THE NEXT KIDS ON THE BLOCK
NYU-POLY IS INSPIRING A NEW GENERATION OF INNOVATION THROUGH STEM OUTREACH PROGRAMS
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NYU-Poly’s 2011 Promise Reception was held on June 15, 2011, at historic Skylight One Hanson in Brooklyn. This cocktail reception celebrated giving to the Institute and highlighted student scholars and their innovative research. This year’s honoree was Christine Ianuzzi ’87 ’94, president, Polytechnic Institute Alumni Association. President Jerry Hultin also welcomed Mary Schmidt Campbell, Dean of NYU Tisch School of the Arts. Over a dozen student scholars, from various fields of study, were at the event to showcase their latest research projects.

The Promise Scholarship Fund is our largest scholarship initiative, providing financial support to over 8,000 students, many of whom are from traditionally underrepresented groups in science, engineering and technology—women, ethnic minorities, students of color and first-generation college students. For 23 years, the Promise Scholarship Fund has helped continue NYU-Poly’s long-standing tradition of ensuring students have access to quality higher education. This academic year, 60 percent of our undergraduate students come from families with incomes less than $50,000 and 53 percent of our students receive a Promise Fund scholarship. For more about how your support impacts the lives of students, visit our new giving website at www.poly.edu/giving.

Christine Ianuzzi ’87’94, president of the PIAA, is presented the i2e award from President Jerry Hultin.

Nicole Abaid, ME PhD student explains development of animal-safe and biomimetic underwater vehicles for live animal-robot interaction studies.

Mary Schmidt Campbell speaks to NYU-Poly’s strengths, especially its cross-disciplinary collaborations with other NYU schools; Jerry Hultin.

2011 Inno/Vention Contest winner, Joseph Landolina CBE, discusses Medi-Gel, an organic, gelatinous bandage that solidifies and bonds to a laceration.
Many thanks to our trustees, alumni and friends who supported NYU-Poly this past year. Between July 1, 2010 and June 30, 2011, the Institute received $6.7 million in philanthropic gifts and pledges toward support of academics, scholarships and student services and unrestricted funding. This represents a 200 percent increase over the $2.2M that was raised during fiscal year 2010.

Financial support helps NYU-Poly attract talented faculty and students, advance cutting-edge research and provide for the campus transformation, among other activities. For the full 2011 Report of Financial Support, please visit www.poly.edu/giving/2011report.

We look forward to building on this momentum in fiscal year 2012 and will work to be good stewards of your financial support. Thank you!

Sincerely,

Barbara Noseworthy
Vice President of Development and Alumni Relations

Katepalli R. Sreenivasan, a senior vice provost at New York University, has been appointed to new positions at NYU: senior vice provost of science/technology for the Global Network University and provost of the Polytechnic Institute of New York University (NYU-Poly).

He will assume these new positions on October 1. As provost, he will succeed Dianne Rekow, the current provost of NYU-Poly, who accepted an appointment as dean of the Dental Institute at King’s College London beginning January 1, 2012.

In his new role, Sreenivasan will work with NYU Provost David W. McLaughlin and NYU-Poly President Jerry Hultin to build engineering and technology throughout NYU and its global network, including NYU-Poly. In this capacity, Sreenivasan will focus on the development of faculty, curriculum and research programs at NYU-Poly, NYU Abu Dhabi and NYU Shanghai, all in partnership with science throughout NYU. He will also continue his role as a science/technology advisor for the NYUAD Research Institute.

Sreenivasan joined NYU in 2009 from the International Centre for Theoretical Physics in Trieste, Italy, where he was director, and concurrently from the University of Maryland. Having been at Yale for 22 years, since 1979, Sreenivasan moved in 2002 to the University of Maryland with the intent of learning how a public university works. At Maryland, he was Distinguished University Professor, Glenn L. Martin Professor of Engineering and professor of physics, and he served for a year and a half as director of the Institute for Physical Science and Technology. At Yale University, Sreenivasan served as the Harold W. Chee Professor of Mechanical Engineering from 1988, later holding joint appointments in the departments of Physics, Applied Physics and Mathematics. Between 1987 and 1992, he was the chair of Yale’s Mechanical Engineering Department. Sreenivasan is a member of the National Academy of Sciences and the National Academy of Engineering and is a fellow of the American Academy of Arts and Sciences.

An active researcher, Sreenivasan will continue his work in turbulence, cryogenic helium and nonlinear dynamics, and will retain his NYU appointment as university professor, jointly in physics and mathematics.

“In Dr. Sreenivasan, NYU-Poly found an exceptional scholar and experienced academic leader to help guide us at this exciting and unparalleled time in our institution’s history,” said NYU-Poly President Jerry Hultin. “Dr. Sreenivasan’s global reputation and world view will help ensure that Polytechnic, in partnership with all of NYU, achieves new heights in education, discovery and the life lessons that we call i2e: invention, innovation and entrepreneurship.”
Over the past year, Sreenivasan met with many members of the Polytechnic faculty to discuss the role of NYU-Poly in the development of science and engineering at NYU. In welcoming Sreenivasan, the Faculty Executive Committee of NYU-Poly “express[es] its support for the appointment of Professor Sreenivasan as provost and its commitment to work closely with both President Jerry Hultin and Provost Sreenivasan to build a strong future for NYU-Poly.”

“I am excited to join NYU-Poly during its time of transformation, and look forward to working with its leaders, faculty, staff and students to fulfill the promise that technology and education hold for addressing—through Pe—a some of the world’s most pressing problems,” Sreenivasan said.

Sreenivasan is succeeding Rekow, who served as NYU-Poly provost since March 2009. Before that, she served as special advisor to the NYU president and provost on engineering; chair of the NYU College of Dentistry Department of Basic Science and Craniofacial Biology; chair of the College of Dentistry’s Bioterrorism and Catastrophe Response Task Force and NYU Provostial Fellow. She joined NYU in 2002 as professor of basic science and craniofacial biology and of orthodontics and director of translational research at the College of Dentistry. An international authority on the performance of new materials and products for use in aesthetic and restorative dentistry, her team has also carried out research into the use of bio-engineered tissue to facilitate the growth of replacement bone in people who have been disfigured by disease. She was the principal investigator for a $10 million National Institutes of Health grant to investigate damage initiation and propagation in brittle materials. She is currently president of the International Association for Dental Research and past president of the American Association for Dental Research. During Rekow’s tenure as NYU-Poly provost, the school experienced notable gains in research and academics, and developed significant collaborations across NYU. These include more than 30 collaborative research projects, one of them a joint biomedical engineering center. During her tenure, the number of sponsored research grants increased, undergraduate enrollment grew 15 percent, graduate enrollment increased 9 percent and incoming student quality metrics improved significantly. Forbes named NYU-Poly among the Best Schools for Women and Minorities in STEM, U.S. News & World Report ranked NYU-Poly among the best colleges for ethnic and economic diversity, and PayScale placed the school among its top 10 engineering schools.

As dean of the Dental Institute at King’s College London, Rekow will head the largest dental academic center in the United Kingdom.

“In Dr. Sreenivasan, NYU-Poly found an exceptional scholar and experienced academic leader to help guide us at this exciting and unparalleled time in our institution’s history.”

- NYU-Poly President, Jerry Hultin
Part of the idea of space exploration is relying on robots... and that is how we came to invite NYU-Poly.

-Sheri Beam

Kaspersky Lab, a leading developer of secure content and threat-management solutions and one of the world’s leaders in cybersecurity, will expand its acclaimed international research conference, “IT Security for the Next Generation,” to university students in the United States. Partnering with NYU-Poly, the conference will take place within the NYU-Poly Cybersecurity Awareness Week (CSAW) November 10-11, 2011.

The conference brings together students, experts, scientists and researchers in a collaborative environment to present and discuss issues relating to cybercrime. To participate in the conference and Kaspersky’s American Cup at NYU-Poly CSAW, which will be an extension of CSAW’s other challenges, potential attendees had to submit research on the topic of “Cybersecurity.” Selected authors have been invited to attend the conference and are automatically entered in the challenge and asked to present their papers. The winning submissions, as identified by a program committee, will be invited to attend the 2012 Kaspersky International Cup of the IT Security Conference for Young Professionals, which will take place in Europe in May 2012. Additionally, first place will receive $1,500, second place $1,000 and third place $750.

“IT Security for the Next Generation” is a platform for future experts to share and to collaborate. It’s a venue where new ideas are born—ideas that will improve and shape the future of security,” said Eugene Kaspersky, co-founder and CEO, Kaspersky Lab. “By partnering with NYU-Poly, we’re able to tap into the minds of the young researchers of tomorrow and foster communication and collaboration with the experts of today. We’ve had great international success and are excited for Kaspersky Lab to bring this program to North America’s brightest academia.”

“This partnership with Kaspersky Lab will take CSAW to the next level by adding formal instruction to an event that provides hands-on challenges and interaction with security professionals,” said Nasir Memon, who heads NYU-Poly’s Cybersecurity program. “The American Cup 2012 challenge will also attract a new set of student researchers with new, unpublished work on important security issues.”
Members of NYU-Poly's mechatronics outreach program rubbed shoulders with astronauts from the final Atlantis mission at a NASA educational event at New York’s Eventi Hotel.

The event, dubbed “What’s Your Favorite Space?” by organizers, was to show the public NASA’s post-shuttle space program, said Sheri Beam, idea generator at NASA’s Langley Research Center. NASA’s manned Space Shuttle program generated unbridled public excitement and support over the past several decades, and while the final Atlantis mission in July brought an end to the shuttle program, there is plenty to look forward to. NASA’s future goals include putting new rovers on Mars and even sending astronauts back into space on new missions.

Atlantis astronauts Chris Ferguson, Doug Hurley, Sandy Magnus and Rex Walheim were on hand to discuss their historic mission and the future of human spaceflight.

In addition to the astronauts’ presentation, a series of interactive booths gave kids and parents hands-on experience with space-themed video games, astronaut gear and science projects. And, of course, robots.

“Part of the idea of space exploration is relying on robots,” Beam said, “and that is how we came to invite NYU-Poly.”

Robots teach science, boost grades
NYU-Poly’s three booths highlighted several interactive robots, including a miniature Segway-like device made from LEGOS that balanced on two wheels, a string-bot that could carry a ball and then drop it into a cup while zipping along a taut string, a Roomba-like Create mobile robot controlled by an iPhone app developed by NYU-Poly’s Mechatronics Lab students, and a scanner that could recreate a hand drawing of a smiley face and project it onto a computer screen.

But, the robots were in attendance for more than just play: they were there to teach.

NYU-Poly conducts K-12 educational outreach programs, which teach both students and teachers about robotics and mechatronics. The latter is a field that melds mechanics, electronics, control theory and computer science to make smart products and processes, explained Vikram Kapila, professor, Mechanical and Aerospace Engineering and one of the program’s founders. Kapila’s booths were an extension of these efforts.

“Robotics is very interesting for young kids,” he said, “They are already interested in learning about and playing with robots. But the moment that you hook their interest, then they realize that, okay, now I need this science or this particular math concept to get my robot to perform all these different functions.”

“Everybody in this country, not just NASA, knows how critical science, technology, engineering and math are to the future of our wellbeing, our economy and everything else,” NASA’s Beam added. “So one of the things that NASA wants to do is help young people to be interested in those areas because we think those things are cool. You know, that’s what we do every day.”
FORMER TORONTO MAYOR ADDRESSES NEW NYU-POLY STUDENTS

In his first formal appearance as NYU-Poly’s Future of Cities Global Fellow, former Toronto Mayor David Miller challenged the incoming students to tackle what he called the world’s foremost challenge: innovating to solve urban problems.

His convocation keynote speech to approximately 560 new first-year undergraduates publicly marked the relationship between NYU-Poly and Miller, a global leader in urban environmental sustainability, economic development and social integration.

Noting that recently the scales tipped so that most of the people of the world now live in cities, Miller told the students: “This fundamental change has an important implication for your studies. No longer will it be sufficient to simply study chemical or computer engineering, or any other technical field and become an expert—it will also be essential to understand the public policy context and challenges within which your research is being conducted.” Using real-world examples from his experience, Miller told the students that engineers and technology will play an increasingly important role in solving these urban problems. He also pointed to ways to have fun while creating solutions. He pointed to the example of the NYC BigApps Challenge, which employs open source code and open government information to create apps to make city life better for residents and visitors.

“We have faith in your capacity to learn and make the world a better place,” NYU-Poly President Jerry Hultin told students in his welcoming remarks. “Here at NYU-Poly, you will find a 21st century toolbox of education and research. . . With our faculty I challenge you to combine the traditional engineering disciplines in new ways, and to set a personal goal to make a difference.”

The convocation also featured presentations by Associate Provost of Undergraduate Academics Iraj Kalkhoran, Dean of Undergraduate Admissions Joy Colelli, Dean of Student Affairs Anita Farrington, Alumni Association Executive Vice President Michael Urmeneta and Student Council Vice President Wilson Dieujuste Jr.

This year’s convocation, delayed by a day for tropical storm Irene, was part of an expanded Welcome Week at NYU-Poly. To introduce the NYU-Poly focus on i2e—invention, innovation and entrepreneurship—new first-year students later discussed the book they all read over the summer. The New York Times bestseller The Boy Who Harnessed the Wind: Creating Currents of Electricity and Hope by William Kamkwamba and Bryan Mealer, tells of a 14-year-old boy living in an impoverished village in Malawi who reads a book about windmills and builds a windmill that brings electricity to his village. In other Welcome Week activities, returning undergraduates also presented their summer research projects before convocation.
Miller’s role as Future of Cities Global Fellow will include other lectures, as well as teaching and assisting NYU-Poly and NYU in developing programs that connect technology and society to solve pressing urban challenges. Among other projects, he plans to co-instruct a studio class in which students work to increase sustainability in local parks. Urban technology is one of NYU-Poly’s highest academic priorities, befitting its mission as a comprehensive school of engineering located in one of the world’s great urban centers.

As Toronto mayor from 2003 to 2010, Miller became recognized for innovations that furthered the city’s environmental sustainability, economic development and social integration. Under his leadership, Toronto received numerous honors such as the Low Carbon Leadership Award from The Climate Group. It is acknowledged as one of the world’s leading business destinations and as a city that respects social justice. From 2008 to 2010 he led the C-40 Cities Climate Leadership Group, a consortium of the world’s largest cities fighting climate change. Miller is currently counsel, international business and sustainability, to the Toronto law firm Aird & Berlis LLP and president of Urban Green Jobs, Inc.

His initial three-year appointment is supported by a generous gift from alumnus Michael Corey. Corey received a doctoral degree in industrial engineering in 1970 from what was then called Polytechnic Institute and has been a longtime supporter of the institution, serving from 1993 to 2009 on the Board of Trustees. He is a retired treasurer of JPMorgan.

Miller told the students that engineers and technology will play an increasingly important role in solving these urban problems.
STEM: FOCUSING ON OUR
NYU-Poly graduate fellows mentor 16 FIRST LEGO League teams in Brooklyn.

Students Malik Bailey, Theory Cogbill and Hieu Hoang are taught by NYU-Poly’s Dr. Vikram Kapila, Jennifer Haghpanah, Jasmin Hume and Andrew Cave.
Dr. Vikram Kapila (below left) is a principal investigator of the Central Brooklyn STEM Initiative.

"WHAT NEEDS TO HAPPEN AT A NATIONAL LEVEL IS HAPPENING ON A SMALL SCALE HERE, WITH
A 21st century education requires much more than the classic three Rs. In order to keep pace with the ever-evolving technological arena, every child, from pre-K through high school, must have STEM (Science, Technology, Engineering and Mathematics) education as the cornerstone of their educational experience.

Unfortunately, the reality of our educational system is very different and as a result inadequate academic preparation closes people out of scientific careers at a young age, even though our 21st century economy depends on people well-trained in these subjects.

Another issue: good education costs money. “Some say you can deliver it on the cheap, but is that any great service to the students?” asks Vikram Kapila, professor, Mechanical and Aerospace Engineering, who has been involved in many STEM projects at NYU-Poly. “Students need to experience science the way scientists do.”
Progress at Poly

Long before President Obama launched his Educate to Innovate initiative in January 2010 to boost STEM education, NYU-Poly faculty, graduate researchers and undergraduate students were collaborating to improve teacher preparation in STEM disciplines. For close to a decade, with the support of federal, state and foundation grants, a variety of programs have provided professional development for elementary, middle and high school teachers; put NYU-Poly engineering students in classrooms to co-teach; and given children science experiences that prepare them to be able to choose a STEM career.

Kapila has just completed the third year of the SMART (Science and Mechatronics Aided Research for Teachers) project, which educates teachers on using robotics-based lessons and activities. He has also brought middle and high school teachers to NYU-Poly, and sent NYU-Poly students to teach in city high schools. He had high school students performing summer research alongside graduate and undergrad students, in a program called YES (Youth in Engineering and Science). “What needs to happen at a national level is happening on a small scale here, with pilot programs leading to a much richer, much deeper professional development program,” he says.

Another NYU-Poly effort last summer was the STEMulus Project, a four-week life-sciences course for a dozen high school students from the Urban Assembly Institute for Math and Science for Young Women, which serves mostly underprivileged students. Covering biology, chemistry and technology on the topics of cancer, diabetes and HIV/AIDS, it was designed and taught by three NYU-Poly graduate students under the direction of Jin Kim Montclare, assistant professor, Chemical and Biological Sciences. “They were exposed to technology they wouldn’t otherwise have access to,” says Montclare. “My grad students learned a lot, too. Being in the classroom compelled them to learn how to handle a group of students and how to teach.”

NYU-Poly’s Cybersecurity Awareness Week (CSAW) competition is a nationwide forensics challenge for high school students. Using digital evidence, such as a broken USB stick, they extract data in order to solve a murder mystery. “We were amazed how good the kids were—they solved challenges we didn’t expect them to,” says
NYU-Poly’s Central Brooklyn STEM Initiative pairs local teachers with graduate fellows.

President Obama’s “Educate to Innovate” campaign was launched in 2010 to increase STEM literacy.

Maurizio Porfiri, associate professor, Mechanical and Aerospace Engineering, is involved in a number of K-12 outreach efforts. He recently supervised a program at the New York Aquarium, which mixed the aquarium’s animals with state-of-the-art, bio-inspired robotics for “a fun science day, where elementary and middle school students were exposed to fundamentals of fish swimming and robotics, then designed a fish tail to propel a robotic fish,” he says. In addition, every year his laboratory hosts two teachers to work on research projects in underwater mechatronics; his students in turn take their research experience and leadership into the classroom.

A Fellows program sends NYU-Poly graduate students into city classrooms every year. This year 14 Fellows will go to 23 schools in Brooklyn, where they will work with 2,000 to 3,000 kids, in classrooms with the Fellows or in after-school robotics. “We hope to be in 36 schools by next year, and eventually, 50 to 75,” says Ben Esner, director of K-12 STEM Education at NYU-Poly.

Esner would like to see preschool kids getting STEM ed, too. “No child is too young to do science,” he says. “We’re working on a project that involves a preschool. Four-year-olds like to knock things over, so we do physics.”

Esner has also applied for a Change-Maker Award from the Ashoka Foundation with a proposal to involve industry professionals in STEM education. “Our grads leave NYU-Poly making more than $60,000 in their first job. They’re unlikely to become K-12 teachers, because their long-term earning potential is so high,” he points out. “How then do we get a STEM professional to teach? I’d like them to feel they have an obligation to teach or mentor as part of their career path. More near-term, we are trying to build partnerships with industry to release their employees into schools for a couple of weeks a year.”

The Mechanical Engineering Lab at NYU-Poly is always filled with robots of every shape, size and function—even camera-equipped iPad and iPhone controlled ones (top).
A number of remarkable young women at the University are doing doctoral work on the vanguard of fields like robotics, fluid dynamics, aeronautics and controls.

Several of these doctoral students are also taking time to spark an interest in STEM (science, technology, engineering and math) subjects in New York City classrooms thanks to their participation in NYU-Poly’s four-year-old K-12 STEM programs. These researchers are not only ambassadors for women in mechanical engineering, but ambassadors for science and technology in inner-city classrooms.

This diverse group includes women who hail from Iran, Italy, Uzbekistan and Nigeria. One is a former activist and journalist; another was a consultant for NASA and first-time author of a book for lay people on robotics. Another also worked at NASA on environmentally friendly aeronautical designs. Two others are mathematicians by training who found themselves in mechanical engineering because it let them apply math to biological systems. All of them embody NYU-Poly’s philosophy of invention, innovation and entrepreneurship—i2e.
Maurizio Porfiri, associate professor of mechanical engineering, who advises several of the students, believes more women are attracted to the field because it is cross fertilized by other disciplines. “The boundaries of mechanical engineering are changing over time,” says Porfiri. “New areas of research using nature as a route to designing better engineered systems is bringing more women to the field to do bio-inspired engineering, or biomimetics.”

Dustyn Roberts, a graduate of Carnegie Mellon and the University of Delaware, is a robotics designer who worked on NASA’s MSL (Mars Science Lab) mission scheduled for launch late this year. A beneficiary of a 2011 National Science Foundation (NSF) Graduate Research Fellowship, Roberts is working on three major projects in the Applied Dynamics and Optimization Lab of Assistant Professor Joo Kim.

The first, in which NYU-Poly is a subcontractor on a NASA project, involves designing a robotic hand for testing the tensile strength of a new spacesuit glove. That and a second project—a partnership with a New York Veterans Administration Hospital involving development of an accelerometer for measuring knee stability in patients who have had total knee replacement—are grant-funded.

Her third project, which is independent, involves using robot “metabolism” to address efficiency of human physical activity by measuring energy expenditure in direct-current motors. “This is something we had talked about since I interviewed for the program,” she says. “It has been largely self-guided, but also driven by Kim. However, it’s very flexible in that we both decide where we want it to go.” She says practical applications are myriad, with implications for areas like rehabilitation and sports, and even space travel.

Roberts says her NSF grant is liberating. “I’m not anchored to one project. I have my own funding,” she says, adding that her goal is to stay in academics, but in a position that lets her keep a hand in commerce.

Nicole Abaide did undergraduate and graduate work in mathematics, but discovered there were few job prospects outside of finance or teaching. Her advisor at the University of Kansas knew of Porfiri’s work on smart materials, mathematical modeling and biomimetics. After speaking with Porfiri, Abaide says, “I knew the project was awesome.”

After Dustyn Roberts’s ’04CE ’04TN family emigrated from India to the U.S. when she was a child, she soon found herself drawn to math and science. “Asian families push the STEM subjects,” she says, and “art would have probably raised more eyebrows than science.” She graduated from NYU-Poly with degrees in computer engineering and telecommunications networking, and now works for Morgan Stanley in equity sales and trading.

Yet Talwar is still something of an exception: women remain underrepresented in science and engineering, making up about a fifth of most science and engineering jobs. (NYU-Poly is among the best STEM universities for women, #7 in the nation, according to Forbes.)

Certain expectations work against them, such as a perception of engineering as a white male domain. “Another stereotype is that middle-class families, at least in the U.S., don’t want their children to do engineering,” says Magued G. Iskander, professor, Civil Engineering. And research suggests that women prefer professions where they feel they are contributing to society—without realizing that engineering does exactly that, Vikram Kapila, professor, Mechanical and Aerospace Engineering, points out.

“I wish there were more diverse students, not just females, studying science,” says Jin Kim Montclare. “You need diverse minds, more viewpoints and perspectives to attack problems and make discoveries.”

Talwar’s experience is encouraging. “I have never felt discriminated against, not from parents, classmates or coworkers, and I’ve never looked at myself as a woman in a man’s world,” she says. “I’m doing the same thing as my peers, trying to do a good job. I just happen to be a woman.”
In her lab is a wading pool where diminutive golden shiners dart about in schools. Abaide is observing how those fish behave to design mathematical models of animal shoaling behavior. The end game is to develop robotic fish that can influence shoals of real fish.

“If there’s a pattern you can write the math for that pattern,” says Abaide. “And if you have the math you can implement it for robotics,” she says, adding that practical applications include a means of leading shoals of salmon to bypass a route in the spawning run that is blocked by a dam.

From her work at NYU-Poly, Abaide has coauthored three accepted journal papers as the first author and has three other papers in review or preparation. With Porfiri and colleague Vlad Kopman, Abaide has filed a provisional patent for the use of these robots as an interactive education tool. Says Abaide, “To get paid to do math and play with robots and fish is awesome.”

Flavia Tauro, another of Porfiri’s students, was admitted last year to a joint PhD program between NYU-Poly and Sapienza University supported by a three-year scholarship from the Italian Ministry of Education and Research.

At NYU-Poly, she is developing fluorescent tracer particles designed to be perfused into rivers and other topographic drainage routes. The tracers can be “seen” by UV optic sensors (that she also helped to design) placed along the banks of those drainage routes. The technology will let researchers model natural hydrologic events as they happen. And that will make it easier to do things like predict floods, says Tauro.

This diverse group includes women who hail from Iran, Italy, Uzbekistan and Nigeria... All of them embody NYU-Poly’s philosophy of invention, innovation and entrepreneurship—i²e.

“The particles are white in daylight and become bright green under UV light,” Tauro explains. She says that besides aiding scientists studying drainage patterns, her work could also make it easier to create “risk maps” to help builders and planners avoid launching construction projects in flood zones. “This would also be very important for understanding diffusion of pollutants in the environment,” says Tauro.

Also a native of Italy, Francesca Fiorilli ’11ME graduated from NYU-Poly in May. “It was a stimulating environment that allowed me to learn how to abstract problems and look at things in a different way,” says Fiorilli of her experience at NYU-Poly, which included coauthoring three accepted journal papers on organization of complex systems. Another paper, with colleague Matteo Aureli, is under review.

Like that of Abaide, Fiorilli’s work is at the nexus of computer sciences, electronics and biology. “She worked on modeling behavior of complex biological and engineering systems,” says Porfiri. “So she was looking at behavior exhibited by systems that are very large and that interact one with the other,
specifically synchronization through circuits and the collective behavior of animals.”

Tayo Ladeinde, who took her PhD qualifying exams in August, hopes to eventually work in aerospace engineering. With a master’s from California State University-Long Beach in computational fluid dynamics (CFD), Ladeinde is just back from a year at NASA Langley Research Center in Hampton, Virginia.

“I was part-time in my first year at NYU-Poly and later decided to take a year to work at NASA, in part, to try to find a dissertation project, since I am interested in ‘green’ aviation.” She says her work at NASA on hybrid-winged bodies—a blended wing body whose design reduces the aircraft’s noise profile—led her to pursue aeronautical acoustics. She is hoping her work on aerodynamics, and green aviation becomes the basis for her doctoral work.

Irina Igel, a native of Uzbekistan, is “teaching” robots to work together to do tasks such as terrain mapping. Her work centers on creating distributive systems whereby autonomous robots use onboard computation to “speak” to each other without the intercession of a separate, remote, computer.

“I had no idea that I wanted to do this,” says Igel. “I had a hard time at first. But after a while I realized that I had… different interests I always wanted to follow—aerospace, or algorithms, and they all came together around artificial intelligence and programming.”

She says animals functioning in organized clusters are great models for machine “group-think.” “Like Nicole, who is using fish to inspire algorithms, I am looking for inspiration in insects—ants or bees, for instance—that can explore a topography without communication with a central source,” she says.

Born and raised in Iran, Susan Mousavi studied engineering at Tehran and Azad universities. After working part-time as a consultant engineer, she became an activist for women’s rights and moved into journalism, becoming editor-in-chief of women’s affairs at a major newspaper, and starting a blog for women.

When Iran’s government restricted political and social activities, she left the country to pursue a PhD in mechanical engineering and was admitted to NYU-Poly in 2006. Her doctoral work is on the thermo-physical and dynamic properties of ferro-fluids.

Mousavi explains that since ferro-fluids are liquids suffused with metallic nanoparticles, they exhibit the magnetic properties of those particles—in this case, the iron oxide magnetite (Fe304). These fluids, under proper conditions, can be manipulated and even physically shaped by exposing them to strong magnetic fields.

The challenge is describing how variables such as the size, shape and density of ferrous particles and even the type of fluid in which they are suffused affect how ferro-fluids behave. “We know if we have magnetic nanoparticles suspended in liquid we can control the liquid using external magnetic fields,” she says. “It isn’t clearly known precisely how.”

While she isn’t working on applications as part of her work, she says it isn’t hard to see where her research could lead. “One application would be in scanning systems like MRIs, or in drug delivery where treatment involves targeting a drug to a specific point,” explains Mousavi. The work also has applications in energy storage and thermal conductivity, explains Mousavi. “…the thermo conductivity of water is low. But by adding even a small measure of nanoparticles, you can increase and enhance thermal transport.”
In 2005, I initiated the Protein Engineering and Molecular Design Laboratory with the ambitious goals of developing (1) “smart” protein materials capable of stimuli-responsive actuation and encapsulation of small molecules and (2) functional proteins or enzymes with a particular focus on improving stability, activity and specificity for defined substrates. In order to achieve the successful completion of these two goals, I assembled a multidisciplinary group of highly innovative and talented individuals. The individuals range from postdoctoral researchers, graduate, undergraduate and even high school students with varying backgrounds in science and engineering disciplines. While the group is diverse, they all share the common goal of engineering proteins on the molecular level.

Together, we exploit nature’s biosynthetic machinery and evolutionary mechanisms to design new biomaterials and functional proteins. Nature has perfected the synthesis of tailor-made biomolecular machines that determine the proper organization and function of organisms. Specifically, protein biosynthetic and evolutionary pathways are key processes that can be explored to develop functional molecules with precise structures. This, in combination with the chemist’s ability to produce diversity beyond nucleic acids and proteins, offers a powerful tool for the design and synthesis of new functional macromolecules. We employ cutting-edge methods of chemistry, biology and engineering with the specific aim of designing new biomaterials, therapeutic agents and biocatalysts relevant to medicine and industry. The proteins we custom-design have utility and applications in the fields of medicine, nanoelectronics and green chemistry.
SMART PROTEIN MATERIALS
Through billions of years of evolution, nature has produced a plethora of biomaterials with a vast range of truly remarkable properties from serving as protection and, when compromised, self-healing to harnessing to exhibiting extreme strength and load-bearing properties. My lab exploits the protein elements that are involved in such biomaterials to fabricate unique hybrids or protein block polymers that we anticipate will share the material properties of the biomaterials in which they are based (Fig. 1). We have developed a new class of protein materials capable of: (i) hierarchical self-assembly into ordered structures from the nano- to the meso-scale; (ii) responding to external stimuli (temperature, salt, metals or pH) and effecting a change in assembly/order (molecular actuation); and (iii) performing a function (small molecule binding/release). Since we exploit recombinant DNA technology in the production of the polymers, all the biomaterials generated in our lab possess: (i) well-defined polymer sequence, composition and length from the genetic template; (ii) distinct secondary and tertiary molecular structures; (iii) the absence of harsh solvents/chemicals in the final products as they are produced by bacteria; and (iv) inherent biodegradability since they are naturally derived. Already, we have demonstrated that the protein block polymers exhibit very different structural and mechanical properties (from fluids to soft gels) depending upon the simple orientation of each protein block/domain. From this work, we are developing the materials for applications in medicine such as targeted drug delivery and tissue engineering.

ENGINEERED FUNCTIONAL PROTEINS
The central challenge in protein design is to engineer new function. Although examples of rendering proteins with novel activity and specificity exist in nature, the billion-year timescale needed to achieve this far exceeds the lifetime of a single scientist. While tools including directed evolution, structure-based design and computational approaches have been developed to bypass natural evolution and empower the protein engineer, the ability to fashion artificial enzymes that exhibit novel substrate preferences and reactivities remains a significant obstacle. My lab has been working toward engineering functional proteins by: (i) exploiting in vivo residue-specific incorporation of unnatural amino acids (UAAs); (ii) mutagenesis in combination with UAA incorporation; and (iii) mining the natural biodiversity to identify enzymes for reactions on unnatural substrates (Fig. 2). We seek to control protein stability, activity and selectivity by these three approaches and combinations thereof. Already, we have created an assortment of proteins able to tolerate extreme heat, identify selective reactivity for desired substrates and even completely change the reactivity of an enzyme. We are further developing some of these artificial proteins as therapeutics as well as catalysts for new chemical reactions.

CULTIVATING AN APPRECIATION FOR SCIENCE AND ENGINEERING
As an extension of my interactions with students, I have been awarded funds through the Dreyfus Foundation, National Science Foundation and, most recently, the Teagle Foundation to implement a Mentored Chem-Bio Technology Lab (https://research.poly.edu/~cbtl). This outreach program expands the research experience to a larger group of students focusing on grades 6-12, especially in low-income areas such as the inner city and Brooklyn. Although my laboratory does provide a hands-on research experience to a number of high school students, it provides a solution to just a part of the problem. Studies have shown that teacher quality is critical to the success of a student in the areas of science and math. In fact, high school science and math are viewed
as “gatekeeper courses” where students capable of excelling in these subjects are more likely to succeed in high school and continue their education in college.

To promote interest in science at an early level as well as assist teachers in the classroom, junior and senior undergraduate students have been recruited as paid summer fellows to create interactive modules based on modern examples in chemistry, materials science and biology. The student fellows and I have worked with Kelly DeMonaco and Kiri Soares, directors of the Urban Assembly Institute for Math and Science for Young Women (UAJ), and Ben Esner, director of K-12 STEM Education, to implement interactive modules in chemistry, materials science and biology that will not only infuse technology into their curriculum, but also link the disciplines so that the students get an early glimpse of multidisciplinary science. The purpose of this project was to not only expose students to chemical sciences in the context of materials science and biology using technological aids, but to also encourage them to pursue careers in science. We have developed a number of modules that were implemented in classrooms at the UAI since 2008 that include: molecular visualization of chemical and biomolecules via Chemsketch software; hands-on experiments that introduce polymers/materials science and biodegradable materials; and the development and use of the app “LewisDots” for the iPad to teach intermolecular forces, Lewis structures as well as bonding. We also developed a STEMulus Summer Program (http://research.poly.edu/~uai/) this summer, fully supported by the Teagle Foundation. This program encompassed graduate student mentors in addition to the two undergraduate mentors to develop and implement three units on diabetes, cancer and HIV/AIDS. We combined lectures, experimentation and use of the iPad to teach 9th-10th grade girls from the UAI. At the end of the program, the students produced a final poster presentation on the topics that they studied.

As I stated in the very beginning, both research and educational programs have been successfully carried out by an excellent group of young scientists and engineers. I am most proud of my students as they have garnered over 55 awards and fellowships beyond the federal and non-federal funding supporting our research and, of this total, 40 have been awarded to NYU-Poly undergrads. There is much more to do and I look forward not only to furthering our research objectives, but also to interacting with and inspiring the next generation of scientists and engineers.

“Dr. Montclare really motivated me to inspire the next generation through my work.”

-Liz Zhao
Biomolecular Science ’12
(Student fellow and teacher assistant in iPad project)

About Lewis Dots: An app created by NYU-Poly Fellow Carlo Yuvienco allows users to generate and manipulate chemical structures depicted with Lewis Dot diagrams by adding atoms to the canvas and matching their lone electrons. Dragging and dropping electrons creates single, double and triple bonds, making structures that are tedious to draw by hand simple and synchronizable to the Photos app.
Ten years ago, a triumvirate comprised of academia, government and industry formed a partnership dedicated to developing environmentally friendly routes to chemicals using natural systems. To mark the stellar success of the National Science Foundation Industry/University Cooperative Research Center for Biocatalysis and Bioprocessing of Macromolecules at NYU-Poly, the center’s director presented a plaque to founding sponsor BASF.

“BASF has provided a steady presence in our National Science Foundation Industry/University Cooperative Research Center for Biocatalysis and Bioprocessing of Macromolecules for 10 years,” said Richard Gross, center director and Herman F. Mark Professor in the Chemical and Biological Science Department. “BASF scientists have provided critical input on the most important chemical problems that need to be solved, where biocatalytic routes to these chemicals can provide an advantage over traditional chemical methods, and in providing critical reviews of student research projects, greatly benefiting the quality of science we perform.”

“We are honored to receive this recognition from the center that has successfully discovered smart pathways to engineer polymers using the tools that nature provides,” said Volker Schaedler, vice president, Innovation and Technology, BASF Corporation. “BASF is committed to finding innovative, sustainable solutions to address global challenges, such as climate protection, and we will continue to dedicate our expertise in polymer research and collaborate with the center’s members to advance these initiatives.”
Today, 20 researchers, including graduate students, doctoral candidates, post-doctoral researchers and faculty collaborators from NYU-Poly and other universities, pursue research leading to environmentally friendly processes and products.

For Manoj Ganesh, a doctoral student, who admits, “Research is my passion,” the center provided the opportunity to work with one of the best scientists in the field and to understand the industry perspective of his research.

“Professor Gross has an immense reputation in this field and, fortunately for me, a project on biodegradable polymers, which was the core of my research work,” says Ganesh. “The Center helps students to realize the impact their work will have on society and how that work can help industry meet societal needs.”

Another doctoral candidate, Jing Hu ’12, believes that the hands-on experience of working on a project will make him a more valuable polymer chemist. “The way we perform research is very similar to the way research is performed in industry,” says Hu. “I have the support of Professor Gross and the other students who are always willing to offer their intellectual insight.”

Since its inception, the center has partnered with 18 corporations including a veritable Who’s Who in the chemical industry: Bayer, Cognis, Covidien, DSM, Eco-Synthetic, Estée Lauder, Evonik, Firmenich, Genencor, Grain Processing Company, Grace, Johnson & Johnson, Material Methods, Nalco, Novozymes, Rohm & Haas and Sherwin-Williams in addition to BASF.

The list of members reflects the broad impact of enzyme-catalysis on a broad range of technologies that include plastics, surfactants, cosmetic ingredients, flavors, fragrances, membranes, medical materials, paints and much more.

The center’s contributions have garnered the respect of industries that have responsible solutions to sustainability as their primary focus.

“Richard Gross and his team have been excellent advocates for the use of biotechnology in polymer science for many years,” says Sonja Salmon, Novozymes’ senior innovation manager for research and development. “His team’s dedication, scientific approach and creativity turn concepts into substance that inspires the innovation process. The center structure provides a powerful learning environment for the students—challenging them to learn, exercise their initiative while working together and build their technical skills toward being excellent scientists.”

The center’s research has resulted in important new technologies such as bio-based plastics, building blocks for bio-based polyurethanes, bio-derived chemicals that can be used in place of petro-derived chemicals, a new enzymatic route for PET recycling and low-cost routes to oligopeptides that are important in producing environmentally friendly antimicrobials, metal sequestration, self-assembling materials and many other applications in material, cosmetic and other industries. Center researchers have also created important knowledge on recycling immobilized lipases, including ways to reduce the cost of these popular catalysts.

“A good part of the success of the Center for Biocatalysis can be traced to our commitment to protecting the intellectual property that companies bring to the university while offering reasonable terms for the transfer of new technologies to industry,” he continued. “We recognize that industry partners are not simply funders of small research projects; to the contrary, to be effective, academic researchers and academic institutions must make real-world problems a priority. We must work with industry researchers as valued, equal partners to jointly define and shape meaningful, mutually beneficial research programs.”

Gross pointed to examples of effective collaboration between the world’s largest chemical company and the NYU-Poly research center: “Like other industry partners, they often bring our new methods to their own labs for a ‘test drive’ to determine their value in solving specific BASF problems,” he said. “BASF scientists also interact with students over a prolonged period—an ideal setting in which to identify strong future employees.”
When 28 first-year students enrolled in Allan Goldstein’s Writing Seminar last spring, they didn’t expect that wearing eyeglasses that simulated glaucoma or cataracts would be part of the coursework. One might call it an experience of a lifetime—a lifetime of someone living with a disability.

The course is unusual to be sure. It was developed as Goldstein’s answer to his students’ desire to incorporate outside training as an integral part of the course. “When I first arrived at NYU-Poly, my students expressed an interest in this type of learning,” said Goldstein, an instructor in Technology, Culture and Society. “As someone with a sibling who has intellectual and development disabilities, I thought the writing seminar would serve as a great platform to open up the students to a world that is often dismissed by society. The experience could, perhaps, interest the students in developing assistive technology or performing medical research.”

Students combined selected readings such as *Children of a Lesser God* and *No Pity*, guest presentations, discussion, onsite interviews and research in an attempt to understand fully what it...
offering to General Studies students, no one could have dreamed that the course would land them in the Blackboard Hall of Fame. But, NYU-Poly, represented by FITL’s Yona Jean-Pierre, was in fact among the proud recipients at the July induction ceremony.

The Blackboard Collaborate Hall of Fame for Excellence in Collaboration celebrates educators around the world who have shown exemplary innovation and creativity in their use of the Blackboard Collaborative Platform. NYU-Poly garnered the honor in recognition of its innovative and creative use of Wimba, the Blackboard Collaborate Platform. The platform was used to develop the interactive online program, eMath Forum, for first-year General Studies students who did not meet the traditional admissions requirements. The online eMath Forum bridges the gap between students’ high school math skills and those needed to navigate the rigors of a challenging STEM curriculum at the university level. The results were astounding—98 percent of the students successfully completing the eMath Forum with 97 percent who completed the program currently enrolled at NYU-Poly.

Last summer, the Center for Faculty Innovations in Teaching and Learning (FITL), Mathematics Department and Department of Academic Success teamed up to develop and implement an eMath Forum to provide a select group of General Studies students with a highly interactive, challenging four-week online summer math program. The Mathematics Department developed the curriculum, General Studies administered the program and FITL handled training and the administration of the online course.

Students came away with the desire not only to be better citizens, but to use their NYU-Poly education to improve the lives of the largest minority population in the world.

means to live with a disability and the issues that surround this topic. They also watched videos that depicted past and present treatment of the disabled. For many in the course like Yinai Fan, the experience was thought-provoking. “My attitude toward people with disabilities changed a lot,” said Fan. “...now I understand that what these people really want is their independence.”

Many Manhattan-based agencies serving the disabled such as the VA Hospital, Americorps/Self Advocacy Association of New York State (SANYS), the Center for Independence of the Disabled NY, United Cerebral Palsy, Visions and the Evelyn and Walter Redfield AHRC Adult Day Program welcomed Goldstein’s request for on-site visits. During those visits, students conducted interviews with the residents and heard firsthand the struggles and the joys they have experienced.

“Before I took this course, I thought that disability could easily destroy a person’s life, regardless of his strong will or attitude,” wrote Siteng Jin. “...then I saw...examples of people with disabilities who had wonderful lives.”

Goldstein invited a former student from JobPath, an agency that provides education and job placement for individuals with disabilities, to join the class. This autistic student attended all seminar meetings and had his writings critiqued by the NYU-Poly students. He, in turn, provided valuable insight during discussions based on his life’s experience. “He completely changed my attitude and eliminated some of my prejudice or misunderstanding of people with autism,” wrote Chusen Liang.

While wearing glasses that simulated vision impairments, students traveled in pairs with sighted classmates navigating the streets of the city for three hours. Afterward they wrote about the difficulties they experienced—reading restaurant menus, finding food on a plate, buying a MetroCard. All are simple tasks the sighted take for granted, but monumental challenges for a disabled person who wants to live independently.

As Goldstein had hoped, students came away with the desire not only to be better citizens, but to use their NYU-Poly education to improve the lives of the largest minority population in the world. “Now that I know what they want and how they feel...I would do anything I could to help them gain the independence they need and desire,” said Napat Ratanakul.

“...now I understand that what these people really want is their independence.”

-Yinai Fan (student)
Since 1854, faculty and students of Polytechnic have addressed issues through innovative thinking and an entrepreneurial spirit. **The story of i2e—innovation and entrepreneurship**—starts in the classroom, grows in the laboratory, responds to real-world needs and comes to life in the marketplace.

Gifts to the Polytechnic Fund enable NYU-Poly to provide every student with an exceptional learning experience and ensure that the needs of a growing student body and expanding faculty are met. Your annual gift to the Polytechnic Fund bridges the gap between tuition and the true cost of a Polytechnic education, allowing current and future students to receive a first-rate education.

Your contribution of any amount makes a difference in the quality of programs and facilities throughout our international network of facilities and campuses. **With your support, our community continues to challenge itself to explore the power of i2e.**

Make your gift to the Polytechnic Fund today by visiting [www.poly.edu/giving](http://www.poly.edu/giving) or calling 718.260.3885.
LEARNING THE INS AND OUTS OF BIM

Dardan Borovci and John Murray think BIM is C-O-O-L!

The teens were among 21 high school students from the New York City metropolitan area who spent four weeks in an intensive summer program learning about Building Information Modeling (BIM). Supported by the New York Building Foundation, a non-profit building coalition, the program aims to develop the next generation of construction-industry leaders by assisting academic institutions that offer programs related to design, construction and real estate.

Mentors were assigned to small groups of four students to ensure a hands-on approach to understanding the coursework. Students were trained using floor plans of their own homes and real construction-project models. In addition to being introduced to LEED (Leadership in Energy and Environmental Design), students worked with widely used industry applications such as Autodesk Revit® and Autodesk Navisworks® for four-dimensional simulations and Oracle Primavera for scheduling. Faculty members Fletcher H. (Bud) Griffis, Andrew Bates and Lawrence Chiarelli presented the program assisted by doctoral and graduate students.

LINDA JACOBS
Retires from NYU-Poly Board

Linda K. Jacobs is former president and board chair of the Near East Foundation, a private, nonprofit organization dedicated to urban and rural development in the Middle East and Africa. She is also the founder and sole trustee of the Violet Jabara Charitable Trust. Previously, Dr. Jacobs was president of Middle East Technology Assistance, a nonprofit corporation. She was a graduate teaching fellow and instructor at the University of Oregon from 1974 to 1980.

Dr. Jacobs has been a trustee at NYU-Poly since 1992 and was elected trustee emerita in June 2011. She was a member of the following committees: Executive, Compensation and Human Resources, and Trustees and Development. Dr. Jacobs’ father, Dr. Joseph J. Jacobs ‘37, ’39, ’42, Hon’86, was an NYU-Poly trustee emeritus and its most generous donor.

Linda Jacobs received a PhD in Near Eastern Archaeology/Anthropology from University of Oregon in 1980, a master’s degree in Anthropology from University of Oregon in 1974 and a bachelor’s degree in Art History from Cornell University in 1969.
As a teenager growing up in Prague in the 1930s, Arnošt Reiser was interested in literature and music, not science. But when a middle-school teacher talked about some exciting developments in physics, he became fascinated with science. He heard about a university-level chemistry course for laboratory technicians and enrolled eagerly. He knew then and there he wanted to become a chemist.

Reiser went on to survive a Nazi concentration camp, earn a chemistry degree, teach a generation of Czech chemists at his alma mater in Prague and free the communists in 1960 to become an industrial chemist in England. In 1982, then-Polytechnic University invited Reiser to join the faculty and to create the Institute of Imaging Sciences. In 1989, he published *Photoreactive Polymers: The Science and Technology of Resists*.

Reiser, 91, the Distinguished Research Professor of Chemical and Biological Sciences, no longer teaches. But he still goes to the campus every weekday and sometimes stops by the cafeteria for an early breakfast. When he’s not having lunch with friends and colleagues, he’s chatting with students. Particularly satisfying is the contact he has with students from decades past. “My former Poly students all have good positions in industry and when they are in town they come and see me,” he said.

He began teaching science to a group of children ages 8-16 in 1940. The Germans excluded them from the public schools in Prague because they were Jewish. To begin teaching science to such a wide range of ages, Reiser made a theodolite, a surveyor’s instrument that measures angles.

“At we were able to determine the height of the local church steeple and the width of the Vltava River, and to map parts of the village of Roztoky, near Prague. Surveying,” he said, “led naturally to teaching basic geometry and trigonometry.”

At the same time, Hitler had begun his conquest of Europe and, as Jews, the Reisers were in danger. “In May of 1942,” he said, “all of us were shipped to the camp at Theresienstadt. I survived the war and returned to Prague. When I got there, I found my sister and my girlfriend had survived, too. We, along with a cousin who had survived in France, moved into a small apartment in our family’s old house.”

“I met quite a few eminent scientists in Theresienstadt,” he said. “They were clearly inspired people and even in the camp, they were curious about the world and about life. Their attitudes made a huge difference, and they became role models for all of us young ones.”

After the war, Reiser earned a degree at the Institute of Chemical Technology in Prague and joined the chemistry faculty there in 1947. With his classmate Eduard Hála, he co-wrote an essential Czech textbook, *Physical Chemistry*. In 1960,
Reiser and his wife, Ruth, decided to flee the communist regime in Czechoslovakia. Holding their two young sons, they jumped off an East German passenger ship anchored off the Danish coast, swam toward shore and were rescued.

Reiser was jailed for a month in Denmark “while the authorities tried to find out about us.” Meanwhile, his friend Jan Rocek, jailed with him, wrote to a Cambridge professor he knew, Sir Christopher Ingold, a leading pioneer of physical organic chemistry. Ingold phoned Niels Bohr, a Nobel laureate in Physics, in Copenhagen. “A few hours later,” Reiser said, “we were free.” He and his family moved into a small hotel and he began to look for work.

That same year, the publishing house of the Czechoslovak Academy of Sciences published the first volume of the Hála-Reiser chemistry text. The academy published a revised volume in 1966. “The fact that the second volume appeared with my name on the cover was a feat of courage and friendship on Eduard’s part,” Reiser said. “I had escaped to the West. Eduard risked his position as professor and possibly even his freedom by insisting that my name be on the book at a time when I was a fugitive in England and a traitor.” The textbook was never issued again.

While living in Denmark, Reiser received an offer from Kodak to work as an industrial chemist in England. The company put him in charge of its photochemistry laboratory, where he and his team performed tests on a light-sensitive varnish, called a “photoresist.” The company produced Kodak Thin Film Resists (KTFR) at the request of Nobel laureate Dr. William Shockley of Bell Labs. Shockley invented the transistor, an electronic amplifier that became the basis for today’s computer chips of which photoresist is an essential component.

“What none of us knew at the time,” Reiser said, “was that we had stumbled onto the very beginnings of the semiconductor revolution.” Reiser said KTFR was “not really a photographic product” and Kodak thought it would not make any money. “But, as more firms began manufacturing semiconductors, all of them used KTFR as the imaging material,” he said, “and our line actually became profitable.”

Reiser worked for Kodak from 1960 until 1982, when Poly recruited him for its faculty. The following year, England honored him for the critical advances he had achieved at Kodak in stopping the fading of photochemical dyes. At a ceremony at Edinburgh University, Prince Charles granted him a national degree of Doctor of Science.

According to Reiser, he has “only a single patent,” which his friends at DuPont insisted he receive. “While my research sometimes looks theoretical,” he said, “it has several times had an impact on technology.” He and his Poly colleagues made a major contribution to industry when “we discovered the action mechanism of Novolak-diazoquinone resists” that coats the silicon wafer of the computer chip. That critical breakthrough, Reiser said, “led to the establishment of thermal printing plates as the principal medium of today’s printing industry.” Thermal plates are a $10 billion global business.

In his 30 years at Poly, Reiser has taught and worked with many fellow immigrants: “What is special about Poly is our students as well as our faculty, who come from all corners of the earth. They often have to overcome substantial obstacles and they come with glorious expectations. They have to start living in a new language and learning new ways to solve problems. Many of us realize that teaching our students is not a one-way street. Out of the classroom, we often become their pupils.”

These days on campus, Reiser is writing as well as preparing a seminar on his specialty, dye fading. His visits to the Poly cafeteria delight him: “The place is packed and intense conversations are going on everywhere,” he said. “Looking around, I realize that this is a new human landscape. We shall have to talk to each other, that is for sure. And, at breakfast, our students demonstrate that this is not only possible, but actually fun.”

STEPHEN ARNOLD, university professor of Physics and Chemistry, and Thomas Potts Professor of Physics, gave invited lectures at Columbia University, Boston College and McGill University on the role Isaac Asimov had on his mentoring approach and in inspiring the development of a sensor that could detect individual virus particles in fluids. Arnold believes that using the “top-down” approach in mentoring undergraduates can accelerate discovery in research. The title of his lecture at Boston College was “From the Death of An Icon to Birth of A Physical Principle for Ultra-sensitive Label-free Virus Sensing.” He returned recently from Sicily where he delivered invited lectures under the collective title “Photonic Microcavity Fundamentals for Ultra-sensitive Chemical, Biological, Radiological, and Nuclear Detection.” This area is directly related to bio-medical patents, and graduate and undergraduate research at the MicroParticle PhotoPhysics Lab.

ZHONG-PING JIANG, professor, Electrical and Computer Engineering, delivered the keynote address at the 6th IEEE Conference on Industrial Electronics and Applications, Beijing in June. His exchange student Tengfei Liu from the Australian National University received the Guan Zhao Zhi Best Paper Award at the 30th Chinese Control Conference in Yantai, China.

BHARAT RAO, department head, Technology Management, presented a paper titled “A Comparison of Digital Innovation Ecosystems,” with co-author Bertha Jimenez, currently a PhD student in the department, at the Portland International Conference on Management of Engineering and Technology in Portland, Oregon. Rao also attended a planning meeting for a proposed NSF I/UCRC in Technology Management with collaborators from Portland State University and the University of Cincinnati. The meeting was convened by Dundar Kocaoglu, chairman and CEO of PICMET, and was attended by several high-tech leaders from the Pacific Northwest.
JOSEPH NADAN, industry professor, Technology Management, chaired a session on Program and Project Management at the Portland International Conference on Management of Engineering Technology. He presented a paper at the same conference on autonomic project management, an innovative breakthrough methodology to improve project outcomes.

ZHAOXIA XU, assistant professor, Finance and Risk Engineering, is a semifinalist in the best paper category for “Internal Finance, Predation and Financial Crisis,” co-authored with Soku Byoun. The paper, which will be presented at the Financial Management Association’s Annual Meeting in Denver, Colorado in October, has also been accepted by the American Finance Association 2012 in Chicago.

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MARY COWMAN, professor, Chemical and Biological Sciences, and associate provost for programs, planning and development, Office of Provost, was invited to deliver a lecture, “Macromolecular Crowding in the Extracellular Matrix,” at the International Conference on the Structure and Function of Biomatrix: “How Biomatrix Controls Cell Function and Gene Expression,” Budapest, Hungary.

JOHN DIBARTOLO, lecturer, Applied Physics, published “Orientation Change of a Two-dimensional Articulated Figure of Zero Angular Momentum,” in the American Journal of Physics.

JONATHAN SOFFER, associate professor, Technology, Culture and Society, received a $3,500 grant and access to the New York Public Library and its archival collections from the Gilder Lehrman Foundation to support his research on women’s suffrage. He is also researching two other projects, one on policing and urban police space, and another on the way Progressive politicians, writers and feminist theorists began to use Machiavelli as a theory about how to fight corruption called “Intriguing Progressives: Theodore Roosevelt; Ida Tarbell, H.G. Wells and Charlotte Perkins Gilman as Machiavels of Empire, Utopia and Gender.”

Dear Fellow Alumni,

Your positive actions and involvement, in response to our letter in the summer issue of Cable, have greatly strengthened our association’s ability to support fellow alumni in reaching professional goals and have increased our capacity as a resource to our student community.

This past summer we, the Polytechnic Institute Alumni Association, renewed our commitment to serve generations of Polytechnic alumni including all graduates of:

- The Polytechnic Institute of Brooklyn [1890-1972]
- The Polytechnic Institute of New York and New York University School of Engineering and Science [1973-1984]
- Polytechnic University [1985-2008]
- The Polytechnic Institute of New York University [2009-present]

In turn, we asked for your renewed commitment to be relevant to your professional and social community, be engaged in your areas of interests and expertise, and be generous with your time and talent. Thankfully, many of you have responded and first-time members have contacted our Executive Director, Anthony Kapp, to join our various alumni taskforces and committees.

As an ongoing effort, we welcome your continued involvement. Come one, come all, as we need all of our alumni talents and expertise, across all sectors including the not-for-profit sector, private companies, government agencies and publicly traded corporations.

As we aim to do our part to help fellow alumni in this challenging economy, we are also actively seeking entrepreneurs and innovators to participate in our upcoming activities. Please visit us at www.poly.edu/piaa for updates on how you can get involved. We are also welcoming alumni volunteers who are professional recruiters that can assist us in developing alumni career development programs.

To all, once again, we thank you for your dedication and look forward to working with you to meet our alumni association goals while supporting the overall development and engagement initiatives of NYU-Poly.

Best Regards,

Josiane Arbouet ’96 ’99ISE, President
Michael Urmeneta ’92ME ’00MG, Executive Vice President
Leonard Singh ’98EE, Vice President
Christopher Clinton ’09ME, Treasurer
Eric Levenstein ’06CompE ’08TN ’10MBA, Secretary
ALUMNI BENEFITS

Did You Know?

That your status as a Poly alum opens the door to a wide world of services, benefits and resources? The Polytechnic Institute Alumni Association and the Institute have partnered to offer significant discounts on insurance, travel programs, continuing education and much more.

Here are a few ways you can leverage your status as an alum and start reaping the benefits.

ENTERPRISE LEARNING REBATES
Take advantage of NYU-Poly’s Enterprise Learning and save thousands of dollars over the course of a master’s program, while you gain education hours that are needed for some industry certifications.

TRAVEL ADVENTURES
In partnership with NYU, our alumni and friends can travel to exotic ports-of-call through the Travel Adventures Program. Don’t wait! Poly alumni can travel to approximately 30 different destinations.

The Hidden Gems of Borneo - Feb 14-29, 2012
Waterways and Canals of Holland and Belgium April 17-25, 2012
Italy’s Apulia Region - June 19-27, 2012
Amalfi: The Divine Coast - Sept 5-13, 2012
Treasures of East Africa - Oct 4-18, 2012
River Life Along the Rhine, Main and Mosel Oct 23-31, 2012
India, Sri Lanka and the Maldives Nov 27 – Dec 16, 2012

PLUM ENTERTAINMENT DISCOUNT PROGRAM
Skip the hassle. Join NYU’s Plum Benefits Program for discounts on theater and concert tickets, special events, restaurants, sporting events and more. Simply send an email to alumni@poly.edu requesting the alumni access code.

For a full listing of the alumni benefits and services available to you, visit www.poly.edu/alumni/services.

POLY ALUMNI DINNERS IN DETROIT & CLEVELAND

Detroit-area alumni met for dinner on August 9 at the Rattlesnake Club. The dinner was hosted by Professor Nikhil Gupta, Mechanical and Aerospace Engineering, who was a guest speaker at the 4th Annual Advanced Lightweight Materials Conference, and Kim Mackley, assistant director of Alumni and Parent Programs. Alumni who attended the dinner were George Abrantes ’80EE, Philip Bowman ’72ME, Charles Davis ’71AE ’73AM, Lindon Ivezaj ’07CE, Richard Sbaschnig ’69PH and Richard Terzuoli ’72AE.

On August 11, alumni gathered for a dinner hosted by Development Officer Lorna Malcolm-Lessard and Assistant Director of Alumni and Parent Programs Kim Mackley, at Mitchell’s Fish Market in Woodmere, one of Cleveland’s Eastern suburbs. In attendance were Cedric Beckett ’85ME, J. Lawrence Katz ’50 ’51 ’57PH, Joseph Kohn ’64EE, Jerome Lando ’83Chem, William McKenna ’60CE, Nobuyuki Nakajima ’55Chem and Frank Sterling ’66AE.

Conversation at both dinners was lively and engaging, centering around Poly’s collaborative engineering and research program at NYU Abu Dhabi, developments with the i2e Campus Transformation in Brooklyn, and current efforts to launch regional alumni chapters around the U.S. and abroad. Attendees enjoyed reminiscing and reconnecting with old friends, making new ones and renewing ties to their alma mater.

The Office of Alumni Relations hosts similar events around the country throughout the year. Visit cable.poly.edu/events for the full listing. Or, if you are interested in hosting an event in your area, please contact Kim Mackley at kmackley@poly.edu.

POLY.EDU / CABLE NYU-Poly’s Alumni Magazine Fall 2011 37
While many of us strive to make our own place in history, there are few who are able to play a critical role in the iconic structures that shape the landscape of New York City. Through his leadership, humility and drive, Kostantinos “Gus” Maimis ’84CE succeeded in playing a critical role in the World Trade Center site. As project executive for the World Trade Center (WTC) Memorial Project, his professional experience connected him to the prominent structure commemorating the day 10 years ago when our nation was besieged. The culmination of his work and dedication to this particular project took center stage for the world to witness at the 10th anniversary ceremony remembering those lost when the World Trade Center towers were destroyed.

After spending his childhood in Carle Place, Long Island, he enrolled for a brief time at the University of Maryland’s school of engineering. He wanted to return to New York, but with one caveat. He wanted to attend a university with a stellar reputation in civil engineering. Enrolling at Poly met both criteria.

After graduating, he went to work for one of the industry titans, Lehrer McGovern Bovis. “I had an opportunity to learn from some great people on some major projects like the Westchester County Airport Terminal and the restoration of Grand Central Station,” says Maimis.

In the late 90s, he began thinking about striking out on his own. “I always wanted to have my own company and I wanted the challenge.” Like any new business, it had its fluctuations. “It was truly an eye-opening experi-
ence,” he says. “One of the first things I learned was that being a good project manager or being knowledgeable in the industry doesn’t make you a good businessperson. It was, at times, very humbling.” As if starting his own company was not enough to occupy all of his time, he also began teaching construction management courses at New York University—something he continues to do to this day.

In 2008, he joined STV, an employee-owned, award-winning professional firm offering engineering, architectural, planning, environmental and construction management services. His first day on the job, the firm’s president, Milo Riverso, introduced him to the client at the WTC and the STV/Memorial team as the project executive with responsibility for the oversight and management of the memorial project’s construction activities. “I knew it was either ‘sink or swim,’” says Maimis. “If it were not for our team, I would have sunk. They were the best! It is a tribute to all of the individuals who worked at the site—tradespeople, designers, contractors, consultants and clients—that we were able to reach this milestone.”

The project took Maimis and his team through a range of emotions. “At times it has been enjoyable…frustrating…humbling,” says Maimis. “The sheer size of the project was challenging and required sensitivity to everyone involved. The memorial is a place of remembrance and a place to honor those who died in the attacks and the first responders—heroes who made the ultimate sacrifice. Being a part of the memorial project is an experience I will never forget.”
Today, the company, Howard I. Shapiro and Associates, Consulting Engineers, named for one of Charles’s sons, is a successful and highly regarded firm with 35 employees. The firm has been involved in building many high-profile projects in New York City—four new towers at the World Trade Center site, the renovation of Carnegie Hall and a new Delta Airlines terminal at Kennedy Airport, to name a few. In the 1990s, the Shapiros worked on most of the buildings at MetroTech Center in Brooklyn, including the dormitory for their alma mater.

Charles began his career in 1929 as an engineer for the Board of Transportation, later renamed the New York City Transit Authority. There he worked on designs for the Brooklyn Battery Tunnel, various subway structures in Manhattan and the Smith-Ninth Street subway station in Brooklyn. After striking out on his own, he worked solo for a while from his basement in Sheepshead Bay and designed mostly industrial buildings and the occasional house. (At that time, said Jay Shapiro—who today runs the company with his brother Lawrence—his father, Howard, and uncle, Elliott, were still in school.) With his dual degrees, Charles could design both the structure of a building and its heating and plumbing systems. “He built his business by designing alterations to existing buildings and by creating ventilation systems for the city’s numerous factories,” Jay said.

Jay Shapiro ’77ME has engineering in his genes. When his grandfather, Charles Shapiro ’29ME ’32CE, started his engineering company in 1946, little did he know he was laying the groundwork for what would become a three-generation dynasty of Poly-educated engineers.
Howard, who graduated from Poly with a degree in civil engineering in 1953 and served in Germany as a second lieutenant in the U.S. Army, joined the business in 1957. Elliott, who had been at sea for a few years after graduating in mechanical engineering from the U.S. Merchant Marine Academy, joined the firm in 1955. The two-generation firm was renamed Charles M. Shapiro & Sons. With their combined skills, Elliott and Howard “could design a complete building, like their father,” Jay said.

When the basement office proved too small to contain the growing practice, the Shapiros moved to an office over a furniture store in Sheepshead Bay. They hired two assistants, a draftsman and a field technician, both of whom retired recently after more than 50 years with the firm.

When Charles died in 1964, the two Shapiro brothers carried on the business as partners. In 1967 the firm moved to a friend’s rigging-company warehouse. Their friend quickly realized that collaborating with engineers would benefit his business. At the same time, Howard found a new specialty: cranes. Riggers frequently use cranes to place heavy equipment inside buildings.

New York City enacted a law in 1968 that required contractors to have engineers plan their crane and hoisting projects. Howard realized that the safe use of cranes posed considerable engineering challenges. “Computers and advanced testing methods led to the new designs for larger cranes with longer booms,” Jay said. “Engineering for use of cranes frequently involves structural analysis of the site and nearby buildings.”

Howard began specializing in engineering construction cranes. He worked with crane manufacturers to get their equipment approved for use in New York City and became active on American and international committees that created crane-design standards. He wrote what is considered a handbook in the field, Cranes and Derricks, published in 1980. Jay and his brother, Lawrence, co-authored the next three editions in 1991, 2000 and 2010.

Before they joined the family business, Jay and Lawrence wanted to work elsewhere. “I had worked in the family office all my life,” Jay said, “and always assumed I’d join the firm. But I wanted a little independence first.” His first engineering job was 18 months with a crane manufacturer in Pennsylvania, followed by three years with Alcoa in Pittsburgh. Lawrence, a 1979 University of Virginia civil engineering graduate, also worked for a crane-maker, in Michigan, and then for a construction company based in Florida.

In 1983, their father, Howard, invited them both to join the business. (Howard’s brother, Elliott, went on to become an authority in environmental engineering.) Reflecting their developing specialty in crane and construction engineering, the father and two sons created a new company in 1989. Howard I. Shapiro & Associates. After leading the company for 14 years, Howard died in 2007, leaving Jay and Lawrence to run the firm and maintain his credo of excellence in engineering.

Today the Shapiros’ projects involve demolition, site logistics, construction methods and engineering cranes for all phases of construction. The company also works on hoisting HVAC equipment, generators and other equipment onto the roofs of tall buildings. “Our practice is a specialty,” Jay said. “There is an increasing demand for our services. Few engineers do what we do because it is difficult, demanding and sometimes risky work.”

During tropical storm Irene in late August, the Shapiros had cranes on construction sites all over New York City. A dozen of them were perched on Tower One at the World Trade Center site, some at the 1,200-foot level. “They’re tower cranes,” Jay said, “and are designed to swing with the wind, allowing them to withstand these extreme loadings.” None suffered damage. After the storm, the firm and the city carefully inspected each crane before construction resumed.

Jay, who had long sought a way to honor his father, established the Howard I. Shapiro P.E. Scholarship Fund at NYU-Poly in 2010 with an initial pledge of $20,000. “My father loved engineering,” he said, “and considered an engineering education to be an excellent background for any number of careers, because it teaches you to evaluate information and solve problems.”

It’s no surprise that the fourth generation of Shapiros is beginning to enter the family business. Jay’s elder son, David, a 2011 Duke political science graduate, who returned to school for a degree in civil engineering, is working with him. Jay’s younger son, Ben, a sophomore engineering student at the University of Michigan, is planning to join the firm upon graduation.

The Shapiro family name, Jay said, “is synonymous with excellence in engineering. In the New York City construction industry and international circles, our name is extremely well-known. Having my sons join me to carry on that tradition is a source of great pride.”
MICHAEL S. AMBERG ’52ME, who retired from Coates-America as senior vice president of manufacturing, was awarded Chevalier Legion of Honor by the Consulate-General of France in San Francisco, CA, on May 8, 2011. He was honored for his contribution as a rifleman with the 26th Division of the 3rd Army in the liberation of France from the Nazis in 1944. He holds several citations, including the Silver Star Medal, two Bronze Star Medals and the Purple Heart.

Samberg has remained involved in community affairs in Merced, CA, as president and board member of his AARP chapter, board member with his wife, Ruth, of the League of Women Voters, commander and chaplain of his Disabled American Veterans chapter and a member of the Veterans Advisory Committee to Congressman Dennis Cardoza.

STANISLAUS SKASKI ’58PH retired as an associate professor at Fordham University in September 2007.

WILLIAM S. GINELL ’44CM received his PhD in Physical Chemistry from the University of Wisconsin, Madison, in 1949. He worked for the Brookhaven National Laboratory (1949-1959); Atomics International (1958-1961); Aerospace Corporation (1961-1963); Douglas Aircraft and McDonnell Douglas Astronautics Company (1963-1983). Ginell retired as principal engineer in 1983. He also worked for The Getty Conservation Institute (GCI) (1983-2003) and retired as senior conservation scientist in 2003. Currently, he is a consultant to GCI in architectural conservation and earthquake retrofitting of historic structures and conservation and restoration of art objects.

RICHARD KATUCKI ’51PH is living in the Hershey Mills Retirement Community in Westchester, PA. He spends his time traveling worldwide. He is in good health and recently celebrated his eighth wedding anniversary to his second wife, Jeanne.

WILBUR SHAPIRO ’51ME published a book titled *The Anecdotal Odes of Wilbur Shapiro*. The book describes family events and golf course happenings in rhyming cadence. Poems of a more serious nature are also included. The book is available through Publish America, Barnes & Noble and Amazon.com.

BARRY GREEN ’52CE, ROBERT WOLBER ’52EE, JOE GARTNER ’52EE, GEORGE BROWN ’52EE, HERMAN ANTON ’52EE, DAN REUTHER ’52EE and ANTHONY ANNUNZIATO ’52EE ’58EE meet periodically for lunch on Long Island.

MICHAEL SAMBERG ’52ME, who retired from Coates-America as senior vice president of manufacturing, was awarded Chevalier Legion of Honor by the Consulate-General of France in San Francisco, CA, on May 8, 2011. He was honored for his contribution as a rifleman with the 26th Division of the 3rd Army in the liberation of France from the Nazis in 1944. He holds several citations, including the Silver Star Medal, two Bronze Star Medals and the Purple Heart.

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STANISLAUS SKASKI ’58PH retired as an associate professor at Fordham University in September 2007.

MICHAEL BARRON ’60ME retired 18 years ago and has been enjoying the weather in southern Florida for eight years.

DAVID SEIDMAN ’60MT was elected to the American Academy of Arts and Sciences in 2010.

MICHAEL G. POWER ’61CE organized the Reunion Dinner for the Bachelor of Civil Engineering Class of 1961. Power will return to work this summer at bridge construction sites in CA.

THEODORE W. HOUSTON ’61PH retired from Texas Instruments as a Fellow in 2009 and is now enjoying the life of an art student with plans to go professional.

STANLEY TENEN ’63PH, director of research for the Meru Foundation in Sharon, MA, published *The Alphabet That Changed the World*. The book examines the Hebrew text of Genesis and its relationship to the alphabet. Using over 200 color illustrations, Tenen demonstrates how each letter of the alphabet is a hand gesture and also the universal language of Hebrew, which all people make natural use of when they are children. For more information on the book, please visit www.tatctw.com.

LARRY ROSENBERG ’64EE joined the Mountain View Cohousing Community, which is in the process of building 19 condo units and a 4,500 square-foot common house in downtown Mountain View, CA.

RICHARD T. DAVIS ’65EP retired and is living in Ashland, OR with his wife of 42 years, Dorothy. Davis volunteers at the Oregon Shakespeare Festival every year.

FRANK STERLING ’66AE retired in 2008 and spends his time at home playing with his grandson, focusing on investment opportunities and traveling.

NAT SCHATZ ’69CE works as an executive consultant for Pathfinder LLC, a Cherry Hill, NJ-based project management consulting firm.
WILLIAM GARDNER ’70MA ’75MG was promoted to vice president at Willis of New York, Inc. He was also promoted to head of the Loss Sensitive Program Services Group. Gardner has been with Willis for six years, after working for Johnson & Higgins and then Marsh since 1972.

RICHARD BIANCO ’72EE retired from the Naval Undersea Warfare Center, Newport, RI, in January 2010.

FRANK MOLINO ’72SE retired as chief strategist for the Naval Undersea Warfare Center Newport in 2007.

CHARLES TRAINA’S ’78MA mother, Margaret Traina, died on May 25, 2011.

MICHAEL LEVINTON ’79 ’81EE is an assistant vice president for Design and Construction at SUNY Downstate Medical Center in Brooklyn, NY. He is responsible for the implementation of the largest capital construction program of any SUNY campus statewide, valued at approximately $500 million.

JOHN PELASCHER ’86EE is a manager at Broadcom Inc., a global leader in semiconductors for wired and wireless communication, based in Irvine, CA.

SAADA BAILALY ’85EE returned to his hometown of Guinea, West Africa, to work for the largest mining company, Compagnie des Bauxites de Guinee (CBG), until 2008. CBG sponsored Bailaly’s graduate degree at Poly. In August 2008, he took a temporary leave when he was appointed by the Guinea Head of State as the general manager of the Country Mining Infrastructure Company. He retired in June 2011. He offers consulting services in the fields of mining infrastructure, telecom, railroad signaling and atomization systems.

RONALD MANN ’90ME lives near Atlanta, GA, and has worked with Lockheed Martin for 26 years on government industrialization and federal energy projects as a certified project manager.

LAURENT DELLY ’96 ’00CE and Price-Mars Delly, the founders of PropertyRoster.com, recently threw a party in Harlem at The Lenox Penthouse to launch their new real estate website designed to advertise residential and commercial properties, events, new developments and jobs.

VIJAY KANSARA ’11BY is working in a lab at Columbia University as a technician. His lab experience gained from molecular biology class has proven very helpful.

FOR MORE CLASS NOTES VISIT CABLE.POLY.EDU/CLASS-NOTES
TO THE CLASS OF 1962:
AN INVITATION TO RECONNECT

Dear Fellow Alumni,

As we approach the 50th anniversary of our graduation, it is a good time for our class to reflect on the experiences we had at Brooklyn Poly all those years ago—the education, friendships and inspiration. And it is also a good time to reconnect with friends from our college days and our upcoming reunion is the perfect place to do it.

I have probably had more contact with Poly during this period than most of you. I returned in 1975 as professor of chemistry and dean of arts and sciences, and later as vice president for research. In 1985, I moved to industry, first in Ohio and then in the U.K. Recently, I joined Poly’s Board of Trustees and I have seen how the Institute is growing and developing a new era of excellence through its affiliation with NYU. The Brooklyn campus is completely transformed, and new faculty are being added. Today’s students remind me very much of ourselves, as 16-18-year-olds, all those years ago.

I am writing today to invite you join me and your fellow members of the Class of 1962 by returning to Brooklyn for our 50th Reunion. The “Golden Jubilee” reunion celebration will be held in Brooklyn on April 20 and 21, 2012. The biggest celebration since our graduation! I am hoping we can set a record for participation at this very special event—our Golden Jubilee!

For more information about the reunion festivities, visit www.poly.edu/alumni/goldenjubilee. I look forward to seeing you in April!

Sincerely,

Bernard J. Bulkin
‘62Chem

BACK TO SCHOOL DAY
& GOLDEN JUBILEE

FRIDAY, APRIL 20-SATURDAY, APRIL 21, 2012

Visit your alma mater, interact with faculty and students and see firsthand how NYU-Poly continues to transform the future of engineering and technology. The Class of 1962 will be our honored guests as they are inducted into the Golden Jubilee Society, but all class years—especially those celebrating an anniversary year—are encouraged to attend and join in the celebration.

Activities will include:
• Campus Tours
• Classroom Sessions with NYU-Poly Professors
• Duryea Society Dinner
• Innovation Display
• Class Dinners for Those Celebrating Their 10th, 20th, 30th and 40th Reunion
• Golden Jubilee Luncheon
• Optional Bus Tour of NYC

BE A CLASS AGENT... Interested in helping plan your class reunion? Volunteer to serve as a class agent! Contact Anthony Kapp in the Office of Alumni Relations at alumni@poly.edu or 718.260.3885 to learn more.

Visit www.poly.edu/backtoschool for more information.
IN MEMORIAM

WILLIAM E. HARDING ’49PH ’50PH

Director of Manufacturing Research for IBM

William “Bill” E. Harding, 87, died on June 5, 2011. Born in Brooklyn, NY, in 1924, Harding was a veteran of WWII. He served in the Army as an infantryman from 1942 to 1945, and participated in the Battle of the Bulge, where he demonstrated exceptional bravery and earned three Purple Hearts.

He received bachelor’s and master’s degrees in mathematics and physics from Brooklyn Polytechnic Institute and was a pioneer in semi-conductor manufacturing from the 1950s until his retirement. He held numerous patents and was named an IBM Fellow. He retired as director of manufacturing research for IBM in 1985 after 28 years of service and was a member of IEEE.

He is survived by his wife of 63 years, Marion, their four children, Robert R., Paul W., Clair, and Rita, and 12 grandchildren and three great-grandchildren. A daughter, Lynn, predeceased him.

JOEL SNYDER ’56EE ’64EE

Consulting Engineer and Principal of Snyder Associates

Joel Snyder, the 39th president of IEEE, died on June 5, 2011. He was 75, and lived in Boynton Beach, FL.

During his career, he worked for Harman Kardon, Airborne Instruments Laboratory and IBM. He has also taught at Polytechnic University, the New York Institute of Technology and Long Island University. Most recently, he served as a consulting engineer and principal of Snyder Associates in Plainview, NY. Snyder worked in removable media disk memories, voice-over data modems, speech compression techniques, nonlinear sampling techniques, redundant and parallel computer systems and powered prosthetics.

He held several patents on video piracy prevention techniques. He was a senior member of the IEEE; Fellow of the Institution of Electrical Engineers (IEE, now IET); a member (Hon) of the Popov Society for Radio Engineering, Electronics and Communications; and an academician in the International Telecommunications Academy (ITA).

In addition to his many roles in IEEE governing bodies, he was a member of the Board of Trustees of the United Engineering Foundation and the Board of Directors of Motiontronics for Science Corporation, the RFID Educational Foundation, Internet Golf Multimedia, and the Homeland Security Industries Association, Inc. He was also a life member of Alpha Epsilon Pi. Snyder received his BEE and MSEE degrees from the Polytechnic Institute of Brooklyn.

He was a devoted husband and is survived by his three children and their spouses, and six grandchildren.
In case there was any doubt, a NYU-Poly education is worth its weight in gold. That’s according to a recent PayScale survey that ranked the Institute fourth among engineering colleges and eighth among all four-year colleges in median starting salaries and mid-career salaries for its graduates with bachelor’s degrees.

The 2011 PayScale survey reported the median starting salary for NYU-Poly graduates with four-year degrees was $61,000, and the median mid-career salary was $113,000. PayScale based its mid-career statistics on responses from alumni with at least 10 years of career experience whose highest degree is a bachelor’s.

Engineering, science, medical and technical schools dominated PayScale’s 2011-2012 list for the best salary potential. The nation’s second oldest private engineering school, NYU-Poly enrolls about 4,500 undergraduate, graduate and doctoral students. Its philosophy of invention, innovation and entrepreneurship — i2e — encourages students and faculty to develop technological advances that will improve lives.

“We are pleased to once again rank among the nation’s best schools in this measure of the impact of a strong education,” said NYU-Poly President Jerry Hultin. “The success of our mid-career alumni, as measured by PayScale, indicates that these lessons in i2e carry throughout life, both for our graduates who pursue careers in institutions and those who build their own companies.”
NEW OPPORTUNITIES FOR ALUMNI TO ENGAGE WITH CURRENT STUDENTS

The Career Management Center, in collaboration with the Office of Alumni Relations, is proud to announce two new opportunities for alumni to support current students as they navigate the career planning process. As alumni, your advice, guidance and insights can prove invaluable to students who are contemplating their career path or seeking information about a particular industry or focus area.

Beginning this fall, we invite all alumni to take part in two new initiatives:

Poly Career Planning Series (PCPS)
This program focuses on guiding students from career exploration and résumé writing through securing an internship or job opportunity. The series presents a number of opportunities for alumni to connect with current students and, if you are interested, recruit them for job and internship openings.

Collaboration Opportunities Include:
• Conducting practice interviews with students
• Hosting students on a meaningful site visit at your current place of business
• Participating in a “Recruiter-in-Residence” event where you meet with students one-on-one to answer their industry and career-related questions
• Being a guest on a “What’s Next: Exploring Engineering” Career Panel with fellow alumni and organizations to share valuable insights on your chosen career path

The Mentor Network Program
If you’re looking for a way to connect with the Institute and current students that doesn’t require an extensive time commitment, the Mentor Network Program could be the right for you.

By signing up for the Mentor Network, you can provide invaluable support to current students through informational discussions. Whether you choose to communicate with the students in-person, via email, or Skype, your insight can help them become successful and more informed about their career path.

For more information about how to be involved in these programs, visit www.poly.edu/alumni/get-involved, or call us at 718.260.3885.
It's easier than ever to support the Polytechnic Institute Alumni Association.

- No annual fee.
- $50 donation by the bank to the PIAA when you first use the card.
- Ongoing contributions when you continue using your card.
- Low introductory APR on purchases and no balance transfer fees for 6 months.
- Enhanced Visa Platinum benefits, including 24/7 emergency customer service and 100% fraud protection, auto rental and travel accident insurance and much more!
- Earn points at hundreds of participating online retailers redeemable for name-brand merchandise, event tickets, gift cards or travel reward options.

The PIAA Visa® Affinity Platinum Rewards credit card turns your everyday purchases into support for your alma mater and enhance programs that directly impact the lives of our alumni and future alumni of NYU-Poly.

APPLY ONLINE at www.cardpartner.com/app/piaa.
Or call 718.260.3885 to request a hard-copy application.