DID YOU KNOW?

Thomas Joseph Kelly is known as the “father of the lunar module”? Alum Kelly, Class of ’58, designed and engineered the lunar module program.
[3] **NYU-Poly in the News**

[3] President’s Community Leadership Breakfast  
[5] NYU-Poly Announces the Transformation of its Brooklyn Campus  
[7] Cover Story: The Case for i²e  
[12] i²e Task Force: From Concept to Reality  
[13] Engineers Without Borders  
[15] Students Create the Next Big Things  
[17] Experienced Execs Get the Inside Track on Clean-Tech Economy  
[19] Mentors Cheer on FIRST LEGO Competitors  
[21] Building for the Future: NYU-Poly Hosts Regional Future City Competition  
[22] NYU-Poly Launched Inaugural Think Tank

[23] **Faculty News and Notes**

[23] New Faculty Appointments  
[25] Faculty Notes  
[26] Kurt Becker, Yong Liu and Richard Wener Receive Coveted International Awards

[27] **Campus Buzz**

[27] BlackRock Exec Warns “The Market May Not Learn”  
[27] Hinkaty Student Council Office Dedication  
[28] d.school Co-directors Deliver Inaugural Transformative Speakers Lecture  
[28] LISEF Honors Beverly Johnson  
[28] Career Fair

[29] **PolyGiving**

Helen T. Lowe

[29] **Alumni News**

[29] Letter from the Alumni President  
[31] Class Notes  
[33] NYU-Poly Remembers Nathan Marcuvitz  
[33] In Memoriam  
[34] Upcoming Events
Polytechnic Institute of NYU hosted its 4th Annual Leadership Forum and Innovation Think Tank, an annual gathering of downtown Brooklyn and New York City visionaries, on the morning of Friday, March 12. Policymakers, faculty, and participants of NYU-Poly’s business incubators joined leaders from the private, public, and non-profit sectors to discuss the future of the regional, national, and global economy and its impact on students. Over coffee and breakfast, NYU-Poly President Jerry Hultin guided a conversation featuring Kathryn Wylde, president and CEO of the non-profit Partnership for New York City, and Nicholas Donofrio, senior fellow at the Ewing Marion Kauffman Foundation, IBM fellow emeritus, and IBM executive vice president of technology and innovation (retired).

Provost Dianne Rekow welcomed the standing-room-only audience with impressive NYU-Poly news that set the stage for the forum’s economic and education focus: undergraduate and graduate enrollment was up again for the 2009-2010 academic year; the business incubator program assisted 54 start-ups, creating more than 120 new jobs; and the inaugural Innovation Think Tank, which tasks multidisciplinary faculty research teams with real-world problems facing industry partners, launched in January.

Rekow then introduced President Hultin who began by recalling demographers’ forecast: by 2040 there will be no majority race in America. If that’s the case, he said, then NYU-Poly, with the diversity among its students and instructors, is living in the future. The multiplicity of viewpoints “gives us a great edge,” he said, “but what do we do with that?”

Continuing, he highlighted the relationship between higher education and K-12 grade schools. That theme was returned to throughout the morning, as was the topic of economic development and its effects on graduates’ future. Considering students’ options and marketplace trends, Hultin turned to Wylde with the blunt question, “What’s hot?”

“What’s hot?” “Brooklyn, obviously.”
“Brooklyn, obviously,” she replied, receiving an appreciative laugh from the audience. More seriously, Wylde described academia’s transformation from “an anti-commercial culture” to one far more open to business. “Institutions have really understood the opportunity we have in New York,” she said. “Our major industries — finance, media, and medicine — are all first adopters of what’s new.”

“We have to continually train our professionals to meet needs as they’re changing...”

NYU-Poly’s emphasis on innovation, invention, and entrepreneurship (its “i-squared-e” philosophy) wasn’t lost on Wylde, as she commended the Institute for becoming a center for “practice, academia, business, start-ups, and the venture community.”

**Acting locally, thinking globally**

The conversation’s focus shifted when President Hultin drew Donofrio’s attention to the national and international. According to Donofrio, the country’s higher education system still operates on a 19th-century model. America’s global competitors are working from the same outmoded system, he believes, but change is afoot. “You can rest assured that China is thinking about it, that India is thinking about it, that the continent of Africa is thinking about it,” Donofrio said as he went on to list other world regions and their pursuit of educational goals that more closely align with workplaces of the future in increasingly service- and information-based economies.

Such environments are likely to consist of “people who are much more collaborative, who are much more global in their thinking,” he said. “T-shaped” workers, Donofrio called them. They have a principal skill, such as electrical engineering, that forms the vertical spine of the T, but other interests and skills — a background in anthropology, for instance — round out such workers to create the horizontal bar of the T. Their broadened viewpoints expand what would otherwise be a narrow approach.

As the discussion similarly opened up to include guests, Randy Asher, principal of Brooklyn Technical High School, described how students were arriving at his school with a stronger technical skill base than they had shown in the past, a change that has had his teachers struggling to keep up. “We have to continually train our professionals to meet needs as they’re changing,” he said, expressing the anxiety that comes with preparing students “for companies that don’t yet exist.”

**Teaching and taxes**

NYU-Poly’s local outreach to promote student and teacher skills in STEM — science, technology, engineering, and mathematics — subjects alleviates some of his concerns, Asher said. In particular, he noted robotics programs like FIRST LEGO League, which is made possible by funding partners such as the Brooklyn Community Foundation.

Bob Bonelli, president of Northeast Securities, himself a graduate of Brooklyn Tech and Polytechnic, suggested instructors should also prepare students by teaching better communication skills at all academic levels. Engineers, mathematicians, and scientists who can translate their ideas are guaranteed success, he said. Bonelli assured the audience that “the money is just sitting there” for technologists who can confidently demonstrate the commercial viability of their work.

The state’s coffers don’t enjoy the same status, a fact NY State Assemblyman Hakeem Jeffries reminded attendees. He described how Wall Street traditionally provided New York State with 20 percent of its tax revenue but how the recent financial crisis, coupled with the hit suffered by New York City’s formerly robust real estate market, dried that income stream. The STEM fields are where policymakers should refocus, Jeffries said.

Wylde agreed. “The only solution as a city and as a state is to be much more deliberate about how we grow our private sector economies,” she said.

Her comment brought the discussion full circle, reminding the audience of Rekow’s opening remarks about the success NYU-Poly business incubators have had developing new companies and new jobs. Although serious challenges exist, Ralph Alexander, chair of the Institute’s board of trustees, expressed confidence in NYU-Poly’s community and vision and invited audience members to continue collaborating.
NYU-Poly Announces the Transformation of its Brooklyn Campus

President Jerry M. Hultin unveiled “i2e Campus Transformation,” Polytechnic Institute of NYU’s plan to redesign areas of its Brooklyn campus, at a Town Hall on January 20. “The goal now is to turn this into a campus that exudes innovation, invention and entrepreneurship,” he said, speaking in Pfizer Auditorium.

Dennis Dintino, interim vice president of finance and administration and chair of the project’s steering committee, echoed that sentiment when he said, “we want a campus transformation that supports students and faculty and that provides innovative and collaborative work spaces as we go forward.”

Dintino provided information about the project’s framework, such as its timeline (it’ll consist of three phases: 1 to 3, 3 to 5, and 5 to 10 years) and its funding ($50 million initially with fundraising targets eyeing $150 to $200 million more as the decade progresses).

Members of the project team from Jonathan Rose Companies, the firm NYU-Poly selected as its owner’s representative for i2e Campus Transformation, steered the lively Town Hall through an overview of the project, covering its driving principles (sustainability goals and a transparent decision-making process, for instance) and introducing design ideas for the audience to consider during the question-and-answer period that followed.

Jonathan Rose, the company’s founder, presented examples of architectural transformations attendees were encouraged to draw inspiration from, including before-and-after images of Lincoln Center’s Alice Tully Hall and the new Cooper Union Academic Building. He also shared examples of form meeting function in research and teaching labs with data and electrical ports suspended from the ceiling, enabling students, faculty and researchers to easily move wheeled stations as needed. “We’re trying to design not just for the next 10 years, but for the next 50,” said Rose.

Audience members responded enthusiastically, with students, faculty and administrators queuing to ask questions and provide comments. Proposals ranged from extra recreational spaces to creating continuity between the look and feel of the campus’ two main buildings, Rogers Hall and the Dibner Building. “The public outreach is good,” said attendee Brian Gill, a graduate student in NYU-Poly’s civil engineering master’s program. “The best way to get funding is to get everybody aboard,” he continued. “If you inspire people, if you do something that hasn’t been done before — wow, that will really get people’s attention.”

President Hultin encouraged such involvement, reminding attendees of their stake in the project. “Staying engaged is as much your responsibility as it is ours,” he said during closing remarks.

Interested parties can look forward to at least three more i2e Campus Transformation community workshops where they can share additional ideas that will shape NYU-Poly’s future.
NYU-Poly Research on Composite Materials Promises Safer Ships for U.S. Navy

As lightweight composite materials increasingly replace heavier steel to make vehicles, ships and aircraft more fuel-efficient, engineers face a dearth of data on how the new materials react to vibrations and shock waves that can be equally damaging as direct impacts.

The U.S. Navy has commissioned new research at NYU-Poly that will aid engineers in designing safer and higher-performing ships, aircrafts and land vehicles. The findings could potentially lead to an improved understanding of blast injuries sustained by soldiers, as well as to increased use of composites in skyscrapers and other construction projects, according to the lead investigators, Assistant Professors Nikhil Gupta and Maurizio Porfiri, Mechanical and Aerospace Engineering.

NYU-Poly faculty and students will conduct the U.S. Navy Research Development Test & Evaluation (RDT&E) project called Shock and Vibration Modeling of Marine Composites. The $2 million project will allow an NYU-Poly team to investigate and develop new composite materials, analytical tools and processing methods that can be used on naval vessels.

The use of composite materials has been rapidly increasing and now exceeds 8 million tons per year, a large part of which is used in civilian and military aircrafts. Recent breakthroughs in composites allow scientists to create lightweight, durable materials with greater capacity to mitigate blast and vibration effects, which is crucial to building safer ships and aircraft used by the U.S. Navy. The NYU-Poly team will develop advanced composite materials that will increase naval vessels’ damage tolerance and reduce their structural weight, a major goal of the U.S. Navy that could save billions of taxpayer dollars.

Prior research into how composites react to blast waves has largely been forensic. The new project will develop a comprehensive facility for shock and vibration testing of materials along with scientific procedures and protocols for assessing blast and vibration effects on composites.

The NYU-Poly team will develop advanced composite materials that will increase Naval vessels’ damage tolerance and reduce their structural weight...

U.S. Representative Edolphus “Ed” Towns (NY-10) secured the research funding as part of the Department of Defense Appropriations Act of 2010 that was signed into law by President Barack Obama.

“Chairman Towns’s support for this research comes as the U.S. Navy is transitioning to a greater reliance on advanced composite materials for its ships, submarines and aircraft,” said NYU-Poly President Jerry Hultin. “Shock and vibration modeling is a core competency of NYU-Poly, and this funding will allow our faculty and students to continue to support the Navy’s future research and development requirements. We are very grateful for Chairman Towns’s continuing support of NYU-Poly.”
Once again Poly has been favored—this time by an affiliation with NYU. This turn of events sparks a dialogue of how to best utilize this benefaction in the context of two seemingly distinct pathways. One is captured by the slogan “i2e”—invention, innovation, entrepreneurship; the second is the familiar “pursuit of excellence.”

In examining these alternatives, I join this dialogue by presenting an image of what NYU-Poly can be: a community in which cultivation of the mind means developing the intellectual disposition and capacities to inquire, critically analyze and to create, and where modern technology—a concept that goes beyond instrumentation—provides the unifying theme for this endeavor.

At one time or another we have heard the phrase “pursuit of excellence” in connection with a plan for moving NYU-Poly forward. But, as Aristotle remarks in *The Nicomachean Ethics*: “It is hard work to be excellent, since in each case it is hard work to find what is intermediate.” That is, the call to “excellence” is meaningless unless a standard of reference is unambiguously recognized. In the world of higher education, “excellence” may be defined by reviewing the qualities of the top institutions in the country, which in the case of NYU-Poly are the most highly regarded research-intensive universities.

Before presenting an alternative to rankings, I want to show why they are insufficient for defining “excellence.” The problem with rankings is that they lack an external referent: the rankings are the product of self-referential criteria. Thus there is a tendency towards conformity and a deterrent to pursuing ideals. For example, one consequence is the restrictive notion that has evolved in regards to what constitutes academic scholarship. In reviewing the evolution of academic scholarship, R. Steven Turner, in Volume II of *The University in Society*, points out the following:

However efficient in promoting research, [the modern system] has had great implications for the kind of scholarship pursued within the academic framework...The modern professorate do not...reward scholarship and publication directly...they reward only scholarship which heightens...reputation among [their] disciplinary peers.

The negative impact of this narrow perspective is evidenced for example from the account of Rebecca S. Lowen of the activities of William W. Hansen, a member of Stanford University’s physics faculty and one of the main contributors to the ascendancy of the university in the late 1930’s. The prejudice is palpable in a letter he wrote to his department head complaining about the editing of his writings by the department:

[After reading the edited paper] you will conclude that this fellow Hansen is a mathematical physicist who can calculate almost anything but that there is no reason to suppose that he has any of that type of ingenuity commonly called inventive ability...I would like to be advertised as an inventor.
Ultimately, Hansen had to be given special consideration by the administration to succeed with his work, which characterized the transformation of Stanford. The pressure to conform continues today, discouraging institutions from reaching for greater educational ideals.

The alternative to rankings for defining “excellence” is framing an ideal of the university. This approach led to the development of the German and British models of the university, precursors to the American university of today. In both cases, the search for an ideal brought forth the notion of intellectual culture, albeit interpreted quite differently in each model, as the aim of education. To the Germans, this goal was to be attained through the pursuit of knowledge as a boundless activity and facilitated by research. To the British, knowledge had a finite range—the domain of a “gentleman”—and was acquired through the analysis of great works of (Western) civilization. These models have in common two main characteristics: the unity of the mission of the academic enterprise (the quest for integration in knowledge and research not having an existence independent of education) and a social contract between the university and the state in a common understanding of what it means to educate a citizen. By contrast, the American university forged an ad hoc composite from elements of the German model—the idea of research—and the British model—the idea of “liberal education.” In assessing the quality of the result, there is an extensive literature, particularly well laid out by L. R. Veysey in The Emergence of the American University.

This American paradigm of the modern research university, while having become “the envy of the world”—more likely stemming from the economic and research opportunities that our national infrastructure can afford, rather than for developing the intellectual disposition of its students—is characterized by a fragmentation of knowledge and ambiguity in the social contract. Moreover, in meeting the needs of our national economic and military endeavors, universities have steadily become managers of the national research enterprise constituting an almost independent activity within the university. Because of its role as a great generator of prestige and recognition, the research enterprise has given the university a “dual mission”—teaching and research, mimicking its composite root. However, the separation implied in the slogan has consequences for the economics within the university, contributing to the further segregation of departments. Furthermore, without concurrence on the social contract with the state, the American university has opted for a contract

What is the potential we are trying to cultivate, and to what end?
with the individual student, offering to develop their capacity for analysis and critical thinking, the analytical potential of the individual. But, how to realize this potential remains a subject of debate, as evident for example in *Cultivating Humanity* by Martha C. Nussbaum. Consequently, with no clarity on the aim of education to guide curriculum development, departments compete for time in the curriculum, further segregating the idea of the pursuit of knowledge. The real challenge, however, is not to determine how to cultivate a student’s potential, but rather to answer the following questions: What is this potential we are trying to cultivate, and to what end? Borrowing from Emerson: “We do not teach them to aspire to be all they can. We do not give them a training as if we believe in their noble nature,” a point that will taken up shortly.

**An Institute of Technology has two defining tenets:** first, that cultivating the intellect means developing the disposition and capacities to inquire, critically analyze and to create; and second, that modern technology is the activity that brings unity to this endeavor.

The current paradigm in higher education favors developing a disposition to inquire—to contemplate, to reflect on—and to critically analyze creation, but it is delinquent on the disposition to actually create. Cultivation of the intellect in an Institute of Technology means also to prepare for and experience acts of creation, thereby nurturing a new dimension in the intellectual disposition of students. There are two historical developments to keep in mind before delving into this technology program. First, technology, when defined as instruments, such as it was in the past and as it remains in some circles today, has never been given consideration as a platform for developing the intellect, other than as a type of professional training. As noted by W. Reading in “The University in Ruins,” this platform in the German model was philosophy, and in the British model, literature. However, the scope of modern technology can provide a richer educational platform than either philosophy or literature.

For later reference, I would like to distinguish the usage of the terms research, discovery and inventiveness. Academic research is a process that necessarily is the precursor to acts of discovery—the exploration of the scope of a known domain—and as such, the direct result of critical analysis. An act of inventiveness is the introduction of a new domain—to create. In *The Origins of Knowledge and Imagination*, Jacob Bronowski observes that unlike research and discovery, whose progression has been organized into a structured program, cultivating inventiveness defies this traditional structuring.

Given that there is no mechanistic approach to cultivating inventiveness, we are left with the option of cultivating this capacity by association. Unfortunately, over time and for a variety of reasons, the academic community has ceased to identify and encourage acts of inventiveness. One reason for this tendency is the aforementioned lack of structure, which has resulted in the absence of an effective process for evaluating inventiveness and a consequential failure of academic peer recognition.

How modern technology can become the new intellectual nexus becomes apparent upon examining what we can identify as four dimensions. In the essay “The Question Concerning Technology,” Heidegger remarks “the essence of technology is by no means anything technological,” recognizing its transformation beyond simply instrumentation. Technology, in fact, has three other dimensions besides instrumentation: first, as a transforming force that continuously redefines what it means to be human—as elucidated by Heidegger and also by J. Habermas in the parallel discourse “Technology and Science as Ideology”; second, as a complementary platform to nature for exploring the scope of our theories of nature...
and finally, as a defining expression of Homo creator—to imagine outside the boundaries of what could be imagined.

Thus, the aim of education in an Institute of Technology is to develop the intellectual capacities to critically analyze and to create, achieved by making contact with the four dimensions of modern technology. This approach integrates engineering (instrumentation and its implementation in society), humanities (the evolving human, shaped by technology), and science (the co-exploration of nature), and provides a vehicle for nurturing the creator, a missing component in our present educational paradigm. If professional training is the cornerstone of an engineer’s education, and if the aim of “liberal education” is the development of critical thinking, then technological education is the integration of the two inherent dimensions of the intellect—analysis and inventiveness. The singul, most critical element of realizing any educational model is the faculty. This fact is particularly heightened in this educational model, since the nurturing of an inventive ability requires interactions outside the classroom and a re-evaluation of the norms of scholarship. With this possibility in mind, new modalities for rewarding faculty and criteria for recruiting new faculty need to be developed.

The challenge to all is to serve as stewards of a community where the measure of success is not only determined by analytical measures, but by an enlarged notion of impact that extends beyond a narrow group of academic peers to include industrial peers.

Among many intellectual attributes, faculty ethos has to be unequivocally characterized by inventiveness. Anticipating the concern for “quality control” in this endeavor, I suggest that a review system, which includes members from outside the academy, could serve as a guardian of intellectual honesty. But what of the separation of the research enterprise from education, particularly with respect to undergraduate education?
Undergraduates are at a particular disadvantage in participating in meaningful research on account of their limited knowledge base. However, the additional emphasis on inventiveness can serve as a humbling equalizer within this community, since neither knowledge nor technique is sufficient for success. Not only could undergraduates offer fresh perspectives in this venture, but they could strike out on their own, commensurate to their level of development. Inventiveness acts as a nexus for integrating the undergraduate into this enterprise.

Finally, my perspective of i2e within the conversation of the future of NYU-Poly: It is a framework for pursuing this ideal of an Institute of Technology, facilitating activities that engage the four dimensions of technology, and thereby nurturing the capacities to critically analyze and to create. This framework has two components, one physical and the other intellectual. The physical infrastructure is simply the idea that was to be “MetroTech”: a technological community fueled by the intellectual effervescence of Polytechnic. There is no need to further expand here, for it has been the subject of much discussion. Although the idea of “MetroTech” has parallels in other technological universities of standing in the rankings, our new twist is its integration into the educational experience by providing students with the opportunity to observe technology playing out in society. Bringing MetroTech to fruition is the responsibility of the Poly community; it is neither serendipity nor driven from the outside. In particular, this transformation means that some faculty will have to take the initiative with the support of the Institute, and, in particular, with the support of their colleagues. Clarity of purpose, however, cannot be lost in this process. Moreover, once established, sustaining this environment requires the continued support for innovation and entrepreneurship from some faculty, while keeping its relationship with the aim of technical education in perspective.

Besides revisiting faculty recruitment and development, as well as the scope of faculty scholarship, the intellectual component of i2e requires the framing and implementation of a curriculum, with a revision of the requirements to graduate. A failure in devising a truly functional curriculum stems from a lack of clarity in the aim of the education we offer.

By adhering to an ideal, we can succeed in this endeavor, and moreover, we can explain to students the specific contributions that each element of the curriculum makes to their education.

Furthermore, this approach avoids the simple concatenation of subjects that re-enforce the fragmentation of education. Unity can be obtained by keeping the notion of modern technology as the integrating principle. From this perspective, a curriculum that nurtures inventiveness will require a new spine and alternate methods of pedagogy than presently found at NYU-Poly involving faculty-student interactions outside the classroom. One suggestion for implementation is a Case Study Series, with post-mortem illustrating the convergence of the various elements that came into play in the act of creation. NYU-Poly has taken a step towards this goal by implementing a Technology Forum for all first-year students. The faculty needs to open a dialogue that will frame the various elements of this curriculum and what it takes to graduate from NYU-Poly.

With an ideal for an Institute of Technology as a referent, and under the vigilance of peers to gauge intellectual honesty, i2e can leverage the opportunity that the affiliation with NYU offers, providing the framework for delivering “excellence” that can ultimately, for the sake of tradition, fit into the schema of conventional rankings.

Erich Kunhardt, PhD
Professor of Physics, NYU-Poly
In three short years, the concept has become the cornerstone of the Institute’s 21st century philosophy, one which promises to catapult NYU-Poly to a greatness surpassing its “Golden Years,” when the school was the cradle of cutting-edge innovators, inventors and entrepreneurs.

It brands the Institute and is prominently displayed throughout NYU-Poly, recognizable to prospects, students and alums alike. However, the challenge remains: How to incorporate this concept in every aspect of the educational experience from the moment a student arrives?

The answer lies with the i2e Task Force. Formed six months ago at the behest of NYU-Poly President Jerry Hultin and Provost Dianne Rekow, the i2e Task Force is comprised of 10 individuals with varying backgrounds and talents—an entrepreneur from New York City and members of the NYU-Poly faculty and administration. Hultin and Rekow selected Ramesh Jagannathan, professor of practice in chemical engineering at NYU-Poly and a seasoned industry veteran with 30 years experience in entrepreneurial ventures and branding to his credit to serve as Task Force chair. After months of weekly meetings, the Task Force concluded that transforming the i2e concept into a 24/7 reality for the faculty and students would require revamping the traditional discipline-based educational system of scholarship, teaching and research.

“With the catastrophic changes of the last 10 years, multi-national industry has neither the time nor the money to compete in the marketplace or to invest in training students,” says Jagannathan. “The responsibility for training and preparedness for students falls to the university which, if it is to succeed, must create a new curriculum. This ‘blended curriculum’ includes scholarship, teaching, research and technology creation through entrepreneurship. That is the only way our students are going to compete successfully in a turbulent global market.”

Other institutions have attempted to address this issue before, but they tended to focus mainly on infrastructure. The NYU-Poly Task Force, on the other hand, proposes to make students “market-ready.”

The program the Task Force is proposing focuses on making students “market-ready.”

The new proposed curriculum calls for students to be members of cluster groups of two or three, working with mentors who are faculty members, administrators or senior students. The mentor will design a career project for the student based on one of NYU-Poly’s Four Grand Challenges: 1. Map, secure and extract “InfoSphere” information; 2. Create intelligent sensor systems; 3. Engineer smart cities; and 4. Tailor bio-molecular interactions.

Upon graduation, students will be able to point to a suite of accomplishments—a portfolio of projects, papers, patents and the experiences of making presentations and working in a group. Since the Grand Challenges are derived from global challenges, the overall experience will facilitate expansion of the Institute’s interdisciplinary global relationships with NYU and NYU Abu Dhabi.

To create the infrastructure that faculty members need for the transition to the blended curriculum, educational experts and practitioners will conduct conferences and workshops. Research accelerators—individuals well-versed in government policy and well-connected in industry—will assist faculty researchers identify tech-viable research projects and help them to get patents and grants to bring their innovations and inventions to market.

The i2e Task Force will recommend the creation of i2e prestigious professorship positions and will select a director to oversee the program.
Engineers Without Borders

In many locations around the world, it is more coveted than gold. Water. Millions of people live without enough water to drink, cook, grow their crops, bathe, or sustain their livestock. Some areas with sufficient water do not have the proper purification systems in place, so the risk of ever-present bacterial infections are rampant.

In spring 2008, Michael Hailemariam ’10CBE, a native of Ethiopia who immigrated to this country six years ago, discovered an opportunity to directly apply his NYU-Poly education in making a difference in the lives of people living in developing countries.

Through his involvement in the American Institute of Chemical Engineers (AIChE), Hailemariam learned about Engineers Without Borders (EWB) and thought it was an ideal way to put his education to good use. He started a chapter on the NYU-Poly campus and enlisted the aid of fellow classmates Ariel Chait ’10CpE and Joy Ramsaywack ’10ME.

“I’ve always felt very strongly about public service and education,” says Hailemariam. “Engineers Without Borders is a great way to combine the two.”

The chapter started out small with Hailemariam as president, Chait as vice president and project leader with oversight for the design team and Ramsaywack as treasurer in charge of fundraising. Within a year, the ranks of the membership grew to 40.

EWB is supported by faculty advisors Rastislav Levicky, Donald F. Othmer Associate Professor of Chemical and Biological Engineering; George Vradis, associate professor and head of Mechanical and Aerospace Engineering; and Ilan Juran, professor, Civil Engineering, as well as staff administrators, Nina Weber, director, Career Management Center; and Michael Gendel, director, International Students and Scholars. These advisors see involvement in EWB as beneficial in underscoring the students’ understanding of engineering from a global perspective.

“The EWB projects allow student members to apply their engineering knowledge in a very practical way, with immediate impact in meeting very basic needs such as water and shelter,” says Levicky. “Many projects are international, providing students with a global perspective on the importance of engineering in solving the most crucial problems faced by humankind. Since student interest in EWB is interdepartmental, the chapter brings together students across disciplines and provides opportunities for an exchange of knowledge.”

EWB members are currently working on a project to provide waste water treatment to Caserio La Tejera in El Salvador. In August 2009, an assessment team traveled to the town. The trip was made possible by individual donations from department heads, fundraising assistance by NYU-Poly’s Office of Development that yielded $2,000, an $8,000 gift from Boeing Airlines, as well as donated tickets from Taca Airlines.

The assessment team made sure the project was very “hands on” for the villagers. “I was very impressed how ‘green-minded’ the Salvadorians are,” says Ramsaywack. “They are very interested in recycling and creating a better water system. We held frequent town meetings, so they would know exactly what we intended to do...so they would feel they were part of the process.”

The project touches upon the life-source of any community—a viable water supply. It consists of constructing a wetlands system where water from a latrine is purified and sent to the local river for villagers to use for cleaning. Water from the wetlands is not ingestible, so villagers will not be able to use it for cooking.

Chait and Ramsaywack joined another group of students as project leaders for a return trip to the island in March to begin construction of the wetlands and will return again in May to test the water to ensure the system is working properly.

“The EWB projects allow student members to apply their engineering knowledge in a very practical way, with immediate impact in meeting very basic needs such as water and shelter.” They will be accompanied by an EWB NYC professional Myles Throop and NYU-Poly advisor Nina Weber.

In between making preparations for their return trip to El Salvador, EWB members have been busy collecting money for earthquake victims in Haiti and initiating a Student Emergency Fund that will collect money to provide immediate assistance to disaster victims in the wake of a natural catastrophe.
Michael Hailemariam ’10CBE, Ariel Chait ’10CpE and Joy Ramsaywack ’10ME started the NYU-Poly chapter of Engineers Without Borders.

Wastewater from homes flow into an open channel on the property of the elementary school playground.

Patrick Pasco ’10ME, left, Myles Throop, EWB NYC professional engineer, center, and Prudencio, the group’s local guide, right, survey land proposed for wetland placement.

Volunteer teacher with students of Amun Shea Grammar School.

Piped water source in Honduras provides unreliable service to the municipality of Perquin, El Salvador.
NYU-POLY STUDENTS CREATE
THE NEXT BIG THINGS

Time Warner Cable Inno/Vention Competition Winners
Create Inventions and Innovations with Power in the Marketplace

Create technical inventions and innovations that can win in the marketplace: That was the challenge laid down for Polytechnic Institute of New York University (NYU-Poly) students. After nearly six months of student work, the winners were chosen: Inexpensive personal-sized solar power and an electronic feedback system that will help people with nerve damage to walk or even drive.

Runner-up was a printer that erases the old ink to recycle paper automatically.

The 2009-2010 Time Warner Cable Inno/Vention Competition is an annual event designed to foster the school’s academic philosophy of i2e: invention, innovation and entrepreneurship. As part of the effort to instill knowledge that will speed the transfer of technology from labs to the real world, the competition encourages undergraduate and graduate students to spend six months developing “the next big thing” in science and engineering. They attended workshops on patent searches, market research and how to make presentations to potential investors. They also received one-on-one business coaching.

This year, two teams tied for first place. Tan Vo ’11, a graduate student in biomedical engineering created VibroWalk. This sensitive electronic feedback system monitors the location of the feet of a person suffering from peripheral neuropathy, which eliminates sensation in the feet. VibroWalk relays the information to another part of the body that still retains sensation. Through training, the person can learn to interpret the signal in order to orient his or her feet to retain balance for everyday tasks like walking or even driving.

Tying for first place is a team comprised of Ian de Albuquerque, a sophomore in chemical and biological engineering, and Eduard Nasybulin, who will receive his doctorate this year in materials chemistry. They created PolySolar, which drastically reduces the cost of today’s silicon-based solar cells by employing Organic Photovoltaics (OPV), which are built using electrochemical techniques. These OPVs are also lightweight, can operate in low light and can be applied to any shape. The students foresee personal solar-powered products that could power a cell phone or create a mobile charging station from a backpack.

Nasybulin is also part of the team that created Re-Printer, which uses a revolutionary new chemical process to extract the ink from a page of paper and reprint on the same page, allowing recycling on...
the spot—no costly collection, transportation or paper mill required. The other Re-Printer team members are Chunyong Lin ’11, a graduate student in computer engineering and Xilin Sun ’11, a graduate student in electrical engineering.

“The winners of this year’s competition indicate just how attuned NYU-Poly students are to the needs of society and the global marketplace,” said NYU-Poly President Jerry M. Hultin. “Their inventions and innovations will contribute to a sustainable future and make significant health and quality-of-life improvement for many people. We appreciate the support of Time Warner Cable for helping educate the next generation of inventors and innovators.”

“I was impressed with the creativity and quality of all the presentations,” said Jim Braun, senior vice president, product management, of Time Warner Cable. “The winners demonstrated a real desire to solve for health and environmental concerns. On behalf of TWC, I congratulate all the students who participated in the competition.”

In addition to judges from NYU-Poly, the panel of judges included Braun; NYU-Poly Trustee Richard Fishbein, partner emeritus of the investment group Cortec Group; Dr. Howard H. Taub, retired vice president of Hewlett Packard, associate director of HP Labs and former Polytechnic Outstanding Alumnus (Physics); and Christopher Lobello, winner of last year’s competition.

Chunyong Lin, Eduard Nasybulin and Xilin Sun’s Re-Printer technology is able to take a page full of errors and give it a second chance by extracting its ink and making the paper clean.

Edward Cercado, Alim Williams and Vincent Ngo are developing a state-of-the-art Smart Chair, disabled people can harness the power of their own brain waves to get around.

Julian Salama and Nicolas Begasse de Dhaem created the iBall, a new type of tennis ball that provides visibility in low light.
Experienced Execs Get the Inside Track on Clean-Tech Economy

NYU-Poly got a jump-start on New York’s clean-tech leadership base via a unique executive management course.

Unlike many boot camps that provide anecdotal lessons from green-tech panelists, the NYU-Poly CleantechExecs program offers 10 intensive, day-long work sessions and seminars featuring best clean-tech industry practices, operational lessons, site visits and participation in real-world projects. Senior faculty members from NYU-Poly and New York University join lecturers from industry and finance experts. The curriculum for CleantechExecs is the result of intensive research and original curriculum development. Its engineering viewpoint is key for leaders in a field that requires exceptionally strong technical knowledge.

By choosing from candidates with at least 10 years of executive experience, the pilot program attempts to quickly power up the number of clean-tech leaders needed in New York.

“The burgeoning clean-tech industry in New York needs more leaders to launch and expand start-ups and to fill high-level positions at established corporations,” said Mel Horwitch, professor at NYU-Poly Department of Technology Management. “Thanks to the New York State Energy and Research and Development Authority (NYSERDA), CleantechExecs will quickly and efficiently expand New York’s base of effective green-tech leaders, giving them strategic and operating skills to grow the types of clean-tech businesses that New York in particular can nurture.” NYSERDA, which provided $1.5 million earlier this year to create the incubator, funded tuition for the first class, which began February 18 and runs through May 7 at the NYC ACRE facility, 160 Varick St., Manhattan.

“Programs like CleantechExecs are absolutely essential for developing the leaders of the clean energy economy who can fulfill Governor David Paterson’s vision of a new economy based on knowledge, innovation and technology,” said Francis J. Murray Jr., president and CEO of NYSERDA. “NYSERDA helped to create the NYC Accelerator for a Clean and Renewable Economy business incubator, and I’m pleased to see this comprehensive approach being taken to build the new generation of businesses for the future.”

“We have designed CleantechExecs to provide students with the managerial knowledge to move a new venture quickly beyond the start-up phase,” said Bruce Niswander, NYU-Poly adjunct professor of technology entrepreneurship and director of NYU-Poly’s NYC ACRE and other business incubators.

CleantechExecs accepts up to 25 candidates with at least 10 years of leadership experience in technology-based companies, raising capital and launching new products or businesses. Participants may qualify for master’s degree credit at NYU-Poly. Application and course information is available at http://www.poly.edu/cleantechexecs.

Mel Horwitch, professor, Technology Management, and colleague Ari Ginsberg, professor, the NYU Stern School of Business, leverage their combined backgrounds in entrepreneurship, and technology and innovation management to educate a cohort of experienced business executives to lead the next wave in clean tech.
Financial Engineers Create Manual and Calculator To Help Homeowners Make Smart Mortgage Decisions

The recession, a jobless recovery, and skyrocketing foreclosures have put mortgages and home ownership at the center of the national conversation. Financial professionals and the clients they advise need help to navigate the complexities and uncertainties of the current mortgage market. An NYU-Poly alumnus and the director of the first graduate financial engineering program in the United States have created the quantitative tools to do that.

Andrew Kalotay, the founding director of the financial engineering program at NYU-Poly, and Qi Fu ’09MA, a financial engineer at Andrew Kalotay Associates, Inc., have written a well-received manual titled “A Financial Analysis of Consumer Mortgage Decisions,” published recently by the Mortgage Bankers Association. Kalotay’s firm is a fixed-income analytics and debt-management advisory services company in New York.

“We explain how to make the best decision in choosing a mortgage, when to refinance, and when to pay down a mortgage versus investing.”

Among other issues, the manual addresses the perennial question, “Should I refinance now or wait for rates to go lower?”

How does the manual work? “It applies standard, well-understood approaches and tools used by financial professionals, to provide financial planners, housing counselors and consumers with a clear, decision-making road map,” Kalotay said. “We explain how to make the best decision in choosing a mortgage, when to refinance, and when to pay down a mortgage versus investing.” Based on the conceptual approach described in the manual, Kalotay’s firm has developed calculators, which are available for free at kalotay.com/calculators.

Mortgage rates are near historic lows,” Fu said. “Many homeowners are tempted to take advantage of this by buying or refinancing. However, because the mortgage market is so complex—despite all the available disclosures—many consumers are still left in the dark. By not considering all the necessary facts, they often leave thousands of dollars on the table.

Choosing from among the many mortgage offerings presents a problem for consumers. Lenders typically offer a menu of mortgages with different rates and up-front costs, Kalotay said. For example, a borrower could take out a 5.5 percent mortgage, or pay 2 percent in “points” to get a lower rate of say 5.25 percent, or get a 6 percent “no closing cost” mortgage. To help borrowers make a comparison, lenders are required by the Truth in Lending Act to disclose the annual percentage rate, or APR, of each mortgage.

But the APR does not give the full picture, Kalotay pointed out: “Since it does not take into account the refinancing option, it assumes the mortgage will not be prepaid.” The authors have created a measure which recognizes that, in addition to receiving cash, borrowers also receive a valuable “option” that allows them to refinance at lower rates in the future. This measure is called the “option-adjusted” APR. For example, the option-adjusted APR of a 5.5 percent mortgage may be as low as 4.9 percent. The authors recommend that consumers select the mortgage with the lowest option-adjusted APR.

When deciding on mortgage choices, one of the most important factors to consider is how long the homeowner plans to keep the house. "This is called the ‘borrowing horizon,’” Fu said. “If you know the answer, it can be a huge bargaining chip. If a homeowner plans to move in five years, it would make much more sense to enter into 5.25 percent 5/1 adjustable rate mortgage than a 5.5 percent 30-year fixed rate mortgage.”

The manual and the calculators have drawn praise from the banking, real estate and mortgage industries. They have even been incorporated into the lecture material of business-school courses. The Seattle Post-Intelligencer summed up the reaction: “They could be hugely useful to anyone planning to get a mortgage.”

The link to Kalotay and Fu’s manual is http://www.mbaa.org/files/Research/AFinancialAnalysisofConsumerMortgageDecisions.pdf
NYU-Poly Mentors Cheer On FIRST LEGO Competitors

For Carlo Yuvienco ’10 ’12BmE, January 9 was a preview of parenthood. “I feel like one of those parents outside a high school waiting for kids to come out of their tests and asking afterward, ‘How’d you do,’ and feeling that sense of pride,” he said, as he high-fived students he coached at PS 11 for the borough-wide qualifier of the FIRST LEGO League, a competition that uses robots to conquer real-world engineering challenges.

Yuvienco should be proud. Since last fall, he and 12 other NYU-Poly students have lent their services to middle schools in Brooklyn as part of the Applying Mechatronics to Promote Science (AMPS) and the Central Brooklyn Robotics Initiative (CBRI) programs, initiatives funded in part by the National Science Foundation, the Brooklyn Community Foundation, and a Motorola Innovation Generation Grant. Noel Kriftcher, executive director of NYU-Poly’s David Packard Center for Technology and Educational Alliances, as well as Associate Professors Vikram Kapila, Mechanical and Aerospace Engineering, and Magued Iskander, Civil Engineering, guided their activities, which aligned with the center’s mission to train and support teachers interested in weaving advanced technologies into their curricula.

“If you study to be a science teacher, you don’t necessarily study engineering,” Kriftcher explained. “You certainly don’t study robotics or...
mechatronics, and if teachers lack information—through no fault of their own—students get shortchanged.”

Say what?

Each week for 10-15 hours Yuvienco and his peers visit a local classroom and share what they know about the STEM—science, technology, engineering and mathematic—disciplines. Doing so cultivates a skill Kriftcher believes is paramount to the successful promotion of the sciences: presentation skills. “With a lay audience, you have to have fluency. You have to break complex ideas into simple steps,” he said.

Peter Baker ’13BmE, a second-year veteran of the AMPS program, agrees. Talking about his interactions with schoolchildren, he said, “When I have to explain to them what I do, it helps me figure out ways to explain my science to other people.”

Baker believes the experience will help him professionally. “If I go into a boardroom for funding and talk about all these weird enzymes and weird chemistry, it’s going to go over some people’s heads,” he said. “But if I can define my research in a way that’s easily relatable, it’s going to open doors.”

Doors may have opened for Baker and his NYU-Poly peers, but hearts and minds have opened for Brooklyn middle school students. Said Natalie Sinclair, a fifth grader at PS 11, “our coaches are very, very encouraging.” Her classmate and FIRST LEGO League team member, Shyanne Hall, seconds the opinion. “They are our inspiration in robotics and in life,” she says. “When we ask for something, they help us problem solve. That’s fun.”
BUILDING FOR THE FUTURE: NYU-POLY HOSTS

REGIONAL FUTURE CITY COMPETITION

The theme for this year’s Future City competition couldn’t be more timely: providing an affordable living space for people who have lost their homes due to a disaster or financial emergency.

On the morning of Saturday, January 23 at Polytechnic Institute of NYU, just hours after the Hope for Haiti telethon raised $57 million to help rebuild Haitian lives, homes and cities, seventh- and eighth-grade students from New York City, Long Island and Westchester County schools presented their Future City designs at the regional finals of the annual competition.

Students created four elements showcasing their best thinking: a computer-generated model of the city they envision; a tabletop model of that city built to scale; a presentation and oral defense of their design; and an essay on the topic. In addition, the 3D version of their city had to be made of recycled materials and could cost no more than $100.

Twenty-three teams representing 15 schools and over 100 student participants, teachers, mentor-engineers and family members came to cheer on the regional finals teams.

The top three regional winning teams, Fa’a Filemu (Islip Middle School), Oma’oma’o (IS 24 Myra S. Barnes) and Large Fork (Eugenio Maria DeHostos) earned scholarships to NYU-Poly, and first-place regional winners received a trip to the 18th Annual Future City National Finals in Washington, D.C., February 13-17 during National Engineers Week. The national grand prize is a trip to U.S. Space Camp in Huntsville, Alabama.

Evaluating students’ designs is never easy. “Every year it gets better,” said Joe Boccuzzi ’89EE ’05EE, who has volunteered as a judge for the contest since 2007. He described the submissions as thought-provoking, high praise from a principal scientist at Broadcom Corp, a cellular telecommunications company. “There’s a lot of hunger and determination in these kids,” Boccuzzi said. “They’re energized. They’re excited.”

NYU-Poly’s David Packard Center for Technology and Educational Alliances, has organized the Future City regionals since 1997. The center pairs volunteers from NYU-Poly with area schools to advance science and technology education among students and teachers alike.

Student development is at the heart of Future City for Noel Kriftcher, executive director of the David Packard Center. “Nothing is more important to the future than teaching critical thinking skills, especially as they concern the health of our environment,” he said.
Six fearless Polytechnic Institute of NYU faculty members have accepted a mission set forth by Dianne Rekow, provost, and Charlie Camarda ’74AE, distinguished engineer in residence: design an intelligent biomedical sensor for NASA in three months. The sensor would monitor the health condition of an astronaut under various circumstances. The faculty, representing four diverse departments, include Remi Dingreville, assistant professor, Mechanical and Aerospace Engineering; Gene DiResta, industry professor, Chemical and Biological Sciences; Elza Erkip, associate professor, Electrical and Computer Engineering; Zhong-Ping Jiang, professor, Electrical and Computer Engineering; Joo H. Kim, Mechanical and Aerospace Engineering; and Joseph S. Nadan, industry professor, Technology Management. They comprise the inaugural NYU-Poly Think Tank with Provost Rekow as its mastermind. She created it as “a mechanism for bringing professors from different departments together to solve real-world problems.”

Each semester, the provost’s office will assemble a new Think Tank and task it with a problem—like the inaugural Tank’s—that relates to NYU-Poly’s Four Grand Challenges: 1. Map, secure, and extract infosphere information; 2. Create intelligent sensor systems; 3. Engineer smart cities; and 4. Tailor bio-molecular interactions. NYU-Poly’s Grand Challenges, which were introduced to faculty in the fall, sprang from the National Academy of Engineering’s 14 Grand Challenges and support the Institute’s i2e (invention, innovation and entrepreneurship) activities.

“This project is directly in line with one of the four grand challenges NYU-Poly defined last fall,” said Dingreville, “and shows the dynamism and engagement of the NYU-Poly community. Charles Camarda and the provost have put together a diversified team that will be able to explore both designs and approaches to innovation with a fresh eye.”

For other team members, the project’s importance in curriculum application is an attractive feature. “Although this project is about biosensor design,” notes Jiang, “I expect to develop...a small term project from this experience for my graduate-level controls class.”

The provost’s office will work with industry partners—from telecommunications and finance to biotechnology and urban planning—to design projects.

Camarda, an inventor and astronaut, is leading the first Think Tank. He’s confident that this group and the ones to follow will produce eye-opening results for industry. “They’ll see that our researchers have the drive and experience to come up with truly innovative solutions,” said Camarda who was “blown away” by the caliber of faculty applicants.

In addition to demonstrating a strong interest in the project and a proven research track record, applicants had to show that they are connected to a network of collaborators they can easily tap into as they create a sensor for space applications. “Having a network at the ready when you hit a roadblock or need feedback is essential to this type of rapid problem-solving,” said Camarda.

It’s not just the strength of its members that makes Camarda certain of its success; it’s the design of the group itself. “I’ve seen it happen before,” he says, “when small groups like this one are given the freedom to collaborate unfettered, some really exciting things can happen.”
Douglas Cook
Assistant Professor of Engineering, NYU Abu Dhabi

Douglas Cook will spend the 2009-2010 academic year at the Polytechnic Institute of New York University and New York University’s Manhattan campus, then transfer to New York University Abu Dhabi in fall 2010. He holds a doctorate in mechanical engineering from Purdue University with a concentration in biomechanics, as well as a master’s degree in mechanical engineering from Purdue. His research interests include stochastic modeling of systems with high uncertainty, biomechanics, bio-fluidics, structural analysis and fluid-induced vibrations.

Cook is recognized for his work in human phonation. While a research assistant at Purdue, he investigated the fundamental mechanisms of human speech, created numerical simulations of models of phonation and conducted structural analysis of vocal fold models. He has published three professional journal articles, authored several conference papers and given a number of conference presentations on the subject.

Professionals such as singers, actors and teachers are subject to vocal disorders, as are thyroid cancer patients. The goal of Cook’s work is to develop patient-specific models of the vocal folds to help surgeons make better decisions and to design exercises to help patients compensate for vocal disorders. He plans to collaborate with NYU’s School of Medicine’s Departments of Otolaryngology and Music to study which muscles are involved in the transition between a novice singer and a professional.

Hong-Liang Cui
Professor, Department of Physics

Hong-Liang Cui has been appointed professor of physics. Prior to this appointment, he was a professor in the Department of Physics and Engineering Physics at Stevens Institute of Technology.

Cui has extensive research and development experience in a range of areas. His major research areas currently are terahertz wave spectroscopy and imaging, nano-architecture of devices and sensors based on DNA crystals, RF interaction with laser-induced optical filaments and the research and development of fiber optical sensors. Through L.C. Pegasus Corporation, which he founded, he rendered research and development and engineering services to clients such as AT&T, Panasonic, Con Edison and the U.S. Army.

Cui holds master’s and doctorate degrees in physics from Stevens Institute of Technology. He has authored more than 200 publications in refereed scientific and engineering journals, two books, and three book chapters. He also holds nine U.S. patents and has several others pending. He has mentored more than 30 doctoral students who are now also making an impact in their fields.
Joyojeet Pal
Visiting Assistant Professor, Department of Technology Management

Joyojeet Pal has been appointed a visiting assistant professor in the Department of Technology Management at NYU-Poly. Pal will help develop an innovative curriculum and research effort that will look at the use of information technology in the developing world.

A social scientist with a doctorate in regional and city planning from the University of California, Berkeley, Pal is an expert on how technology affects the social and economic development of poor countries.

His research interests include a range of factors surrounding technology adoption in the developing world, such as computer sharing behavior among children, attitudes toward computer sharing and piracy and the development of low-cost assistive technology.

Sundeep Rangan
Associate Professor, Department of Electrical and Computer Engineering

Sundeep Rangan has been appointed an associate professor in the Department of Electrical and Computer Engineering. Rangan, who received his doctorate in electrical engineering from the University of California, Berkeley, specializes in wireless communications, signal processing, information theory and control theory.

He has enjoyed a successful business career and was co-founder of Flarion Technologies, a pioneering wireless technology company. While at Flarion, Rangan was the lead designer responsible for the design, simulation and implementation of the first commercial cellular wireless OFDM data system. Qualcomm acquired the company in 2006.

Michael Shelley
Professor, Department of Mechanical and Aerospace Engineering

Michael Shelley has joined NYU-Poly with a cross appointment as a professor of mechanical engineering. He is an expert in the field of applied and computational mathematics and specializes in fluid-body interactions, biological fluid dynamics, computational physics and non-linear optics. Shelley also holds an appointment as the Lilian and George Lyttle Professor of Applied Mathematics at New York University's Courant Institute.

He earned his doctorate in applied mathematics from the University of Arizona. Shelley is a Fellow of both the Society of Industrial and Applied Mathematics and the American Physical Society. He is a recipient of numerous awards, including the Francois N. Frenkiel Award of the American Physical Society, Division of Fluid Dynamics.

Peter Walker
Research Professor, Department of Mechanical and Aerospace Engineering

Peter Walker has joined NYU-Poly with a cross appointment as a research professor in the Department of Mechanical and Aerospace Engineering, where he will focus on enhancing and expanding the Institute's work in biomedical engineering. In addition to his appointment at NYU-Poly, Walker holds an appointment as a research professor in the Department of Orthopedic Surgery, New York University School of Medicine, and is the director of the Minimally Invasive Surgery Laboratory at the New York University Hospital for Joint Diseases. He earned his doctorate in mechanical engineering and medicine from Leeds University, England.

Walker specializes on the effects of osteoarthritis on the knee, with particular interest in the biomechanical function and the mechanical factors that could initiate the arthritic process. He devises treatments to restore normal functional capabilities and is a noted developer of artificial knees, several of which have been on the market since the early 1970s.

[2] Menachem Lewin, distinguished research professor, Polymer Research Institute, Chemical and Biological Sciences, was the recipient of the Menachem Begin Prize Award of Honor for his National and scientific contributions to the people of Israel.

[3] Jin Kim Montclare, assistant professor, Chemical and Biological Sciences, authored “Smart Polymers Perform Nano-acrobatics,” an article that was featured on the homepage of Futurity, a newswire formed by the leading science universities to distribute important science articles to the popular press.

[4] Eli Pearce, industry research professor, Chemical and Biological Sciences, is the recipient of the International Scientific Partnership Foundation, Russian Academy of Sciences and Lomonosov Moscow State University’s award in memory of academician N.M. Emanuel for achievement in chemical and biochemical physics.

[5] Teresa Piliouras, adjunct professor of management information systems, Technology Management, Westchester Graduate Center, was a finalist in the Connecticut Technology Council’s Sixth Annual Women of Innovation Awards in the category of Entrepreneurial Innovation and Leadership. According to Piliouras, founder and president of Albright Associates, “This recognition reflects the growing importance of our company’s mission to protect and safeguard individual privacy in a digital age while providing tools to collect, exchange, and analyze critical information.”

[6] Maurizio Porfiri, assistant professor, Mechanical and Aerospace Engineering, and PhD candidates Vladislav Kopman ’10 ’13ME and Matteo Aureli ’13ME co-authored a paper titled “Free-locomotion of a Fish-like Robotic Swimmer Propelled by a Vibrating Ionic Polymer Metal Composite.” The paper was presented by Kopman at the annual American Society of Mechanical Engineers’ Dynamic Systems and Control Conference in Hollywood, CA and received two awards. Kopman received the Best Session Presentation Award, while the paper itself received the Best Paper in Robotics Award. As part of the conference activities, Porfiri organized and chaired a special session entitled “Ionic Polymer-metal Composite (IPMC) Sensors and Actuators: Modeling, Control and Applications.”

[7] Vladimir Tsifrinovich, lecturer, Physics, was awarded a research subcontract with the Los Alamos National Laboratory for “Theory, Modeling and Simulation of Superconducting Qubits.”
Kurt Becker, Yong Liu & Richard Wener

Receive Coveted International Awards

Faculty Honored with Erwin Schrödinger Medal, NSF Career Award and Fulbright

Kurt Becker, professor, Physics, and associate provost of research and technology, was honored with the 2010 SASP Erwin Schrödinger Medal. The award was announced by the Leopold Franzens University, Innsbruck, Austria, in conjunction with the prestigious Symposium of Atomic, Cluster, and Surface Physics (SASP) held in Obergurgl, Austria. Becker was cited for his “outstanding scientific achievements and contributions to research in molecular physics—specifically, the interaction of electrons with molecules and clusters—as well as in the properties and applications of plasmas.” Becker has been collaborating with the Institute for Ion and Applied Physics in Innsbruck for 20 years as a visiting professor. Among other projects, the team is working on research in fusion plasmas. The medal is named after the Austrian theoretical physicist Schrödinger, who won the Nobel Prize in 1933 for his work on the development and formulation of quantum mechanics.

Yong Liu, assistant professor, Electrical and Computer Engineering, received the National Science Foundation’s (NSF) Faculty Early Career Development (CAREER) Award for his research proposal titled “Next-Generation Peer-to-Peer Streaming: Theory and Design.” The CAREER award is one of the most prestigious awards granted to up-and-coming science and engineering faculty who, according to the NSF, “exemplify the role of teacherscholars through outstanding research, excellent education, and the integration of education and research within the context of the mission of their organizations.” With the esteem of the CAREER award comes a research grant of $450,000 that will help fund Professor Liu’s research on next-generation peer-to-peer (P2P) streaming systems over the next five years. He and his team will develop new theory and design solutions for emerging Internet applications, including live and on-demand video streaming, multi-party video conferencing, massively multiplayer online games, and networked virtual environments. “P2P technology has become a new paradigm to build many of today’s Internet applications at low infrastructure costs. The CAREER grant’s vital funding will help us design P2P streaming systems that will be able to bear the explosive amount of Internet traffic created by more and more people streaming videos, collaborating online with hundreds, or even thousands of other users, and a host of other data-heavy activities,” explained Professor Liu.

Richard Wener, professor of environmental psychology, Humanities and Social Sciences, was awarded a Fulbright grant to lecture and conduct research on the psychology of sustainable design. Much of the success or failure of a “green” building depends on the behavior of the people inside, according to Wener. His research attempts to improve design in order to encourage people to conserve resources. The four-month grant will allow him to examine sustainable buildings in Germany and Austria and lecture at the Vienna University of Technology. The ways people use a building are crucial to its success, according to Wener. The young field of environmental psychology studies the interface between humans and their various environments in order to predict conditions that will enhance behavior. As one of the early researchers in the field, Wener created a body of information on users’ reactions to mass transportation and factors that influence commuting stress. Nearly three years ago, he began researching sustainable building design, working with a team at Rutgers University funded by National Science Foundation.

The prestigious Fulbright Scholarship Program is the U.S. government’s flagship academic international exchange effort.
Bennett W. Golub, vice-chairman and co-founder of BlackRock, a three trillion dollar asset management firm, shared hard-earned wisdom and general principles drawn from his role as the chief risk officer of BlackRock as a guest lecturer for Polytechnic Institute of NYU students and faculty on January 21.

He underlined how important it is for institutions to prioritize their risk management, especially as time—and memory—move away from the most recent financial crisis.

“The market may not learn,” Golub explained, pointing out that he intentionally titled his talk ‘Lessons Worth Remembering’ rather than ‘Lessons Learned,’ “but we should still try to avoid repeating mistakes.”

The Morton L. Topfer Lecture Series and the Department of Finance and Risk Engineering sponsored the presentation.

Charles Hinkaty ’70 ’72MA, NYU-Poly trustee and president and CEO (retired), Del Laboratories, Inc., left, is joined by Nikkisha Persaud ’11IDM and Student Council president, at the unveiling of the plaque during the dedication ceremonies for the Charles J. Hinkaty Student Council Office located in the Student Leadership Center.

In his remarks, Hinkaty reminisced about his undergrad days, how much Polytechnic meant to him then and throughout the years and how his involvement in student activities played an integral role in his meeting and eventually marrying his wife, Kathy.
d.school Co-directors Deliver Inaugural Transformative Speakers Lecture

Scott Doorley, left, and Scott Witthoft, co-directors of the Environment Collaborative at the Stanford University d.school who designed the school’s physical spaces, shared lessons learned taking the d.school from a 1,000-square-foot temporary trailer to its current location in a 10,000-square-foot former fluids research lab, during NYU-Poly’s inaugural Transformative Speaker lecture on February 4 titled, “Space is a Teacher, Space Is a Tool.” The Transformative Speaker Series is a companion piece to the Town Halls and workshops that will encourage faculty, students, and staff involvement in i2e Campus Transformation, NYU-Poly’s plan to rebuild and renovate areas of its Brooklyn campus.

LISEF Honors Beverly Johnson

Beverly Johnson, associate dean of undergraduate admissions and executive director of the YES Center (Youth in Engineering and Science), right, received the Long Island Science and Engineering Fair (LISEF) Service Award in appreciation of her outstanding commitment to the organization and to the high school students throughout Long Island. Making the presentation was Angela Lukazeski, LISEF president, left.

Career Fair Attendance Reaches An All-Time High

On March 3, over 1,000 students filled the gymnasium, resumes in hand hoping to secure a coveted internship or job during an interview at the NYU-Poly Spring Career Fair. This year’s career fair attracted the largest number of participants in the event’s history. Many students took extra time and went to the added expense to make sure they were appropriately coiffed and attired for what was perhaps their first serious employment interview. However, being well appropriated is only part of the task. According to Department of Transportation representative, Alton Treadwell, “You want to have thought about your career,” he said. “You want to be able to present yourself.” Company reps resoundingly agree that NYU-Poly students are among the best they have ever interviewed—intelligent, focused and well-prepared.
Dear Fellow Alumni,

As president, one of my goals for the Polytechnic Institute Alumni Association (PIAA) has been to engage alumni and students, and to increase annual giving. I am happy to say that we have seen an increase within the NYU-Poly community on all levels, and continue to make great strides in supporting our alma mater.

I am especially excited to let you know that the alumni association will be sponsoring Toast ’10 on May 17. Toast is an event designed to celebrate the achievements of the Class of 2010 by toasting their future and welcoming them as the newest members of our alumni association. It’s an opportunity for those of us who remember what it’s like to walk across that stage at commencement to connect with the graduating class in a meaningful way. It’s a chance to help our graduates create a happy and lasting memory of NYU-Poly that will give them the momentum they need to become engaged alumni and future donors.

If you are already planning to attend Alumni Weekend & Back to School Day on May 15-16, I hope you will stay an extra day and join me at Toast ’10 to welcome the newest class of alumni into our ranks. For details, visit the alumni website at www.poly.edu/alumni.

For me, the personal connections with students and alumni are what make serving as a volunteer leader so special. As I write this, I am in the midst of scheduling several group meetings with students and one-on-one alumni sessions. Several of the leaders in the PIAA have joined me in this endeavor to meet with alumni and students to provide mentoring, career advice, moral support and encouragement. Our discussions almost always include the economy, job leads, graduate course work, résumés and NYU-Poly’s world-class reputation.

On a broader scale, the PIAA leadership and the Office of Alumni Relations have increased alumni engagement and involvement through events like the Alumni Post-Holiday Party, Alumni Career Panel, Student & Alumni Networking Event, National Engineers Week and our recent Alumni Gathering in Hobe Sound, Florida. We’ve also enjoyed getting to know you through new communications vehicles like Digital Cable.

Finally, alumni giving is also improving, but it is vital that we all donate whatever we can. Your investment in NYU-Poly will help our alma mater achieve its goals. For a list of ways to give, visit www.poly.edu/donate or call (718) 260-3855.

Best regards,

Christine Ianuzzi ’87BSEE ’94ISE

$2,500 to the Helen Lowe Scholarship in FY 2009.

If you would like to discuss your scholarship gift, please call Thomas Daly, director of planned giving, at (718) 260-3364 or e-mail him at tdaly@poly.edu.

“In the years that I led the fundraising effort at Polytechnic, I came to know first hand the struggle that Poly students face to meet tuition cost. I also came to recognize the growing need for scientific and engineering expertise in the U.S. The combination of these challenges made obvious the need for increased financial support for Polytechnic and its students. I love the students at Poly. They are hard working, creative and intelligent. They strive to create a better life, for themselves and others. Since 1996, I have contributed to a scholarship set up in my honor by my colleagues to keep alive the possibility that access to education is more than a dream, it can become a reality.”

– Helen T. Lowe, Executive Director of Development
Archdiocese of New York
The annual election of officers and directors of the Polytechnic Institute Alumni Association, Inc. will take place at the Annual Meeting on Sunday, June 27, 2010 at 12:30 p.m. in the Pfizer Auditorium of the Dibner Library Building, Five MetroTech Center, Brooklyn, NY. All alumni are invited to attend and vote.

The Annual Meeting will be preceded by an all-alumni brunch at 11 a.m. for $25 payable at the door or in advance. For full details, meeting agenda including proposed bylaws changes, and to confirm your attendance, please visit www.poly.edu/piaa/annualmeeting.

If you are unable to attend in person, you are encouraged to vote by proxy. The proxy will be available on or about May 27th. Instructions will be available on the website.

The Association’s Nominating Committee has presented the following candidates:

For International Board of Directors (Three-year terms):
- Luther White ’87
- Rosa Yahgmour ’98
- Neil Weiser ’73
- Charles Hinkaty ’70 ’72

For International Board of Directors (One-year term):
- Sunil Kanugolu ’07

For Officers (One-year term):
- President: Christine Ianuzzi ’87 ’94
- Executive Vice President: Josiane Arbovet ’96 ’99
- Vice President: Gerald Dawes ’84 ’89
- Treasurer: Michael Urmeneta ’92 ’00
- Secretary: Christopher Clinton ’09

Alumni may make alternate nominations by submitting names of candidates, endorsed by at least 10 alumni along with a letter from the candidate expressing a willingness to serve if elected, to the Office of Alumni Relations by May 27, 2010. Additional nominees will be published on the website on or shortly after the May 27th deadline.

For full details regarding the Annual Meeting, please visit www.poly.edu/piaa/annualmeeting or call 718-260-3885 to request additional information or a hard copy of the agenda and meeting documents.
50s

John P. Schaefer ’55Chem, NYU-Poly trustee and president of LSST Corporation, received the Founders Award from the Tucson Metropolitan Chambers of Commerce for 40 years of service to the higher education and science communities.

Ken Kanter ’56ME recently retired as chairman of the board and CEO of Levitt Industrial Textile. He and his wife are enjoying time with their six grandchildren.

Eugene Prial ’56CE retired after a successful career as a management consultant and enjoys sculpting and creating pottery.

George C. Hanley ’57ME received a 50-year membership reward certificate for his work in engineering from the American Society of Mechanical Engineering.

Dominick Yodice ’57EE was recognized in January 2010 by Cambridge Who’s Who for demonstrating dedication, leadership and excellence in engineering.

David R. Kassoy ’59AE has started a small research business, Kassoy Innovative Science Solutions, specializing in accessing STTR & SBIR grants from the federal government.

60s

Frank A. SanFilippo ’61EE, an advisory systems engineer with Northrop Grumman, is the proud grandfather of Dashell Anthony SanFilippo.

Alan Holzberg ’64ChE ’66IM retired after 38 successful years with Exxon Mobil Corp., and resides in Houston, Texas. He currently volunteers with his favorite charities.

Robert Bauman ’66ChemE retired from Nexant Consulting after 28 years with the company, where he was vice president of the global plastics business practice and director of Latin American consulting. He started his own company, Polymer Consulting International, Inc.

Frederick G. Yost ’66MT was honored at the 15th annual Norwalk High School Wall of Honor dinner.

Leonard Pomata ’67EE, NYU-Poly trustee and VA State Secretary of Technology, has been named by Governor Tim Kaine to serve on the state’s new Innovation and Entrepreneurship Investment Authority.

Virah Sahni ’68EE authored “Quantal Density Functional Theory II” that was published by Springer-Verlag, Berlin, 2009.

Richard Lary ’69MA was named a Corporate Fellow by Xiotech Corporation, an innovator in data storage solutions. He will play an integral role in developing and refining the company’s technologies and strategies.

70s

Stewart Austin ’71 ’72 ’76EE, after 20 years at Bell Labs and five years in Telecom and Software Startups, started a successful home remodeling business. He is now a licensed NJ home inspector and has opened Prime Home Inspection Services, LLC.

Daniel Panlish ’72EE is coauthor of Software & Systems Requirements Engineering: In Practice. This 2009 issue looks at requirements engineering as a discipline used primarily for large and complex applications.

Dennis Gerson ’76Chem was newly named one of IBM’s 500 Distinguished Engineers in 2009. He is currently lead technology consultant to PepsiCo and technical leader for Global Consumer Products sector in IBM.

Mark Hehl ’78MG was a speaker at the 2009 Project Management Institute South Florida Day of Excellence in Davie, Florida.

John R. Mostel ’78MG is a partner in the Energy and Project Finance Practice Group of Stroock & Strook & Lavan LLP.

Scott Seymour ’78EE is the newly appointed president and CEO of GenCorp Inc. He also serves as president of AerojetGeneral Corporation. Since 1983, Seymour has been a consultant to Northrop Grumman Corporation, a global defense and technology company. He also served as corporate vice president and president of Integrated Systems Sector of Northrop from 2002 until March 2008. GenCorp is a leading technology-based manufacturer of aerospace and defense products and systems.

Jeffrey M. Bienstock ’79EE was elected to director of pediatrics at the Valley Hospital in Ridgewood, NJ.
80s

Ursula Burns ’80ME, CEO, Xerox, was featured in the February issue of Black Enterprise in an article on the “Most Powerful Women in Business.”

Josephine A. Paltin ’82IE earned a law degree from Rutgers University after a successful career with Bell Laboratories. She is now a patent attorney having been admitted to practice before the United States Patent and Trademark Office.

Barry L. Maltz ’82MG was named chairman and CEO at Joseph R. Loring & Associates Inc.

Sufian Khondker ’82CE was named a diplomate of the American Academy of Water Resources Engineers.

Craig Miller ’89SE was appointed chief information officer for Sonic Corp., the nation’s largest chain of drive-in restaurants.

90s

Amir Dekel ’91EE was appointed corporate marketing vice president at Advanced Vision Technology, Inc. with responsibility for developing AVT’s business in the labels market. AVT develops and manufactures automatic inspection systems for web applications in the packaging, labels, forms and converting sectors.

Peter G. Jordan ’95OM, former dean of university admissions, was appointed interim vice chancellor for student affairs at The City University of New York.

Kevin McKenna ’95CE was recently named project executive at EW Howell Construction where he has managed award winning projects for the last 12 years. He continues to live in Long Island with his wife and three children.

Jason M. Okun ’97Chem has been elected partner at the Fitzpatrick, Cella, Harper & Scinto, one of the nation’s premier intellectual property law firms.

Nicholas Donofrio ’99Hon joined the Ewing Marion Kauffman Foundation as a senior fellow. He will use his experience as an innovator and entrepreneur in technology and science to explore programming opportunities for the foundation’s new initiative, Kauffman Labs for Enterprise Creation, which aims to create high-growth companies.

00s

Robert Ilardi ’01IM is senior vice president at Citi Group, where he is an application development group manager. He and his wife, Paula Anglo (Class of 2001) will celebrate their 5th year wedding anniversary in April. They both met at Poly in the spring of 1998.

Barbara Giammona ’04MOT is a Fellow in the Society for Technical Communication. This elite rank is bestowed on a few members each year whose contributions to the society and to the profession of technical writing are deemed significant. Giammona’s master’s thesis was published by the society in 2004 and will be featured in a textbook on Technical Communication in 2010.

Joshua Washington ’07BTM was recognized as the youngest head coach of any NCAA college basketball team in the country. Washington coaches the NYU-Poly fighting BlueJays!

Major Codes:

AE: Aerospace Engineering
BTM: Business and Technology Management
CE: Civil Engineering
ChE: Chemical Engineering
Chem: Chemistry
EE: Electrical Engineering
Hon: Honorary
IE: Industrial Engineering
IM: Information Management
MA: Mathematics
ME: Mechanical Engineering
MG: Management
MOT: Management of Technology
MT: Metallurgical Engineering
OM: Operations Management
Ph: Physics
SE: Systems Engineering
NYU-POLY REMEMBERS
NATHAN MARCUVITZ,
PROFESSOR EMERITUS

Nathan Marcuvitz, professor emeritus, who spent nearly four decades as a member of the Polytechnic faculty, died on February 15. A native of Brooklyn, Marcuvitz began his career as an engineer at RCA Laboratories and went on to become a research associate at the Radiation Laboratory at Massachusetts Institute of Technology. He joined the Polytechnic faculty in 1941 as an assistant professor in the Department of Electrical Engineering. He moved through positions of increasing responsibility to become director of the Microwave Research Institute from 1957 to 1961; vice president of research and acting dean of the graduate center from 1961 to 1963; and dean from 1964 to 1965. He also served as assistant director of defense research and engineering at the Department of Defense from 1963 to 1964; and professor of applied physics at New York University from 1966 to 1973. He became professor of electrophysics at Polytechnic Institute of New York in 1973. Marcuvitz received the title professor emeritus in 1978. He is the author of the “Waveguide Handbook” and coauthor with Leopold Felsen ’48EE, of “Radiation and Scattering of Waves” as well as numerous journal articles. Marcuvitz received his bachelor’s, master’s and doctorate degrees in electrical engineering from Polytechnic University in 1935, 1941 and 1947, respectively. In 1993, he received the Laurea Honoris Causa, Politecnico DiTorino and an honorary Doctor of Engineering from Polytechnic in 2000. In 1985, the Institute of Electrical and Electronics Engineers (IEEE) Microwave Theory and Techniques Society presented Marcuvitz with its Microwave Career Award. In addition to being a member of IEEE, Marcuvitz also was a member of the National Academy of Engineering, the American Physical Society, Sigma Xi, Tau Beta Pi and Eta Kappa Nu. He is survived by his wife, Muriel, and children, Andrew and Karen.

IN MEMORIAM

George E. Distelhurst ’37
Alvin H. Schallis ’40
Fernando De Arcangelis ’42
Edward E. Mclveen ’43
Alexander Matiuk ’44
John Harrington ’48
Frederick Edward Acker ’49
Harry Leonard Yakel Jr. ’49
Robert P. Wittmann ’49
Zachary Sherman ’53
Josef Singer ’53 ’57 ’83
George W. Herbst ’54
Arthur Murray Friedman ’55
Foss Bell Terry ’55
Emil Becker ’57
George Bobowski ’57
Edward C. Bullwinkel II ’58
James Lindsay White ’59
Paul L. Belitz ’61
Nicasio P. Marullo PhD ’61
Paul Vignola ’68
Lew Romagnano ’73
Priya D. Lal ’78
Jeremiah O’Grady ’82
John W. Foster ’88

FACULTY AND STAFF

James J. Conti ’54 ’56 ’59–Faculty
Alice Caspersen Kristiansen–Staff
William H. Kapfer ’41–Faculty
Arden Tyler–Staff
[April 2010]

Athletic Awards Dinner
Wednesday, April 28, 2010, Sirico’s Brooklyn, 7 p.m.

[May 2010]

Alumni Weekend & Back to School Day
Featuring the Golden Jubilee Luncheon
Celebrating the Class of 1960
Saturday and Sunday, May 15-16,
NYU-Poly Brooklyn Campus
Information and Registration:
www.poly.edu/alumni/backtoschool

Toast ’10
A celebration of the Class of 2010 sponsored by the Polytechnic Institute Alumni Association.
Monday, May 17, NYU-Poly Gymnasium,
Brooklyn Campus, 1 – 4 p.m.

Commencement
Tuesday, May 18, Radio City Music Hall,
Manhattan, 11 a.m.

[June 2010]

13th Annual Polytechnic Classic Golf Tournament
Sunday, June 6, LaTourette Golf Course,
Staten Island, 11 a.m.

Annual Meeting of the Polytechnic Institute Alumni Association
Sunday, June 27, Pfizer Auditorium,
Dibner Library,
Brooklyn Campus, 12:30 p.m.

For more information or to register for alumni events, please visit www.poly.edu/alumni or call (718) 260-3424.

RETURN TO BROOKLYN FOR ALUMNI WEEKEND & BACK TO SCHOOL DAY

Featuring the Golden Jubilee Luncheon celebrating the Class of 1960, Saturday and Sunday, May 15-16

NYU-Poly Brooklyn Campus
Join fellow Polytechnic alumni for Alumni Weekend & Back to School Day in downtown Brooklyn. The Office of Alumni Relations invites all alumni to visit their alma mater, interact with faculty and see first-hand how NYU-Poly is transforming the future of engineering and technology. In addition, the Class of 1960 and those who graduated more than 50 years ago will be honored at the Golden Jubilee Luncheon.

Saturday, May 15th Activities – 11:30 a.m. - 3 p.m.
• City bus tour and Poly Picnic
• Optional activities to enjoy with your family and friends
• Polytechnic Night on the Town

Sunday, May 16th Back to School Day Activities– 10 a.m. - 3 p.m.
• Continental Breakfast
• Innovation Display / NYU-Poly Transformation
• Campus Tours
• Classroom Sessions with NYU-Poly Professors
• Golden Jubilee Luncheon (for Class of 1960 & earlier)

Regardless of your year or degree, this exciting weekend will feature a special mix of events and festivities for all Polytechnic alumni and their families. New in 2010, alumni are asked to make your reservation online. Visit us at the following website for the full itinerary and to make your reservation today!

www.poly.edu/alumni/backtoschool

Questions should be directed to Anthony D. Kapp, director of alumni relations, (718) 260-3424 or alumni@poly.edu.

Cable Goes Digital!
Now you can have all of your favorite alumni class notes, events, and alumni stories in an online, interactive format! The first issue was released on September 15th, 2009. If you have not already received this via e-mail, you can sign up for it by sending your e-mail address to alumni@poly.edu.