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Making a global impact

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Columbia Engineering online at: engineering.columbia.edu
This issue of Columbia Engineering magazine focuses on engineering and applied science alumni who are making a global impact—alumni whose important work has significant influence in the international arena. Because of space limitations, we are highlighting only a small fraction of our internationally focused graduates.

These men and women and others like them exemplify the career paths possible with a Columbia Engineering education, as each brings to bear his or her leadership, excellence, and impact on a global scale. Their areas of expertise range from finance and banking to music and haute cuisine; from media and biotech to academia and basic education. I hope you enjoy learning more about these amazing alumni.

The Columbia Engineering graduates in this magazine are following in the footsteps of early alumni who were forerunners of the way in which we work today at the global scale. Among the first early global engineers was William Barclay Parsons of the Class of 1882, who built docks in Cuba, was a member of the Panama Canal Commission, and, in 1898, went to China as the chief surveyor for a proposed railroad line from Hankow to Canton, a line that is still in use.

Today, we seek to provide our students with opportunities for a global experience, whether in the form of faculty- or staff-led winter programs at international locations, study abroad, or international internships or volunteer experiences. I believe that an engineering education today has several essential elements—liberal arts and humanities that give context to today’s challenges; a depth of knowledge within a specific, rigorous engineering or applied science discipline that will provide the wherewithal to address those challenges; and research, entrepreneurship, community-based service-learning, and a global perspective and experience.

To provide these global opportunities, we are in the process of offering three options. The first is Global Leaders Exploration during the winter break, a faculty- or staff-led program to develop greater intercultural understanding and leadership through weeklong programs at international locations. The aim of Global Leaders Study Abroad is to put students side by side with their peers at international institutions to foster their leadership abilities. Our third initiative, Global Leaders Experience, to take place during the summer, is a third semester of professional and leadership growth for many of our students. Whether volunteering their engineering skills by participating in Engineers Without Borders, participating in an internship, or working with a professor on an international project, our students will develop relationships and leadership skills at international communities and corporations.

All these programs bring great understanding and appreciation for other points of view. The greater the difference between the student’s culture and that of the country in which he or she is studying, the greater the learning experience. We are creating a new paradigm for engineering education, developing new programs to ensure that we continue to educate socially responsible engineering and applied science leaders whose work results in the betterment of the human condition, locally, nationally, and globally.

Please join me in recognizing the efforts of all of you, our alumni, who are making a global impact.

Feniosky Peña-Mora
Dean and Morris A. and Alma Schapiro Professor
Livanos, chairman of Ceres Shipping Ltd., the holding company that oversees his family’s ventures in the transport of oil, liquid natural gas, and commodities, says that arming the boats could escalate confrontations, with possible injuries to crews or the massive ships that they steer around the globe.

He has urged a greater international response to make the seas safer for ships that conduct international commerce in the open seas.

“So far, the pirates have been very careful, as they simply use the hijacked ships as a ransom tool, with certain exceptions,” says Livanos, who lives in Gstaad, Switzerland, with his wife, Lara, and their four children, ages three to nine. “If you start having armed guards, you risk provoking the pirates to take more drastic action.”

The safety concerns on the Indian Ocean are one of many that Livanos faces as his companies navigate the stormy world of international commerce, which is affected by both the winds of political change and disasters caused by the natural world.

The devastation to Japan this March by the earthquake and tsunami may affect the demand for liquid natural gas, LNG, which his company ships from Qatar on 18 tankers. As Japanese officials review Japan’s dependence on nuclear energy in the wake of the crippled Fukushima Daiichi nuclear complex, Livanos says the nation, already the world’s largest LNG consumer, may turn increasingly to LNG for its electricity needs. His company currently has six LNG tankers under construction in South Korea.

“They will go through their review and determine what happens in the future.”

The Livanos family has a long history in the shipping industry, with Peter’s great-grandfather establishing the family business in the 19th century. His father, Georges, founded the Ceres Hellenic Shipping Enterprises in the late 1940s. And Peter Livanos has managed the family business as it prospers in the 21st century.

Livanos’ company occasionally works with Angeliki Frangou ‘88, CEO of the Greek shipping firm Navios Holdings (see story on page 12). His company has sold ships to Navios, and Livanos now rents one of Navios’ new ships for his dry-cargo business, which transports iron ore, coal, and other commodities.

These arrangements are part of the high-stakes shipping industry, in which multimillion dollar assets are bought, sold, and chartered.

The Livanos chemical tanker fleet that transported chemicals around the globe merged with the Norwegian firm Odfjell ASA in 2000. The Livanos ships that carry crude oil are now under the control of Euronav, a publicly traded company from Belgium listed on the Euronext exchange. Livanos serves on its board as vice-chairman.

“He says the production of double-hulled tankers following the Exxon Valdez spill in 1989 has made oil shipment safer, with the exterior tanker skin able to withstand punctures if the tanker runs aground.

“They will go through their review and determine what happens in the future.”

Through self-regulation and outside regulation, our business has gone through the biggest evolution,” he says. “Shipping has really focused on cleaning up its act.”

Shipping the World’s Goods
PETER LIVANOS ’81

Though pirates in the Indian Ocean continue to hijack ships, and demand ransoms as high as $6 million, shipping executive Peter Livanos refuses to place armed guards on his vessels.

“"They will go through their review and determine what happens in the future.""
In a wry 2009 *Wall Street Journal* essay, Columbia Engineering graduate Judy Joo described her life as the lowest of chefs in a London three-star Michelin restaurant. It was a male-dominated world of commanding profanities, testosterone-fueled temper tantrums, and confrontations that sometimes ended with shattered plates and trays.

Fortunately, Joo was used to it. She had worked on Wall Street.

Today, she is one of the four resident chefs on “Iron Chef UK” and executive chef of London’s swanky Playboy Club. It has been a surprising journey for the self-described “geeky” daughter of Korean immigrants who grew up in New Jersey wanting to be the next Madame Curie.

At Columbia Engineering, her professors’ enthusiasm drew Joo to engineering, operations research, and computers. She spent a summer building web pages at an investment bank, then tried the financial side the next year. The industry’s frenetic pace proved addictive, and she joined Morgan Stanley upon graduation.

Her career eventually led her to San Francisco. The office ran on New York time, so Joo had to be at work by 3 a.m. to prepare for 7:30 a.m. New York strategy meetings. After nearly five years, she was ready for a change. She quit and returned to New York to pursue her passion, cooking.

“I like cooking because it is science. The kitchen is a laboratory; you have catalysts, controls, acids, and bases,” she said. That attitude helped Joo land a position in the Savour test kitchen after graduating from the French Culinary Institute.

It was a true laboratory. “They would send a writer to some small town, and they would return with a recipe written in a foreign language on a napkin by a grandmother who was partly blind and going senile. Many of the ingredients were unavailable here. We had to find the right substitutes, methods, and techniques to make the recipe come out perfect,” she explained.

Joo left after one year, when her husband transferred to London. She freelanced and wrote restaurant reviews. Then one night, when she was dining at one of London’s top restaurants, the owner came out to greet guests. When he learned Joo was a chef, he asked why she was not working for him. Within days, she was whipping up pastries while enduring the verbal lashes of senior chefs—and loving the intense, charged atmosphere.

She began appearing on television, a chef from a top restaurant demonstrating how to make her mother’s specialties in a city where Korean food was essentially unknown.

She continued writing. The *Wall Street Journal* essay attracted the attention of an agent, who sent her to a casting call for the British franchise of “Iron Chef.” She was a natural—witty, articulate, and with a different cooking style than the show’s other Iron Chefs. She was also the only woman in the lineup.

Her new stage enabled Joo to launch other projects. Most recently, she signed up as executive chef of the soon-to-open Playboy Club in London, where she will serve upscale versions of American comfort foods.

For that geeky girl from New Jersey, it has been a fast and thrilling ride.
Building Business in Emerging Markets

STEVEN FLUDDER '83

Steven Fludder had a job most people would envy. As a corporate vice president, he ran GE’s high-profile Ecomagination initiative. His $18 billion portfolio included GE’s top clean energy technologies, which improve customer profits while reducing environmental impact. He was doing good while doing well.

Yet after 27 years at GE, Fludder left to become senior executive vice president at Samsung, the company’s first non-Korean corporate officer. Samsung recruited him to build its energy business. “Samsung’s goals are breathtaking,” he said. “They want the world to run on clean energy.”

His global experience in water and energy prepared Fludder to run Ecomagination, where he created paradigm-shifting partnerships between GE and venture capitalists Kleiner Perkins and Rockport Capital to fund promising technologies.

Now he is bringing his vast experience to Samsung. “Samsung is competing,” he said. “It entails 20 percent of the Korean economy and came from practically nowhere to become number one in electronics globally. We are ambitious, a successful Asian company becoming more global. I can make a difference here. This is a country that respects its engineers and honors its teachers,” Fludder said.

Uplifting a Community

JIM MCKEOWN ’05

Jim McKeown ’05 was excited. He had quit his investment banking job and was flying to South Africa to work on development projects. Then he boarded the airplane.

“Suddenly, I was more scared than I ever was before,” he said. “The movie on the plane was about hardcore criminals in South African slums. After seeing it, I couldn’t fall asleep.”

McKeown survived his bout of nerves to establish an educational organization, Masinyusane (isiXhosa for “Let us raise each other up”), in South Africa’s east coast city of Port Elizabeth. It is transforming one of the region’s worst-performing high schools into a success story.

McKeown had wanted to fight poverty since high school. Yet he studied operations research because he wanted the skill set.

“When it comes to uplifting a community, we live with uncertainties and constraints. Engineering helps me manage them. It also helps me get to the root of a problem, because I don’t want to spend time fighting fires that will never go out,” he said.

After graduation, McKeown planned to join his uncle, a Catholic priest in Nicaragua. When those plans fell through, he landed a job with Morgan Stanley. He loved investment banking, but after two and a half years, he realized he had to leave or he never would. His uncle’s colleagues, Father Jerry, invited him to Port Elizabeth.

At first, McKeown volunteered in the poor urban townships ringing the city. Although the township’s unemployment rate was 70 percent, no one was addressing jobs. Jobs are linked to education.

“Unless you passed the matric,” McKeown said, referring to high school certification, “you have no chance of getting a job. Even then, you really need a university degree.”

He started with Lwandlekazi High School, where pass rates were only 16 percent. Aided by local church members, he passed around flyers offering free tutoring on Saturday. Instead of the one or two students he expected, 15 showed up. There were 50 the next weekend and nearly 400 within four weeks. Some students had arisen at 5 a.m. to walk three miles.

When they arrived, there was no rulebook for building businesses in emerging markets. Fludder wrote one. Instead of just hiring salespeople, he built a complete overseas business platform. He found local partners, worked with government officials, built manufacturing plants, managed technology transfer, and created a supply chain.

Fludder’s assignments took him from Hong Kong and Jakarta to Shanghai and Beijing. He handled technologies as varied as aircraft engines, hydroelectricity, and wind energy, building infrastructure at each stop. He is especially proud of his work in China between 2002 and 2006. Despite intense international competition, he grew GE’s energy business tenfold to more than $1 billion, executed joint ventures and acquisitions, and boosted employment to 1,600 employees, from 150.

“My strategy was that winning in China meant winning with China. We couldn’t just import and grow. To win sustainably, we had to share the value chain with our partners. And guess what? Our market share expanded and we exported far more from the United States than we would have otherwise. It was a huge success.”

In 2006, GE elected Fludder a corporate officer and put him in charge of the company’s water business. Fludder took the dramatic step of moving his global headquarters to Dubai, the center of his fastest growing markets. “To succeed globally you need your best leaders where the action is. You can’t do it remotely. Their local paper needs to be the first one you read in the morning.”

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That was the year Jae-Un Chung joined Samsung Electronics. He eventually rose to vice chairman. He then used the management skills he learned during the first half of his productive career to guide Shinsegae Group in its quest to become South Korea’s largest retailer. His story and their growth are inseparably entwined.

Chung joined Samsung immediately after receiving a master’s degree in industrial engineering and operations research. By 1978, he was managing director. He became president of Samsung Electronics and Samsung Electro-Mechanics in 1983, and vice chairman three years later.

Chung introduced many best practices from the world’s top companies. He spearheaded Samsung’s 10-year plan to diversify its operations. He also instituted quality systems that improved product and administrative consistency, and that enabled Samsung to establish itself in export markets. He boosted research spending, especially in advanced materials, strengthened the company’s intellectual property position, and formed alliances with some of the world’s top technology companies. These moves laid the foundation for Samsung’s strong growth in memory chips, LCD televisions, and mobile phones.

Equally important, Chung created a more open style of management. He stopped tracking employee hours and broke down barriers that prevented employees from bringing problems to the attention of top management. He hired and promoted women employees, and opened company meetings to engage all workers in identifying and solving problems. These efforts paid off handsomely. The new management policies helped Samsung boost productivity 40 percent two years in a row. Sales soared. In 1975, Samsung Electronics ranked 27th among electronics manufacturers. By 1985, the year before Chung was named vice chairman, it had grown into the world’s ninth largest electronics manufacturer. Chung remained vice chairman of the company until 1988, when he moved to Samsung Petrochemical and then Samsung Aviation.

In 1992, he was named chairman of the Chosun Hotel, and in 1993, chairman of its parent company, Shinsegae Group (which had been part of Samsung until 1991). In addition to the hotel, Shinsegae also operated several department stores and a construction firm.

In his new role, Chung introduced many of the same innovations he pioneered at Samsung, establishing a more open management style, focusing on customer needs, and applying quality principles to all aspects of the business. He drew on his broad international experience to innovate. When Chung joined Shinsegae, Korea had few large department stores and many family stores and public markets. Chung created the nation’s first discount hypermarket, E-Mart. It proved an instant success. By the late 1990s, it had grown into the nation’s largest retailer. Today, Shinsegae operates 135 E-Marts in Korea plus another 27 in China.

Chung has served as Shinsegae’s honorary chairman since 1996 and continues to contribute his insights to the company. He—and Samsung and Shinsegae—have come a long way in the past 40 years.
“Our business is affected by everything you can imagine,” says Frangou, who lives in Athens. “But at the same time, as a truly global business, we aren’t totally affected by any one thing.”

Her climb to the top echelons of the shipping world began 20 years ago, soon after she graduated from Columbia, where she earned her master’s degree in mechanical engineering. After spending two years as an analyst on the trading floor for Republic Bank of New York, Frangou launched her own company, with one vessel, valued at $2 million.

Today, her three publicly traded companies—Navios Holdings, Navios Partners, and Navios Acquisition—have an enterprise value of approximately $5 billion. Currently under construction in shipyards in Japan, South Korea, and China are 12 Navios vessels, ranging in capacity from 50,000 to 300,000 tons.

“I’m the fifth generation of my family to work in the shipping business,” says Frangou. “It’s in my DNA.”

The British shipping publication Fairplay credits Frangou’s success to her ability to structure financial deals, attract investors, and manage a far-flung shipping empire that transports dry cargo and liquid goods. “In the business world, the combination of conceptualizer, implementer, and manager in a single individual is very rare,” Fairplay wrote. “Frangou is one such individual.”

As CEO, she travels the globe, one day negotiating acquisitions and mergers in Europe, then traveling to South America to negotiate a port facility before arriving in the United States to meet with shipping officials. She also taps her mechanical engineering background to both address nuts-and-bolts technical problems involving her seafaring vessels and to structure solutions to thorny business issues that arise.

“Engineering shows you how to take a complex problem, analyze it in a simple way, and find the process that can move it forward much faster,” she says.

Commissioning new ships also provides an opportunity for engineering analysis. A large part of a shipping company’s costs are related to the consumption of fuel that powers her fleet around the globe. Her boats under construction are designed to require less steel, making the ships lighter and more fuel efficient. Their engines run on crude oil, which is much cheaper than refined oil products that older ship engines burn.

As she works to make her own ships more energy efficient, she also works with international officials to promote free trade. She credits lower tariffs over the past decade with fueling economic growth and wealth creation.

“In a period of crisis and recession, there’s always a fear of going backwards,” she says. “But we need to find ways to keep moving forward.”

Conceptualizing, Implementing, Managing

ANGELIKI FRANGOU MS’88

With 95 shipping vessels under her companies’ control, Navios CEO Angeliki Frangou keeps an eye on global affairs that may affect international trade. There are hurricanes in the Caribbean, political unrest in the Mideast, floods in Australia, and piracy in the Indian Ocean, including the band that commandeered one of her ships and held the crew hostage for 60 days.
Transcending the Formulaic

EDUARDO CHIBÁS ’69, MS’70

Eduardo Chibás ’69, MS’70 always had a talent for math, yet worried about following rules “too closely.” Anyone can apply a formula, but that doesn’t mean you truly understand it. You really understand it only when you know when it doesn’t apply,” he said.

A truism, but for Chibás, perhaps a philosophy as well. He has never taken a formulaic approach to life. Chibás grew up in New York City, the son of Cuban immigrants who once supported Castro but escaped his growing tyranny. Like many exiles, he studied engineering because it promised the stability of a good job. Yet he also spent the long subway rides to Bronx High School of Science, and then Columbia Engineering, reading novels and history.

At Columbia, he studied IEOR and earned a master’s degree in applied mathematics. Yet his first opera research job bored him. “Math was fascinating. I discovered Beethoven and Chopin, the heroic and romantic. He listened to different interpretations and latched onto the work of Wilhelm Furtwängler, the great conductor of the Berlin Philharmonic. “For two years at WKNR, I did a program of just his recordings. He was my mentor, although I never met him.” Like many passionate music lovers, Chibás conducted symphonies in his mind. Then a friendship with the conductor of the Venezuela Symphony Orchestra led to an opportunity to conduct the overture to Die Meistersinger.

“I thought I was going to have a heart attack,” Chibás said of his first day of rehearsals. Although very knowledgeable, he lacked the formal training to convey his musical ideas. On the other hand, he had spent many years as a professional communicator.

He explained how he broke apart measures and sung them out. He spoke to musicians like old friends and conveyed his musical ideas. On the other hand, he had spent many years as a professional communicator.

Success was a gift. It gave Chibás the freedom to pursue orchestral music. It was a love he developed when most people were first tuning into the Beatles. Chibás was 13, and his interest in the French Revolution led him to “The Marseillaise” and then Tchaikovsky’s 1812 Overture.

Chibás built on the concert’s success, going on to conduct orchestras in Venezuela, Germany, and Portugal. His recordings of Beethoven and Brahms have received critical acclaim in Fanfare, a leading classical music magazine.

It is a fitting way to live a life that transcends the formulaic.

Powering Engines in Uganda

MATT BASINGER MS’07, EngScD’10

It’s a good thing Matt Basinger has a big heart. He keeps leaving pieces of it around the world.

The doctoral student at the University’s Earth Institute saw a lack of electricity in Sao Tome, West Africa, and devised a diesel generation system that got the village on a micro-grid. He was troubled by the drought in Ghana and helped establish a rainwater harvesting program to alleviate the problem.

And when the first ferry in 15 years will launch on Lake Victoria in Uganda in 2011, his modification of its engine will make it possible for passengers, mail, and products to travel safely and securely under the power of biofuel.

“I want to spend my life helping poor people in developing countries,” he says. “Most especially I like tackling interesting problems with alternative/renewable energy solutions.”

Basinger has a heart for the neediest of the world’s population and an intellect for problem solving. By combining the two, he has helped advance the engineering capacity of developing countries through sustainable infrastructure design and development.

“I believe that, as engineers who want to tackle a problem in developing countries, we should take into account all the complexities of the social, political, cultural, and economic situation in the design and implementation of the solution,” he says.

For the Uganda ferry project, Basinger collaborated with Earthlinks Ventures in Seattle to modify diesel engines to run on straight vegetable oil. “I used lessons learned from my doctoral research involving plant oil-fueled engines used in Uganda for agro-processing. Ideally, the oil to power the ferry engine will come from a local crop called jatropha,” he says.

His time spent working on the project was as rewarding for him as it was for the communities the ferry will now serve. “This was very hands-on and, in a way, I feel like I got a mechanics license,” he jokes. “It was a great opportunity to develop skills and understanding related to alternative/renewable energy and impact in the developing world.”

Basinger wishes the organizational side of development work were as easy as the engineering side. “The reality is that development work is incredibly complex and difficult. The engineering/technical side is the easiest part. The biggest obstacle to the engineering getting done is often the social, political, and cultural aspects,” he says.

Basinger sees a way to overcome some of that frustration—live with the people whose lives you want to improve. “To do this work well you can’t be half a world away doing the research. You have to live there, speak the language, and really understand the people.”

To that end, after Basinger finishes his postdoctorate appointment, he and his family are planning to move to Cambodia, and then Indonesia, to one of the most remote islands in the archipelago. First projects on his list include designing and implementing infrastructure to address food vulnerability issues.

“We will be a small environmental engineering skills to meet the need for clean water and alternative energy on the island of Papua,” he says. “I can’t wait!”
“I think the world’s a much bigger place,” he says. “Twenty-five years ago, you didn’t think of most of the world as areas for investment or opportunity. It was difficult to invest in Korea, India, or China, and there were much higher barriers to capital and trade flows.”

Understanding international global markets is essential for Ayanessians, who heads the financial giant’s “Strat Group,” overseeing the work of 1,000 engineers, computer scientists, and financial experts across the globe, with one-third of the group based in Europe, Tokyo, and Hong Kong. The group builds computer models that analyze financial risks for Goldman’s clients—in stock equity markets, derivatives, and the credit markets. The group also creates financial products to manage that risk, both for the clients and Goldman Sachs.

“Implementing the models is a massive computer science issue,” says Ayanessians. “We have 1,000 different models to price our books, and we have more than 30,000 computers in 10 locations that run the simulations.”

Ayanessians, chair emeritus of the School’s Board of Visitors and a member of Columbia University’s Board of Trustees since 2007, came to Morning-
side Heights for his master’s degree in engineering while working at the Common Subsystems Labora-
tory at Bell Labs in New Jersey. During his year at Columbia Engineering, he embraced the school’s broad curriculum, taking courses that ranged from network topology to computer science. His studies at Columbia brought him a solid, practical understanding of mathematical algorithms, which are used in the models his group develops at Goldman.

He left Bell Labs two years after earning his mas-
ter’s degree at Columbia, recruited to Wall Street by a headhunter looking for someone with top-
notch analytical skills and an interest in applying those talents to the financial industry.

“Wall Street touched on a broad range of my skills—empirical analyses, software development, and the mathematical aspects of pricing,” he says. He joined Goldman in 1985 as a foreign-exchange strategist, developing systems to analyze fluctu-
ating exchange rates so Goldman and its clients could make timely investments to take advantage of favorable conditions. He also worked with com-
panies involved with acquisitions of overseas com-
panies, advising his clients how to hedge the risk of investing in volatile economic times.

The international financial world has changed dra-
matically since the mid-1980s, when the finance
ministers of the world’s top seven industrialized na-
tions gathered at the G7 meeting to address global
economic issues. The Soviet Union and China did little business with the West, and the developing
world was far on the periphery of world trade. Twenty-
six years later, the Iron Curtain has fallen. The G7 has morphed into the G20, to include ministers from the growth economies of China and India. Global trade has flourished, fueled by free-trade agreements and the split-second speed of online
communications.

“Information gets transmitted instantaneously around the world,” says Ayanessians. “Today, most of the opportunity is international, and you have to think globally.”


Understanding Global Markets

ARMEN A. AYANESSIANS MS ’83

Conventional wisdom holds that the Internet and our increasingly globalized economy have made the world much smaller. But Armen Ayanessians, managing director at Goldman, Sachs & Co., thinks otherwise.
Leading a University

ALI DOGRAMACI MS’72, PHD’75

After earning his master’s and doctorate at Columbia’s School of Engineering and Applied Science, Ali Dogramaci MS’72, PhD’75 was asked to teach industrial and management engineering here.

That offer of employment—and his election to Columbia’s Faculty Senate—had a profound influence on the Turkish scholar, who taught at Columbia for five years.

In 1984, Dogramaci’s father, a prominent Turkish pediatrician and educator, founded Bilkent University, Turkey’s first nonprofit private university, donating large tracts of land and an endowment to launch Turkey’s first nonprofit private university, donating large tracts of land and an endowment to launch the ambitious educational initiative. While teaching engineering here.

His family continues to build its network of private non-profit educational institutions in Turkey, including private high schools, with 95 percent of the students on full scholarships in Anatolia’s rural eastern provinces.

Leading a University

International faculty at Bilkent also can serve in its University Senate, with professors from the United Kingdom and Ireland currently empowered to vote on policy there.

“You have equal vote, equal say, regardless of the nationality of your passport,” says Dogramaci. “That’s what makes you a world university.”

Dogramaci became the chair of Bilkent’s board of trustees in 2010, after serving for 17 years as the university’s rector—the position equivalent to president of an American university. He lives in Ankara with his wife, Ayse, a developmental psychologist, and maintains a home in the Riverdale section of The Bronx, where he visits up to five times a year.

During his years as Bilkent’s rector, the university blossomed, with enrollment now at 5,000, five times a year. He also participated, from 2005 to 2010, in the Global Colloquium for University Presidents, an international group started in 2005 that includes leading educators from around the world, including the secretary general of the United Nations and Columbia President Lee C. Bollinger.

In Turkey, engineering is a highly prized profession, with engineers in line for top positions in a wide range of fields. Dogramaci says Bilkent has pat
tened its course of study for engineers in part on Columbia’s curriculum, with foundational courses in the humanities required for its undergraduate engi
neering students.

“We want our students to not just master the technical material,” says Dogramaci. “So we have a liberal arts component embedded in our curriculum. It was Columbia’s Core Curriculum that prompted me to in
troduce these humanities courses as ‘must courses’ for Bilkent engineers.”

Creating Doors to New Markets

CHATCHAI PIYASOMBATKUL ’82

A niche in the global economy can be a beauti
ful thing. Just ask Chatthai Piyasombatkul, president of a leading manufacturer of wood products in Thailand (Metro-PlyCo., Ltd.), which sells doors and wood paneling to builders around the world. Mr. Piyasombatkul launched the company’s door division in 1992, believing that his design would do well in the global competition with manufac
turers from Malaysia and Indonesia.

While his competitors built their doors from ply
wood, Metro-Ply’s doors are made from medium
density fiberboard (MDF) and covered with a thin veneer. The MDF is made from the wood of rubber trees, Thailand’s largest cash crop, which is consid
ered scrap wood, since production of rubber latex ceased more than 20 years ago. The veneer comes from oak and birch logs, imported from the United States, and Okoume wood from Gabon and the Dem
ocratic Republic of the Congo.

“We are in the production world, and we are always looking for new markets,” says Piyasombatkul, who also serves as vice minister to the Office of the Prime
Minister. “To bring our company to the next level, we needed to sell more than just the wood commodity; and in order to compete in the export market, we need to value-add to the product.”

Piyasombatkul came to Columbia in the late 1970s to study financial engineering, a multidisciplinary field involving financial theory, the methods of engi
neering, and the tools of mathematics. He returned to join the family business, founded 60 years ago by his father, Vorawit, who opened a small sawmill.

He started in the sales department in their plywood factory and ultimately assumed management of that plant. He led production at a teak-veneer fac
tory and then was assigned by his father to run a fiberboard factory, where wood is made into chips, put into water to make a pulplike mixture, and then pressed into wood panels, without using resin.

By 1995, he was Metro-Ply’s president. Today, Met
ro-Ply has 15 factories and about 3,900 employees. It has also expanded into real estate development, with a growing portfolio of four Bangkok office tow
ers, an apartment complex, and a 200-room hotel that is now under construction.

The global economic downturn in 2008 hurt the US housing market, cutting significantly into Metro
Ply’s sales in the United States. To offset the de
cline, Metro-Ply turned to other housing markets, including China, Korea, Taiwan, and Japan.

“It was always my passion that they would attend Columbia, and I’m so glad they are here.”

Mr. Piyasombatkul, who majored in chemical engineer
ing, has continued his connection to Columbia. His two sons are now enrolled at SEAS: Vipas ’11 is ma
joring in financial engineering, and Kanapouch ’13 is studying engineering management systems. He hopes they will succeed him at the helm of Metro
Ply in the future.

“I’d like them to run the family business,” says Mr. Piyasombatkul. “It was always my passion that they would attend Columbia, and I’m so glad they are here.”
“Essentially, what needs to happen is a role reversal,” says Pandit, who serves on Columbia University’s Board of Trustees. “The developed economies need to appeal to the burgeoning emerging market consumer bloc to review their own economies, rebuild their manufacturing bases, and drive exports.” Pandit, whose bank operates in more than 160 nations, maintains a vigilant watch on the volatile international financial system, as it recovers from the 2008 meltdown that hit Citigroup hard.

Pandit became Citigroup’s CEO in December 2007, just as the financial crisis began crippling several top international banks. The US government eventually invested $45 billion in Citigroup to prevent a collapse. By 2010, the bank was back to prosperity, with more than $10 billion in profits. Meanwhile, the US government, in December 2010, sold its remaining Citigroup stock, making $12.3 billion in profit.

“We have good financial strength—more than $40 billion in reserve—and our goal going forward is to turn that into responsible and sustainable growth,” Pandit told CNN in Davos, Switzerland, while attending the World Economic Forum.

Emerging economies play a crucial role in Pandit’s vision for Citigroup’s future. Its network of offices, trading floors, and global transaction services provide one of the world’s leading financial networks, serving some of the world’s largest companies, as well as small- and medium-sized businesses, and individuals. With an estimated 2.5 billion people in the world “unbanked,” Pandit believes the banking industry can provide leadership to improve communities in the developing world with mobile-computing technologies that allow banking over mobile phones, which are ubiquitous in much of the developing world.

“Once you get people into the financial system, studies show that economies grow faster, they do better, and they do better for their families,” says Pandit. Pandit’s tenure as Citigroup CEO caps a career in finance that began to take shape at Columbia. A native of India, he earned his BS and MS degrees in electrical engineering, then his MBA and PhD at Columbia Business School. He taught economics at Columbia and the University of Indiana before joining Morgan Stanley in 1983.

He rose to become president and COO of Morgan Stanley’s institutional securities and investment banking businesses. By 2007, he joined Citi as chairman and CEO of Citi Alternative Investments and soon became CEO of its Institutional Clients Group before becoming Citigroup CEO.

Now he’s moving the company forward, promoting “responsible finance,” with foreclosure prevention programs to keep nearly one million Americans in their homes, and developing strategies to build the Citi brand worldwide. “This wasn’t done by one person or two people,” says Pandit. “The most important part of what got us here is 260,000 people working together.”

For years, the developed world has relied on the emerging economies to provide low-cost manufactured goods. With the standard of living in the developing nations now rising, Citigroup CEO Vikram Pandit says it’s time to turn the tables, with industrialized countries looking to sell their products to this rapidly expanding market.

Improving the Developing World

Vikram S. Pandit ’76, MS’77, MP’80BUS, PhD’86BUS

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Analyzing Business Opportunities

KAI-SHUI (LU) LO '82

When Kai-Shui Lo '92 came to Columbia in 1978, he knew he wanted a career in business. So he majored in operations research at the School of Engineering and Applied Science, learning about systems, and probability. As he looks back over the past 29 years, Lo says those studies provided a firm foundation for his work in construction and property development in Asia.

"I knew I wanted to go into business, and the math I learned at Columbia trained me to analyze systematically," recalls Lo, deputy managing director of the Great Eagle Group, which is his family’s company, and founder of his own company, Sun Fook Kong Group Ltd.

"I tend to be conservative, not overly aggressive," says Lo. "I have a schedule that I adhere to, make progress at my own pace, and I've performed relatively well. Good times and bad times come and go, like the seasons. You know there's a probability of winter, in the business sense, but the probability of spring following winter is very high."

The Hong Kong economy was in the doldrums in 1982 when he returned to Hong Kong from Morningside Heights. He said it was a good time for him to face the challenge.

"It was bad, in one sense, but in hindsight, it was also good, because I got to see the bad side of things, and learned from it," he says.

Lo has two major businesses. There’s his construction business, which builds in Hong Kong, with a substantial portfolio of all kinds of projects he put up for the Hong Kong government.

His property development business, meanwhile, is focused on China, where he’s involved in several residential projects in the Guangdong Province, which borders Hong Kong, and other provinces as well. The Great Eagle Group also owns office buildings in California and several hotels around the world.

Lo, who lives on Hong Kong Island, says he has had success building apartments in China.

"China has 1.3 billion people, and it’s still growing and becoming more affluent," says Lo. "There’s a huge market for better designed houses. I build for all incomes, but I have to admit I like building higher-income housing because that allows you a wider range of creativity, which is fun."

With Lo’s studies at Columbia playing such a critical role in his personal and professional development, he now wants more young people from China to have that experience. He’s working with Columbia to broaden its outreach in China.

"I’d like to see Columbia flourish while introducing Columbia to more of my countrymen," he says. "If I can tie the two together, it would help accomplish certain higher priorities on my help list."
Leading International Media

BOB BAKISH ’85, MBA’89BUS

Bob Bakish, recently named president/CEO of Viacom International Media Networks, is always amazed when young professionals map out their careers. “I never had it all figured out. Life is made up of a series of crossroads. When you get to one, you evaluate the opportunities, make your decisions, and go,” he said.

That approach has made him the leading man for Viacom’s Hispanic and international networks, including MTV, Nickelodeon, and Comedy Central. They reach more than 600 million households in 160 countries via 166 TV channels and more than 550 web and mobile sites.

Bakish’s task is to meld them into global brands while preserving their local flavor.

He never envisioned this job while studying operations research at Columbia. He entered school unsure of his interests and pursued engineering because it taught problem solving. He put those skills to work at AT&T shortly after it was divested into competing companies, then returned to Columbia for an MBA.

Within a year of graduating, he was consulting on packaged goods at Booz Allen Hamilton. He reached a crossroads unexpectedly at an evening meeting, when he called a direct marketing plan “a ridiculous way of achieving a simple goal.”

The partner in charge of the engagement asked how he would change it. Bakish explained, and the two stayed up all night revising the plan. Afterwards, the partner who did media consulting, asked Bakish to join his group. “I didn’t know a thing about radio, but we hit it off and I jumped in,” he said.

He spent years developing increasingly sophisticated plans for large media businesses. Then a Viacom executive asked him to join the company.

“I was just about to be elected partner,” Bakish said. “But I couldn’t get his parting words out of my head: ‘If you ever want to play the game on the field, we should really talk.’” The words continued to resonate. Shortly after making partner, he joined Viacom to work on long-term planning.

One crossroad followed the next. He shuttled between Viacom and MTV Networks, including a stint as chief operating officer of MTV Networks advertising sales. Just when he was getting comfortable, he returned to corporate to help split the company into two entities, Viacom and CBS.

He was appointed president of MTV Networks International in 2007. “We were a confederation of national networks, not a real multinational,” he said.

Bakish restructured the company to leverage its scale and further integrate it with digital TV distribution and web technologies. This freed the individual networks to concentrate on local content.

The new infrastructure was a hit with audiences, especially when news broke. Within hours of Michael Jackson’s death, for example, MTV was providing updates, commentary, and musical works around the world. “This reinforced our position as a truly global network and resulted in unprecedented viewership,” Bakish said.

Although he has traveled a long way from engineering, Bakish is still solving problems and seeking challenges.

“You never know what’s going to happen. You work hard and build your capabilities, so when you get to a crossroad, you can pick a direction and dive right in,” he concluded.
Founding Biotech Ventures

EHUD GELLER ’70

Most people’s vision of a venture capitalist involves a black-suited professional in a sparsely lit office. That is not Ehud Geller ’70, who helped found Israel’s vibrant biotech venture scene. He builds companies the hands-on way.

Geller’s firm, Medica Venture Partners, manages $200 million, invested in more than 30 pharmaceutical and medical device companies. Some consist of nothing more than a handful of academics and a clever idea. Others are larger but struggling to break into the big time.

Their entrepreneurs command Geller’s attention. They are dedicated enough to risk everything on a new technology, but often naive about business. “Sometimes we have to go in there and get the hands dirty, just about helping companies move forward and overcome impediments,” Geller said. When a Columbia student told him about his school, Geller transferred.

He gravitated to chemical engineering. One day at Mudd cafeteria, he and several seniors began talking about job prospects. One proposed that chemical engineers were uniquely qualified for life sciences because they thought of the body in terms of systems, operations, processes, transport, and catalysis.

Geller tried that reasoning on the vice president of R&D at pharmaceutical maker Wyeth Laboratories. “He looked at me, smiled, and said, ‘Let’s give it a try.’” Geller moved to Philadelphia. He also enrolled in Drexel University, where he completed an MBA he had started at Columbia and a PhD in chemical engineering. At Wyeth, he rotated between research, manufacturing, and corporate office roles. He was an entrepreneur before anyone had a name for it.

After seven years at Wyeth, he returned to Israel and took a position as CEO of Ikapharm, where he built an FDA-approved plant to export generic drugs to the United States. Teva, a conglomerate with a large pharmaceutical business, then recruited him to run its pharmaceutical business.

In the early 1990s, Geller proposed to quintuple Teva’s size to $1 billion by establishing a pharmaceutical business in the United States. It was the start of the company’s transformation into the world’s largest generic drug maker.

Success left Geller bored. He described Teva as a well-oiled machine with not enough problems to keep him busy. He eventually left for a biotech start-up, Interpharm, which he built into a company worth $380 million.

After leaving Interpharm, Geller played a key role in establishing Yozma, an $80 million government-backed fund of funds designed to jumpstart Israel’s venture industry. Today, the nation shares top ranking with the United States as a center of venture-backed innovation.

Geller left Yozma to start Medica, Israel’s first dedicated life science and healthcare investment fund, where he brings his hands-on management style to many new start-ups.

As the 21st century dawns, millions of people around the globe live in communities without electricity. Sameer Shetty MS ’93 is working to change that by building small-scale hydroelectric plants to help bring these rural areas into the modern age.

“Hydro power is clean and renewable,” says Shetty, managing director of B. Fouress Ltd. in Bangalore, India. “It has the capability to help alleviate poverty in regions where so many people currently have no access to power.”

Shetty, who grew up in Mumbai, India, came to Columbia in 1992, after earning his bachelor’s degree at DePauw University in Indiana. At Columbia, he studied operations research and industrial engineering, developing the expertise needed to return to India to work in the family business, which at the time was primarily specializing in industrial valves for the oil and gas, steel, power, and water industries.

The family company had started a joint venture with Kvæner Boving, the Norwegian hydro giant, which was subsequently sold to General Electric. In 2008, Shetty bought out GE and it became a wholly owned subsidiary of Fouress. The group now has 1,700 employees. “The lack of partners allows us greater flexibility in how we run our business,” says Shetty. “We can take a longer view and compromise growth to build the process and the foundation to see accelerated growth in the future.”

The plants developed by B. Fouress are small, generating up to 25 megawatts per turbine—enough to power a small community and feed more power into the electric grid. These projects don’t run into the environmental issues faced by huge dams, which flood large areas and displace residents.

His projects are “water-to-wire”—the plants take in water to turn the turbines, which create electricity that gets sent to the power grid.

His company designs and manufactures the turbines and does the system design, procurement, project management, installation, and commissioning for all the electromechanical equipment that goes into a small hydro power plant, made with specifications for each particular location.

“You can’t use a cookie-cutter approach,” says Shetty. “The technology is dependent on the quantity of water at any given site, so you can’t use the same turbine for each site.”

The business is truly global. It’s the largest supplier of small hydroelectric equipment in India and is now working on projects in Honduras, Turkey, and the Philippines, among other countries across the globe.

Shetty’s turbines are creating electricity at hydro plants being built in Central and South America, Africa, Europe, India, and Southeast Asia. The electric generators that create power from the spinning turbines are made in Brazil, Romania, Spain, Italy, France, India, and China.

While at Columbia, Shetty was impressed by the intellectual passion and dedication of his classmates, who created the atmosphere that inspired him to delve deeply into analyzing engineering problems and using technology to resolve them.

After his father died in 2007, Shetty decided to help Columbia Engineering recruit more top Indian students by endowing a fund that supports annual trips by admissions counselors to top Indian high schools.

“Columbia provided me with a great education and great memories,” he says. “So this was a way to ensure that Columbia’s name becomes better known throughout India.”
With a master’s degree in computer science from Columbia Engineering, Sportelli creates the mathematical models for tailor-made products that BNP Paribas provides to its international clients.

Consider the European company that makes aluminum cans. It needs to buy the aluminum, which carries a risk with fluctuating commodity prices. It sells the product in dollars, which also carries a risk with exchange rates changing by the day.

“The company is worried about the aluminum price going up and the dollar weakening,” she says. “So I work between the sales people and the traders to put in a structure that hedges both.”

These financial instruments, meanwhile, must conform to international accounting standards. “We have to be able to demonstrate that the hedge they put on is the proper hedge for the risk they have,” says Sportelli. “There are regulations, and they have to be able to demonstrate to their auditors that it’s a good hedge.”

Sportelli arrived at Columbia in 1985 after majoring in math at Bates College. While at Bates, she became enthralled by computer science and came to Morningside Heights to deepen her knowledge.

She landed a job on the arbitrage desk at Wall Street investment bank Salomon Brothers, creating computer models for risk management. She worked in Tokyo, then transferred to London for what was to be a one-year assignment.

Twenty-one years later, she’s still there. At Salomon, she worked on the arbitrage desk until 1992, when she went to the trading floor, pricing and promoting financial instruments called derivatives, such as interest rate swaps and options. When the derivatives market collapsed in 1995, she moved to the London office of CIBC, a Canadian bank, which at the time was building up internationally.

By 2004, she’d come to BNP Paribas, the Paris-based bank, where she now heads the structuring team for all asset classes within the bank’s fixed-income division. The team has recently expanded to develop expertise in structuring derivatives in emerging markets.

In her post, Sportelli also recruits talent from graduate schools around the world. She says graduates of engineering schools do well in finance, with their strong foundations in quantitative analysis. She came to Columbia in 2010 to make a presentation about BNP Paribas to engineering students, including several who majored in operations research.

“Finance is a technical business, and engineering students have the right skills,” she says. “You need quantitative abilities to do well in trading and structuring.”

Sportelli didn’t plan for a career in finance. But she says the field was a good fit.

“In finance, I’ve been surrounded by really bright people; it hasn’t been so bureaucratic,” she says. “From early in my career, I was encouraged to be entrepreneurial. I stayed open-minded and took the opportunities as they came.”

Hedging Risks for Financial Products

KARA LEMONT SPORTELLI MS’87

International trade carries substantial risks, with companies faced with volatile exchange rates, commodities prices, and tariffs. Kara Lemont Sportelli MS’87, managing director at BNP Paribas in London, heads the team that structures financial products for corporations that want to hedge those risks.
The 188,000-square-foot Northwest Corner Science and Engineering Building officially opened in December, featuring a state-of-the-art Science and Engineering Library and labs as well as a lecture hall and café. Interior lobbies flow from the sidewalk level at 120th Street and Broadway to a publicly accessible 1,400-square-foot café above and are connected visually and spatially to the campus-level lobby.

“This new science and engineering building is a major asset for Columbia Engineering,” said Columbia Engineering Dean Feniosky Peña-Mora. “It will foster even greater excellence, leadership, and impact in engineering and applied science as it enhances our faculty’s ability to continue pioneering research.” Some Columbia Engineering faculty—Assistant Professor Latha Venkataraman of the Department of Applied Physics and Applied Mathematics, Assistant Professor James C. Hone of Mechanical Engineering, and Professor Ken Shepard of Electrical Engineering—have already set up their labs in the new building.

When fully occupied, the building will provide research, teaching, and study space for a community of faculty members and students working in 21 different labs. Among the first areas of research in the labs are nanotechnology, single molecule physics and chemistry, biophysics, and biochemistry and synthetic chemistry.

The new Science and Engineering Library features the Digital Science Center (DSC), where students and faculty are able to access a wide range of specialized software, ranging from visual analyzing of spatial imagery, easy molecular rendering and equation balancing, multivariate calculation, graphing, workflow and programming solutions, to 3-D modeling and animation. The DSC includes more than 60 software applications accessible from 50 workstations configured for both individual and collaborative work. The facility also includes multipurpose spaces that support presentation preparation and practice, technology-based seminars, and library and technology instruction.

Students are busy using the new library, says Jane E. Winland, director of the Science and Engineering Libraries. “The students love, love, love the new facility.” The library in Mudd—now known as the Møllerv Engineering Library—continues to house engineering books, journals, print reference, and engineering course reserves.

Columbia Engineering School has in effect doubled the number of named professorships, adding 20 to the current 23 for a total of 43 endowed faculty positions. Ten of these new endowments, valued at $30 million, have been made possible through the generous financial support of Columbia Engineering alumni and parents, spurred by University Trustee and Columbia Engineering Board of Visitors Chair Emeritus Armen and Janette Aranossian’s $5 million gift and his wife Janette, who have committed matching funds toward this major initiative to recruit international faculty of the highest caliber.

In announcing this gift in October 2010, Dean Feniosky Peña-Mora said, “Armen and Janette Aranossian have been key to our achieving the unprecedented goal that we set only 11 months ago: the funding of 10 new professorships at the School of Engineering and Applied Science, representing $30 million in investment in named chairs for our faculty. Their action was instrumental in securing the support of additional alumni and parents in funding these new faculty endowments. We understand this expansion of our faculty on an incredibly ambitious timeline during one of the most challenging economic periods in recent years, making our accomplishment all the more remarkable. I would like to thank, from the bottom of my heart, our steadfast alumni and supporters for their confidence that a large investment in Columbia’s outstanding engineering faculty was truly an investment in the future of the School.”

In addition, over the next year Columbia Engineering will establish 10 more endowed professorships to recognize outstanding research and teaching among the School’s faculty. Dean Peña-Mora noted that “our School is fortunate to have exceptional faculty doing extraordinary work and it is fitting that they be recognized with an appointment as a named professor.” These additional 10 chairs will bring the total number of new endowed professorships at Columbia Engineering to 20, nearly doubling the current number of named positions available to support and recognize the School’s faculty. This record-breaking expansion will greatly enhance Columbia Engineering’s efforts to recruit and retain exceptional faculty in key research areas from around the world, making, as Dean Peña-Mora says, “an unambiguous statement that Columbia Engineering is, indeed, one of the top places in the world for engineering innovation.”

This extraordinary show of support for Columbia Engineering faculty is a fitting complement to the efforts the University is making to provide the necessary infrastructure to empower pioneering research at the School. Within the last few months, a number of Columbia Engineering’s faculty have been housed in the Northwest Corner Building, a pan-disciplinary center devoted to science and engineering that opened in the fall. Designed by the world-renowned architect José Rafael Moneo, this new research facility serves as an intellectual and physical bridge to maximize the synergy in exciting new research areas, including CyberBioPhysicalSM Systems, where the digital, biological, and physical sciences fuse to create new areas of knowledge. An additional number of Columbia Engineering faculty will be based in the Jerome L. Greene Science Center, a new research and teaching facility being built as part of Columbia’s campus expansion into Manhattanville; the Center will serve as the intellectual home for Columbia’s expanding initiative in Mind, Brain, and Behavior.
Ties and Scarves

Dean Feniosky Peña-Mora presided at the annual event celebrating the beginning of senior year. Members of the Class of 2011 were presented with scarves for the women and ties for the men, each featuring the School’s crossed hammers emblem.

“For our seniors, we have instituted the tradition of giving special Engineering ties to the men and scarves to the women,” said the dean. “These ties and scarves bear the logo of the School and show your clear connection to the Columbia Engineering tradition, a tradition that stands on a foundation of excellence, leadership, and impact—a tradition that you very well represent.”

Just Desserts

Dean Feniosky Peña-Mora and the Columbia Engineering Alumni Association (CEAA) hosted “Just Desserts” for the Classes of 2012 and 2013 and alumni. More than 80 students attended the reception and had an opportunity to network with more than 30 alumni from fields such as civil engineering, information technology, consulting, energy, finance, and communications. Shown here is CEAA Board Member Hiroshi Tanaka ’63, MS/65, EngScD’76, senior vice president of Designatronics Inc., speaking with students.

SAE Alumni Reception

The Columbia Engineering Alumni Association, the Society of Automotive Engineers (SAE), and the Engineering Office of Alumni and Development hosted a reception for SAE students and alumni. The program included a presentation by Jay LeBoff, owner of Hot Seat Chassis, who spoke about his company’s driving simulators and how they can be used to improve defensive driving programs. Shown here is Mr. LeBoff, center, with students from the SAE.
Carl Campbell Gryte, professor emeritus of chemical engineering, died at his home on January 31, 2010, following a long battle with Parkinson’s disease, at the age of 67. Professor Gryte earned his BAs in 1964 and MAs in 1966, both in chemical engineering, from the University of Toronto. He received his PhD from the Polytechnic Institute of Brooklyn in 1970 and did postdoctoral studies at the University of Louvain in Belgium from 1969 until 1971. He spent his subsequent professional career entirely at Columbia Engineering as assistant professor (1972–1978), associate professor (1978–1980), and full professor from 1980 until 2008, when he was named professor emeritus. He was an internationally renowned expert in polymer science, particularly the formulation of polymers into gels, sohents, and membranes. He published on many subjects in this area and appeared frequently as an expert witness in complex litigations involving the manufacture of these materials as well as their roles in major accidents. He published more than 55 papers, almost all with coauthors from among his many graduate students, and was working on some 15 additional papers at the time of his death. He supervised 24 doctoral students, many of whom have risen to high positions in industry, academia, and government. Professor Gryte was an active advocate for polymer science’s beneficial uses for the public and he gave, with engaging enthusiasm, insomniable public lectures on the subject.

Professor Gryte was an extraordinary teacher and a passionate advocate for his students. He was a positiver who never failed to see merit and a path for advancement in a student. He interacted incessantly in classrooms, laboratories, his office, in corridors, in his home. He saw beyond language difficulties, learning problems, and personal misfortunes in his students who continued after graduation to seek his advice and approval around the world. In 2006, as his disease made his retirement imminent, he deflected all efforts to honor him toward the creation of a fund to support needy and deserving graduate students and to award seniors showing the greatest promise for service to chemical engineering. A groundswell of response from his former students created this fund, which continues to grow.

Professor Gryte is survived by his wife of 43 years, Carol Ann, four children, and two brothers. He was beloved that he also is survived by more than 1,000 students for whom he had extraordinary concern and with whom he maintained contact during his active life and in retirement. His former doctoral student was joyfully delighted by him through his final doctoral examination early in December 2010.

Cylid M. Harris, professor of electrical engineering from 1952 until his retirement, died on January 4, 2011, at the age of 93. A leading authority on acoustics engineering, Professor Harris received his BS in mathematics in 1938 and his MS in physics in 1940 from UCLA, and his PhD in physics in 1945 from MIT. He wrote a number of standard references, including the Shock and Vibration Handbook, first published in 1963, and renamed Harris’s Shock and Vibration Handbook for its fifth edition in 2002. He was also, from 1974 to 1984, the chairman of the Division of Architectural Technology in the Graduate School of Architecture, Planning and Preservation at Columbia. Professor Harris was well-known for being an acoustic consultant for a number of well-known concert halls, including the renovation of Avery Fisher Hall at Lincoln Center in the mid-1970s. His renovation of the hall, infamous for its poor acoustics since its opening in 1962, was lauded by music critics for converting it to one of the finest acoustic spaces in the world. He also worked on dozens of other prominent concert spaces—more than one hundred in all—including the Kennedy Center in Washington, DC; the Metropolitan Opera in New York City, and many others across the US in such cities as Seattle, Minneapolis, St. Louis, Salt Lake City, and San Diego.

The renovation of Avery Fisher Hall cemented Professor Harris’s reputation as the preeminent acoustical engineer in the country. He had so many avid fans that he suggested to architects Philip Johnson and John Burgee that they start over again. They thickened the ceiling plaster, replaced concrete floors with wood, and took away curved side balconies and the curved back wall. Critics were thrilled with the results, and Professor Harris said in a New Yorker interview, “I think that my greatest pleasure comes from hearing the musicians say that they don’t have to bow or blow so hard—that I’ve added 10 or 20 years to their careers.” As members of his department recently reminiscend, one colleague noted that Professor Harris “personified the ideal combination of real-world achievement and warm commitment to his students and to our educational goals. He is sorely missed.”

Professor Harris is survived by his wife Ann, whom he married in 1949, his two children, and three grandchildren.

Dr. Gertrude Neumark Rothschild, Howe Professor Emerita of Materials Science and Engineering, passed away on November 11, 2010, after a long illness. She was 83. A memorial service was held for her on Wednesday, December 15, 2010, at 5:00 p.m. at St. Paul’s Chapel in Manhattan.

One of the world’s foremost experts on doping half-bandgap semiconductors and the first woman to hold a named chair in Columbia University’s Fu Foundation School of Engineering and Applied Science, she held a number of patents on wide-bandgap semiconductor technology. Dr. Neumark graduated summa cum laude from Barnard College in 1948, received an MS in chemistry from Radcliffe in 1949, and, in 1951, received a PhD in chemistry from Columbia’s Graduate School of Arts and Sciences. In 2008, Philips Electronics created a professorship in Columbia’s Department of Applied Physics and Applied Mathematics in the Fu Foundation School of Engineering and Applied Science in honor of Professor Rothschild’s pioneering role as a woman engineer. Dr. Neumark received an honorary degree from Columbia University in 2008 and was selected as a recipient of Barnard’s Distinguished Alumna Award for 2008 for her outstanding achievements in materials science and engineering. She was elected a Fellow of the American Physical Society in 1982 and has been a panellist for the National Research Council.

She is survived by her husband, Henry Rothschild, a former commodities trader at Philip Wheeler Corporation in New York, a leading authority on Forbes’s disease, at the age of 90. After her husband from Columbia, she served in the US Navy and tested depth charges. When the war ended, Ms. Eich joined Combustion Engineering, where he worked as a mechanical engineer until 1962, when he worked for Foster Wheeler Corporation in New Jersey. Elected president and chief executive officer of Foster Wheeler Limited (Canada) in 1980, he became an executive vice president of Foster Wheeler Limited in 1984. During his career, Ms. Eich was named a number of patents for new devices and products for power generation. After retiring, he served as the National Sales Manager for Foster Wheeler in New York, Massachusetts, and New Jersey. He has authored over 50 articles in technical journals and was a leading expert in the field of acoustics. Dr. Neumark conceived the doping process that has been the basis for devices improving the quality of consumer products ranging from flat screen TVs to mobile phone screens. Commercial uses for blue and shorter wavelength lasers range from increasing sharpness of a laser pointer to increasing the information storage capacity of a DVD. In addition to these lasers, her patented processes led to blue and ultraviolet LEDs (light-emitting diodes), which are now used for computers, traffic lights, instrument panels, as the background color for mobile phone screens, in multicolor displays, flat screens, and in numerous other lighting applications.

She is survived by her husband, Henry Rothschild, a former commodities trader at Philip Wheeler Corporation, now retired.
Edward G. Fischer died at the age of 94 on January 28, 2011, in Penn Hills, Pa. He worked for almost 50 years at Westinghouse as a mechanical engineer solving shock and vibration problems found in manufactured equipment from home appliances to steam turbine engines. During this time, he engaged Franklin Delano Roosevelt at the historic Casablanca Conference, and after graduation, soon became the recording engineer at NBC studios during which time he engineered the NBC symphony Orchestra. Mr. Fischer’s original studio recordings made during these years now reside in the archives of Congress in Washington, D.C. During the 1950s, he was program manager at General Electric in Missoula and Space Division. Some of his engineering contributions there included the Atlas missile flights and the first unmanned space flights, most notably the Mercury (first monkey in space), Gemini, Nimbus, and Apollo space flights at Cape Canaveral in Florida. He also worked at the Pentagon directing the missile control system technology. While working at Time Warner, Mr. Fischer began developing the technology for intranet. The one and only would become what we now know as Home Shopping. During his life, he held six patents, including Citrinita (the forerunner of what we now refer to as “surround sound” and “home theaters”), the nickel cadmium battery, and one of the first walking books. Mr. Fischer’s biggest contribution to society was the development, naming, and launching of the technology for telemedicine. The brain-child of Dr. Kenneth Bird of Mass General Hospital, telemedicine was an application through which expert medical advice and information could be transmitted via interactive technology to isolated and remote areas of the world, benefiting those who could not afford health care coverage, those in need of medical referral, and patients who enjoyed the convenience of medical care right in their home.

Mr. Fischer is survived by his wife, Joan, four children, and four grandchildren.
The Annual Donor-Scholar Dinner held at Faculty House on February 10 provided the perfect setting for informal conversations between donors of endowed scholarships and fellowships and the students who are the recipients of their generosity. Dean Feniosky Peña-Mora welcomed the gathering that included more than 50 donors and students.

“This evening has given me the opportunity to meet again with you, our School’s very committed donors, and to thank you for giving the gift of a Columbia education to exceptional students,” said the dean. “You are leaving a legacy that will have an impact on future generations. It is your gift of an endowed scholarship that allows us to continue to admit the very best and brightest students in the world, those students who are sitting right at your table this evening.”

Shown in the photos above, from left to right, are: Judy and Robert Pearlman ’55, ’56 with Robert I. Pearlman Scholar Taylor Breen ’13; Stanley Dicker ’61, Jack Dicker Scholar Bijan Salari ’11; Freda Imber Dicker Scholar Courtney Guenin ’12, and Eileen Shapiro Dicker; Henry Michel Scholar Andrew Knowlton ’11 and Nikolaos and Liliana Thomeli Fellow Yani Dong.

Photos to the left: (top) Deborah Haight ’00, Haight Family Scholar Stacy Ramcharan ’12, and Dean Feniosky Peña-Mora; (bottom) Chris Elizondo ’11, president of the Engineering Student Council and the evening’s guest speaker, with Ann Mladinov, daughter of Barbara Mladinov, who endowed the John K. Mladinov Scholarship in honor of her late husband, a member of the Class of 1943.

Giving Back:
Vikram S. Pandit
’76EE, MS’77EE,
MPhil’80BUS, PhD’86BUS

Columbia Engineering Dean Feniosky Peña-Mora has announced that Vikram S. Pandit, CEO of Citigroup, Columbia Engineering alumni, and University Trustee, has created the Vikram S. Pandit Professorship. Michael J. Collins, one of the world’s leading researchers in statistical natural language processing (NLP), and formerly on the faculty at Massachusetts Institute of Technology, has been named the inaugural Vikram S. Pandit Professor in Computer Science. Collins is the first of 20 new appointments to endowed chairs that will be made in the coming months. This faculty expansion is part of a major initiative announced by Dean Peña-Mora in the fall (see story on page 31).

“I’m thrilled to be joining Columbia Engineering at such an exciting time,” said Collins. “There is tremendous strength in computer science and related areas at Columbia, including a huge amount of talent in natural language processing, machine learning, and other areas of artificial intelligence. I see Columbia as the ideal place to carry out my research and advance knowledge in this evolving and critical field.”

Collins’s work, which involves both machine learning and computational linguistics, has been extraordinarily influential. The overarching thrust of his research has been the use of machine learning along with linguistic methods to handle difficult problems in language processing. He has developed parsers that have obtained unprecedented accuracy levels and that have revolutionized the field of NLP. His development of new learning algorithms has enabled significant advances in a broad class of language-processing applications, including speech recognition, information extraction, and machine translation. A graduate of Cambridge University, he earned his PhD at the University of Pennsylvania.

To read more about Dr. Pandit and his work that is making a global impact, please go to page 20.