challenging. In the time frame of about three years we were able to totally design it, build it and fire it for full duration.”

Though Myers works for NASA, he has a mandate for thinking bigger than just outer space. The agency has always had an interest in applying its technology on Earth, and it has encouraged engineers like Myers to find creative solutions for everyday challenges. “We have a technology transfer office, and we’re always asking, what else could something be used for, what other applications does it have?”

NASA refers to those transfers as spinoffs. In one notable spinoff, Myers and a team of his colleagues saw how the concepts behind propulsion technology could fit a special knee brace that locks the knee in place and helps surgery patients walk easier and recover faster. The brace was patented, marketed by an orthopedics company, and later featured at the White House during celebrations of the Americans with Disabilities Act.

Myers comes from a family of engineers, including his father and grandfather. His father, William, graduated from Stevens in 1936 and passed interest in Castle Point to his son. “I always wanted to go to Stevens because my dad had gone there. I visited Lafayette and Lehigh, but really I just wanted to go to Stevens.”
None of these ‘green’ products or technologies yet exist, but they might one day come to pass if new Stevens research into sustainable energy sources at very small scales proves fruitful.

Chang-Hwan Choi, a mechanical engineering professor at Stevens, was recently awarded a three-year grant and $200,000 in support by the National Science Foundation to explore a so-called nanofluidic energy harvesting system. Dubbed a “hydropower plant on a chip,” the technology harvests energy from nanoscale water flows to create a self-sustaining energy supply.

“There is tremendous interest now in developing alternative energy sources such as wind and solar energy,” explains Choi. “Our idea was to investigate the concept of using hydropower, at very small scales, to generate significant quantities of energy using another naturally abundant resource: water.”

Choi’s proposed system works like this: A tiny amount of water is circulated through extremely narrow channels just one to 100 nanometers wide each. (By comparison, a single human hair is approximately 80,000 to 100,000 nanometers wide.) The channels are not perfectly smooth; instead, they have been specially engineered with nanoscale roughness so that their surfaces can attract and hold tiny bubbles of air present in the water. Some of the water flows around the bubbles without ever touching the solid channels, creating a super-slippery effect.

“The water on this superhydrophobic surface is moving on a thin layer of air, much like a puck glides on an air-hockey table,” explains Choi. “Many natural surfaces, such as the leaves of plants, exhibit a similar water-repelling characteristic known as the ‘lotus effect.’”

As the water streams over the frictionless surface, millions of ions formed in the nanoscale channel can be captured, transformed into electricity and temporarily stored — with almost no energy loss, compared with the 90-plus percent loss that occurs in conventional hydropower systems.

If his research proves fruitful, says Choi, the next step will be to develop larger, superthin membranes incorporating arrays of the textured channels. Those membranes would theoretically be able to capture and store enough energy to power smaller electronic devices.

Myers ’67 Endowed Scholarship to honor her brother and father and their shared scientific interest.

Myers is still at NASA and still innovating. The agency has recognized him with numerous awards, including its Distinguished Service Medal, NASA’s highest honor. Recently he has been working on fluid damping technology that could have the everyday benefit of keeping buildings from shaking during high winds or even earthquakes. “That’s new technology that we think can have some pretty interesting applications,” he says. ❖ — Alan Skontra
Biopharmaceutical giant AstraZeneca has named Pam Cheng ’92 M.Eng. ’95 as executive vice president, operations and IT. Prior to joining AstraZeneca, Cheng worked for Merck/MSD, where she held several positions with the company, including chief operating officer of MSD China, senior vice president of global supply chain management and logistics for MSD and, most recently, president of MSD China. She has extensive experience in pharmaceuticals manufacturing and supply chain management, and played a lead role in restructuring and upgrading Merck/MSD’s manufacturing technology and engineering capabilities. Cheng’s role at AstraZeneca focuses on manufacturing operations and supply chain, procurement and information technology globally.

Christine Ballard M.Eng. ’07 and Michael Manzella ’09, both of T&M Municipal Engineers, were named members of the design team for the Washington Street project in Hoboken — a transformation of the city’s famous thoroughfare. Ballard will serve as group manager of water main and Manzella as transportation planner. The proposed revitalization plan calls for the replacement of water mains, sidewalks and street furnishings, and the resurfacing of the road in an effort to improve pedestrian safety, expand access to mass transit, accommodate an increase in multimodal activity and incorporate green infrastructure. Spanning the entire length of Washington Street, the project is scheduled to begin in 2016 and is expected to take 12 to 18 months to complete. To learn more about the project, visit http://stevens.edu/washstreet.

Paulus, Sokolowski and Sartor (PS&S), an architecture and engineering firm, has appointed John Sartor M.Eng. ’95 M.Eng. ’99 M.S. ’03 as chief executive officer. Sartor, who will also retain his role as president of the company, has more than 20 years of experience with PS&S. He has worked on many high-profile projects, including the redevelopment of Hoboken’s South Waterfront, now home to John Wiley & Sons Inc. and the W Hotel, and the development of Atlantic City’s Borgata Hotel Casino & Spa. Prior to being named CEO, Sartor served as chief operating officer of PS&S, which is based in Warren, New Jersey.

Retired Stevens professor Silvio Laccetti H.Eng. ’96 was a finalist for the Montaigne Medal, an honor given to the most thought-provoking titles submitted to the Eric Hoffer Award for books, which recognizes academic, small and independent books of exceptional merit. Laccetti’s book, An American Commentary: Social Problems That Changed America in the 21st Century, is a collection of 60 of his essays that have appeared in newspapers across the U.S. and focus on major social issues transforming America today.

The Rev. Gabe Costa ’70 M.S. ’72 Ph.D. ’84 was invited by FOX Sports 1 to give his mathematical evaluation of Babe Ruth for the network’s special, Finding Babe Ruth. In his segment on the show, Costa, a mathematics professor with the United States Military Academy, used sabermetrics, the mathematical or statistical study of baseball, to prove to show host Steve Hofstetter that Ruth is, according to the numbers, the greatest player ever to step up to the plate. The show aired on Fox Sports 1 on Oct. 26.
While Rome, Greece or China may be popular study abroad choices for many college students, Stevens women’s basketball player Dylan Krause ’16 decided to venture off the beaten path and spend a month in India this past summer.

“The study abroad office offers a variety of programs and destinations,” said Krause. “I chose India because I knew it would be unlike any place I’d been to before, and it would be an opportunity to experience a new culture.”

A chemical biology major from Atlanta, Krause spent nearly a month in the town of Malavli as part of a program run by International Study Abroad that focuses on rural public health. While there, Krause shadowed a variety of physicians, observed multiple surgeries, helped take patients’ vital signs and traveled with a mobile health van to distribute medicine to isolated villages.

Krause also savored her “down time” — those moments when she got to meet and play with local children in the villages. While the trip was such a positive experience for Krause, it wasn’t without its small challenges.

“One of the hardest adjustments I had to make was to my diet,” Krause said. “For the duration of the program I was a vegetarian because those were the meals that were made in the house. I was nervous I wasn’t going to like the food, but I think now that Indian food might be my favorite.”

While work kept her busy for most of her stay, Krause did explore other parts of the country to experience more of the Indian culture. Krause’s sightseeing checklist included the region’s Buddhist caves, the India Gate in New Delhi, Mahatma Gandhi’s home in Sabarmati Ashram and, of course, the country’s most famous structure.

“I met up with Stevens alumna Kate Janes ’12, who’s working in India for a year, and together we went to see the Taj Mahal,” Krause said. “It’s an absolutely breathtaking structure.”

Travel is nothing new for Krause, whose passport includes stamps from family trips to England, Italy, Greece, Turkey, Egypt, Mexico and Canada, in addition to a week-long mission trip to Jamaica during high school. India, however, now holds a special place in her heart.

“I was able to learn so much about medicine and their culture, and it was an experience that really tested me as a person and taught me so much,” Krause said. “I feel extremely fortunate to have been able to go on this trip, and I hope to return at some point in the future.”

Krause now has her sights set on medical school and plans to take the MCAT in the spring. ❖ — Danny Vohden

You can catch this Ducks forward and her teammates in action this basketball season — and learn more about all Stevens athletics — by visiting stevensducks.com.
Stormy remnants of Hurricane Joaquin may have left Castle Point damp and windswept, but spirits shined brightly during Homecoming Weekend.

Despite some wind and rain, more than 200 people returned to campus on October 2-3, 2015, for the annual celebration of Stevens athletics, school spirit and fall. One memorable highlight was the Stevens Athletic Hall of Fame inductions, which drew more than 120 people back to Stevens to congratulate the newest Hall of Fame class, including Frank Rotunda, the former longtime men’s lacrosse coach and athletic director who devoted 30 years to the university. Rotunda, who served as men’s lacrosse coach from 1970 to 1990 and as athletic director from 1989 to 1997, traveled from California. More than 30 former student athletes and guests returned to thank him on his big night, including players from his first year of coaching through his twilight year.

Joining Rotunda in the Athletic Hall of Fame are: the late David E Martin ’53, soccer, basketball and lacrosse; Adam Sandt ’07, baseball; Nicholas Gkionis ’08, soccer; and Dora (Enright) Michniok ’08, basketball.

The weekend also featured Greek open houses and the Alumni Association’s popular Oktoberfest. But the weekend mostly celebrated Stevens athletics, past and present.

Despite a steady drizzle, the alumnae lacrosse game went off at 8 a.m. Saturday, with the student team defeating the alumnae 9-7. Some 23 former players took to the field, journeying from as far away as Ohio.

And while wet weather canceled the annual alumni lacrosse and alumni baseball games, the alumni swim meet was held again at DeBaun Pool, with alumni travelling from even farther distances — California, Idaho and Florida. In all, 32 alumni returned, with the Class of 2014 capturing the annual Alumni Relay Cup.

— Beth Kissinger

Stevens Director of Athletics Russell Rogers, far left, congratulates the 2015 inductees into the Stevens Athletic Hall of Fame. From left: Rogers; Adam Sandt ’07; Sue Martin, daughter of the late David E. Martin ’53; Coach Frank Rotunda; Dora (Enright) Michniok ’08; and Nicholas Gkionis ’08.
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For more information on Stevens alumni clubs, alumni benefits and upcoming events, visit stevens.edu/alumni
“When disaster strikes, how do we keep the public informed?” was the question asked by the WCPR Alumni Association. On Oct. 14, inside Stevens’ Bissinger Room, we heard the answers during our “Broadcasting Through Adversity” panel discussion.

Coordinated by WAA’s technical resource officer Robert May ’13 and cohosted with the Stevens Alumni Association and Stevens Career Center, several key representatives from the fields of broadcasting and journalism came together to provide unique insight into how broadcasting infrastructure is maintained and secured during times of crisis. Discussion topics ranged from the cell phone disruptions on September 11 to the reliability of ham radio during Hurricane Sandy to the necessity of contingency drills. The panelists discussed leadership qualities that shine in times of emergency and how disaster can spur new developments in telecommunications and broadcasting.

The panelists included: Scott Griffin, principal and vice president of Engineering and Technology, The Systems Group; Chris Tobin, former chief engineer, 1010 WINS; Bob Desiato, director of Disaster Recovery, AT&T; and Jeff Kinney, director of Field Operations/chief photographer, CNN. Lisa Pedrogo, senior director of Strategic Initiatives and Implementation at CNN, moderated. — Keith Cassidy ’09

The WCPR Alumni Association welcomed a prestigious panel this fall for its “Broadcasting Through Adversity” discussion on campus.▼

The Southern California Alumni Club gathered this October in Irvine, California, to cheer on Stevens’ SURE HOUSE team to victory in the 2015 Solar Decathlon and to celebrate with the team at the nearby Paul Martin’s American Grill. Read more about Stevens’ victory on p. 8. ❖

Hoboken-based alumni joined Stevens President Nariman Farvardin Farvardin, faculty and staff for a reception in September on Hoxie House lawn to welcome the fall season.▼
CALENDAR OF EVENTS

APR 21
THURSDAY
Spring Old Guard Luncheon
Stevens campus

MAR 16
WEDNESDAY
The President’s Distinguished Lecture Series featuring General Michael V. Hayden, former director of the CIA, speaking on “Danger, Complexity and Immediacy: Today’s Security Challenges”
Stevens campus
stevens.edu/lecture

MAR 30
WEDNESDAY
Center for Science Writings presents
Steven Gimbel, author of Einstein’s Jewish Science
Stevens campus

MAR 9
WEDNESDAY
Center for Science Writings presents
Stevens campus

For Center for Science Writings events, www.stevens.edu/cal/csw/events.php

APR 27
WEDNESDAY
Stevens Innovation Expo
Stevens campus
www.stevens.edu/expo

JUN 3-5
FRIDAY – SUNDAY
Alumni Weekend, Stevens Campus
stevens.edu/alumniweekend

JUN 15
WEDNESDAY
Stevens Athletics Golf Outing
stevens.edu/events/golf2016

For SAA and alumni club events, visit www.stevens.edu/alumni

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VITALS

MARRIAGES
Patrick J. Caramante ’80 to Diane Seaton in September 2015.
Jeffrey A. Derosier ’01 to Amanda Carullo on Aug. 22, 2015.
Nicole Rizzuto ’09 to Benjamin J. Hochberg ’09 on Oct. 3, 2015.

BIRTHS
To Jessica Blumberg Klein ’07 and Alex Klein, a daughter, Betsy, on Aug. 7, 2015.
To Natalie Arndt Marone ’08 and Ryan Marone ’08, a daughter, Lilith Claire, on Aug. 29, 2015.

OBITUARIES
J.A. Dam ’41 ........................................... 8/22/15
G.C. Willetts ’44................................. 10/27/15
W.J. Birmingham ’45 passwords.............. 11/11/14
R.C. Cuny ’45 ........................................... 4/5/15
H.W. McCall ’45 ................................. 10/15/15
C.E. Hepenstal ’46 .............................. 8/6/15
R.H. Webb ’47 ........................................... 10/10/14
J.F. Mahon ’48 ........................................... 7/16/14
C.G. Najimian ’48 ............................... 8/18/15
F.T. Sherman ’49 ........................................... 8/3/14
W.A. O’Connor ’51 .............................. 7/7/14
P.H. Plack ’51 ........................................... 3/11/15
R.C. Watson ’51 ........................................... 8/26/14
J.J. Bollwark ’52 ................................ 10/23/14
J.J. Cummings ’52 ................................ 9/19/15
W.G. Deile ’52 ........................................... 1/9/15
G. Dolleris ’52 ........................................... 3/1/14
J.F. Imhof ’52 ........................................... 4/5/15
J.J. Dren ’54 ........................................... 10/29/14
R. Santin ’56 ........................................... 1/20/14
E.G. Luxford ’60 ........................................... 5/29/15
R.T. McDonald ’60 ................................ 10/22/15
N. Valcoff ’60 ........................................... 4/7/15
E.J. Domaleski ’61 ........................................... 9/14/15
R. Lechelt ’63 ........................................... 6/18/15
C.H. Hochman ’72 ........................................... 8/31/14
E. Marut, Jr. ’85 ........................................... 4/8/15

GRADUATE SCHOOL
J. Merl, M.S. ’50 ........................................... 7/29/15
N.E. Munch, M.S. ’51 ........................................... 7/1/14
S.K. Held, M.S. ’58 ........................................... 9/13/15
D.R. Pierce, M.S. ’69 ............................. 12/11/13
W.B. Dvoretsky, M.M.S. ’75 ............... 8/17/15

Contact for more information:
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201-216-8967 | Michael.Governor@stevens.edu
Visit: stevens.giftplans.org
Create a better tomorrow by supporting current and future Stevens students today.

Stevens Legacy Society members Karen and Fred Unfried ’65 during Alumni Weekend 2015. They were in attendance along with dozens of Fred’s classmates celebrating their 50th Class Reunion.

Our support of Stevens is as practical as it is proud. The current and future cost of an excellent education requires a planned investment, and we are pleased to be in a position to give back today while planning a legacy and helping generations of students down the road.

Fred Unfried ’65

Support Stevens through current and planned gifts of scholarship. Their current support of the Karen and Frederick Unfried ’65 Scholarship provides one student, with demonstrated financial need, important tuition relief each year. Through the Unfrieds’ remarkable gift planning, the impact of their scholarship will markedly increase as dozens of future engineers, innovators and entrepreneurs will benefit from their philanthropy.

Red and Gray Days
ALUMNI WEEKEND
2016 JUNE 3-5
STEVENS.EDU/ALUMNIWEEKEND
CREATE YOUR Legacy

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CONTACT FOR MORE INFORMATION

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<Quality: Committed to quality in everything we do.
<Precision: Challenge us with your tolerance requirements.
<Inovation: On the leading edge of technology.