Nayar, the T. C. Chang Professor of Computer Science, came up with a prototype as sleek as an iPod and as tactile as a Lego set: the Bigshot digital camera. It comes as a kit, allowing children as young as eight to assemble a device as sophisticated as the kind grown-ups use—with a flash and standard, 3-D and panoramic lenses—only cooler. Its color palette is inspired by M&Ms, a hand crank provides power even when there are no batteries and a transparent back panel shows the camera’s inner workings.

Nayar also worked with a group of engineering students, led by Guru Krishnan, An Tran and Brian Smith, to create a website, bigshotcamera.org, that walks children, teachers and parents through the assembly process. Eventually, it will serve as a kind of Flickr for kids, with young photographers from around the world sharing their pictures. “The idea here was not to create a device that was an inexpensive toy,” says Nayar. “The idea was to create something that could be used as a platform for education across many societies.”

Nayar, chair of the Columbia University Computer Science Department, worked on Bigshot for two years. The project is an extension of his work as director of the Computer Science Department’s Computer Vision Lab, where he has expertise in highly sensitive cameras. Among his inventions is the Omnicam, a video camera that shoots seamless 360-degree images, and a technology—recently
In the meantime, Nayar, Krishnan, Tran and Smith have been field-testing the camera with children around the world. Over the summer, Krishnan and Tran took several Bigshot prototypes to their hometowns: Bangalore, India, and Yung Tau, Vietnam, respectively. Nayar also brought the camera to two New York City Schools, the private School at Columbia and Mott Hall in Harlem.

Each spent a morning teaching several small groups of children how to assemble the cameras; after lunch, their charges went out to take pictures. The response from the kids was one of overwhelming enthusiasm. “They were ready to buy the camera then and there,” says Krishnan. “One offered me 10,000 ruppes ($200).” More importantly, tests that Nayar and his team gave out two days later showed that the students had retained the science concepts that Bigshot was expected to teach.

For Nayar, the best part of this experience has been looking at the pictures. “I am addicted to the pictures; I can’t get enough of them,” he says. “The fact that some of the kids were using a camera for the first time, and they were able to frame what they thought was important and capture that moment beautifully, was really remarkable.” It’s an experience he hopes to bring to many more children, locally and globally.

Their administrative interfaces are viewable from anywhere on the internet and their owners have failed to change the man-fufacturer’s default password. Linksys routers had the highest percent of vulnerable devices found in the United States—45 percent of 2,729 routers that were publicly accessible still had a default password in place. Polycom VoIP units came in second, with default passwords lingering on about 29 percent of 585 devices accessible over the internet.

“People tend to buy stuff and bring them to work and just plug them in,” Stolfo said. “So we think we’ll be able to find vulnerable devices in highly sensitive places.”

The researchers didn’t attempt to explore the administrative interfaces or tamper with the devices they found, so they believe their work isn’t illegal. But Stolfo says product makers should also be more clear in their instructions for users who want to alter that configuration.

Vendors should also be more forceful in communicating to users that default passwords need to be changed to robust alphanumeric passwords that include special characters to thwart brute force attacks. “This is not a password you’re going to need every day, so setting a very hard password and recording it at home on a piece of paper is probably a safe thing to do,” Stolfo says.

The government agency has so far asked to be exempt from the scan. The researchers have provided ISPs with their findings in the hope that they will do something to protect vulnerable customers. “It’s not clear how an ISP is going to do a general announcement, but we hope there will be some way to communicate to the home user in particular about what they have to do to reconfigure their device,” Stolfo said.

But Stolfo says product makers are the real culprits and need to hide their administrative interfaces by default and provide clear instructions for users who want to alter that configuration.

According to Wired’s recent Threat Level story about vulnerable routers used by Time Warner customers, someone with remote access to the administrative interface of a VoIP system would also be able to install firmware to record conversations.

ISPs can easily detect the embedded vulnerable devices found nearly 21,000, routers, webcams and VoIP products open to remote attack. Researchers scanning the internet for vulnerable embedded devices have found nearly 21,000 routers, webcams and VoIP

ISPs with their findings in the hope that they will do something to protect vulnerable customers.

“If we told them about the vulnerabilities, they’re going to do a general scanning of their network, proba-ble, and then come back to us and say, ‘We don’t want to show you an attack or to launch attacks on other systems. (See Wired’s recent Threat Level story about vulnerable routers used by Time Warner customers.) Someone with remote access to the administrative interface of a VoIP system would also be able to install firmware to record conversations. The research project, devised by Columbia graduate student Ang Cui at the univer-sity’s Intrusion Detection Systems Laboratory, involves scanning networks belonging to the largest internet service providers in North America, Europe and Asia. The lab is sponsored by the Defense Advance Research Projects Agency (Darpa), the Department of Homeland Security and other federal agencies.

“Vulnerable devices can be found in significant numbers in all parts of the world covered by our scan,” the researchers wrote in a summary of their initial findings presented at a symposium in June. “The double digit vulnerability rates suggest that a large botnet can be created by constituting only embedded network devices.” Since initiating the project last December, the Intrusion Detection researchers have scanned 130 million IP addresses and found nearly 300,000 devices whose administrative interfaces were remotely accessible from anywhere on the internet. The 21,000 devices with default passwords are the most vulnerable, but the rest are theoretically vulnerable to brute-force password-cracking attacks, Stolfo said. Extrapolating from the numbers they’ve gathered, the researchers estimate that 6 million vulnerable devices are likely connected to the internet.

The group has so far focused on residential routers and devices but is now looking at scanning more sensitive networks to search for vulnerable devices inside large corporations and government networks.

“People tend to buy stuff and bring them to work and just plug them in,” Stolfo said. “So we think we’ll be able to find vulnerable devices in highly sensitive places.”

The researchers didn’t attempt to explore the administrative interfaces or tamper with the devices they found, so they believe their work isn’t illegal. The film reaffirmed something I’ve believed for a long time, which is that the camera, as a piece of technology, has a very special place in society, ” says Nayar, who grew up in New Delhi. “It allows us to express ourselves and to communicate with each other in a very powerful way.”

With the Bigshot, Nayar wants to not only empower children and encourage their creative vision, but also get them excited about science. Each building block of the camera is designed to teach a basic concept of physics: why light bends when it passes through a transparent object, how mechanical energy is converted to electrical energy, how a gear train works. Nayar would like to roll out the camera, now in prototype form, along the lines of the One Lap-Top Per Child campaign: for each one sold at the full price of around $100, several would be donated to underprivileged schools in the United States and abroad. He will soon begin looking for a partner—a company or nonprofit—to help put Bigshot into production.

Cover Story (continued)

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As users, managers, researchers, or administrators, we often worry about outsiders attacking our systems and networks, breaking through the perimeter defenses we have established to keep out bad actors. But we must also worry about the insider threat—people with legitimate access who behave in ways that put our data, our systems, our organizations, and even our businesses’ viability at risk. Such behavior may not be malicious; it might be unintended but still have unwelcome consequences.

Considerable research has been done to examine the nature of inappropriate insider activity, with the goal that eventually organizations can reduce the threat. Beginning in 1999, RAND conducted a series of workshops to generate a research agenda for addressing this problem. In parallel, the US Department of Defense (DoD) outlined a set of policy changes and research directions for reducing the insider threat. And the Software Engineering Institute’s Computer Emergency Response Team (CERT) has funded a series of workshops to generate a research agenda for addressing this problem. Because not all insiders are alike, we must distinguish among the different types of insider threat, differentiate problems we can address from those we can’t, and systems that support role-based access control, analysts, consultants, or other people and systems that receive short- or long-term access to an organization’s systems. Without such a framework, we have difficulty recognizing emerging insider problems, comparing incidents, or determining the best course of action in each case. As researchers, we often hope to use our skills to monitor behavior and predict the new threats that our systems will face. But the dynamic threat environment, coupled with continuing technological advancement, makes it impossible to predict with certainty what our systems will look like and what features and functions they will provide. That same research makes it difficult to predict what insiders will do and how and they will do it. Furthermore, the potential for making a workplace “de jure” tells us with certainty that insiders will continue to behave badly, using our computer systems as a means or as a target. Thus, insider threat detection and mitigation will continue to be a vexing and persistent security— and very human—problem.

Acknowledgments
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References
This year four lecturers visited and discussed a broad and exciting range of topics. These speakers helped make this year an exciting and inspirational one for computer science at Columbia. Stay tuned next year when more of the world’s greatest researchers will visit our department and tell us about their work.

**Professors**

**Andrew Odlyzko** of the University of Minnesota visited on October 5 and spoke about Network Evolution, Network Economics, and Network Innovation.

**Yoky Matsuoka** of the University of Washington visited on October 26 and spoke about Understanding Humans with Neurobotics.

**Barbara Liskov** of the Massachusetts Institute of Technology visited on December 7 and spoke about The Power of Abstraction.

**John Lafferty** of Carnegie Mellon University visited on March 1 and spoke about Three Rivers in Machine Learning: Data, Computation and Risk.

**Odlyzko** has written over 150 technical papers in computational complexity, cryptography, number theory, combinatorics, coding theory, analysis, probability theory, and related fields. In recent years he has also been working in electronic commerce, economics of data networks, and economic history, especially on diffusion of technological innovation. Professor Odlyzko had a long career in research and research management at Bell Labs and AT&T Labs, and then built an interdisciplinary research center in Minnesota. Technology is opening up exciting new opportunities in networking, especially through the convergence of wireless and wireless communications. But technology is just one element, and, as in the past, and perhaps more than in the past, economics and regulation will have major influences on what is deployed, and how it is used. In his talk Professor Odlyzko surveyed the past and present, and offered some speculations about the future. He presented some of the key constraints on technological dreams, including the many false dogmas that are hobbling progress.

**Matsuoka** is the Torode Family Endowed Career Development Professor in Computer Science and Engineering at the University of Washington. She received her Ph.D. at MIT in Electrical Engineering and Computer Science in the fields of Artificial Intelligence and Computational Neuroscience. Her work has been recognized with a MacArthur Fellowship, and she has been acclaimed as one of “The Brilliant Ten” in Popular Science Magazine and one of the “Power 25” in Seattle Magazine. She has received a Presidential Early Career Award for Scientists and Engineers (PECASE), an Anna Loomis McCandless Chair from Carnegie Mellon University, and the IEEE Robotics and Automation Society Early Academic Career Award.

**Liskov** is a member of the National Academy of Engineering, a fellow of the American Academy of Arts and Sciences, and a fellow of the ACM. She received the ACM Turing Award in 2009, the ACM SIGPLAN Programming Language Achievement Award in 2008, the IEEE Von Neumann medal in 2004, a lifetime achievement award from the Society of Women Engineers in 1996, and in 2003 was named one of the 50 most important women in science by Discover Magazine. Her research interests include distributed systems, replication algorithms to provide fault-tolerance, programming methodology, and programming languages. Her current research projects include Byzantine-fault-tolerant storage systems, peer-to-peer computing, and support for automatic deployment of software upgrades in large-scale distributed systems. Abstraction is at the center of much work in Computer Science. It encompasses finding the right interface for a system as well as finding an effective design for a system implementation. Furthermore, abstraction is the basis for program construction, allowing programs to be built in a modular fashion. In her talk, Professor Liskov discussed how the abstraction mechanisms we use today came to be, how they are supported in programming languages, and some possible areas for future research.

**Lafferty** is a professor in the Computer Science Department at Carnegie Mellon University, with joint appointments in the Machine Learning Department and the Department of Statistics. His research interests include machine learning, statistical learning theory, natural language processing, information theory, and information retrieval. Prof. Lafferty received the Ph.D. in Mathematics from Princeton University, where he was also a member of the Program in Applied and Computational Mathematics. He is an IEEE Fellow, has served as co-director of CMU’s new Machine Learning Ph.D. Program, and currently serves as associate editor of the Journal of Machine Learning Research and the Electronic Journal of Statistics.

Machine learning is a confluence of computer science and statistics that is empowering technologies such as search engines, robotics, and personalized medicine. Fundamentally, the goal of machine learning is to develop computer programs that predict well, according to some measure of risk or accuracy. The predictions should get better as more historical data become available. The field is developing interesting and useful frameworks for building such programs, which often demand large computational resources. Theoretical analyses are also being advanced to help understand the tradeoffs between computation, data, and risk that are inherent in statistical learning. Two types of results have been studied: the consistency and scaling behavior of specific convex optimization procedures, which have polynomial computational efficiency, and lower bounds on any statistically efficient procedure, without regard to computational cost. Professor Lafferty’s talk gave a survey of some of these developments, with a focus on structured learning problems for graphs and shared learning tasks in high dimensions.

Further details of the lecture series are available online at: http://www.cs.columbia.edu/lectures
Professor Steven Bellovin taught a new course, COMS 4995, *Computers and Society*, in the Spring 2010 semester. Computers are heavily entwined in almost everything we do. Their use is not an unmixed blessing. For example, we can get our news from many free, online sources—but their existence is threatening the existence of the newspapers that employ the reporters who gather the news. Social media are a great way to interact—but they can threaten personal privacy. This course explores such issues and more. Specific topics covered include privacy, risks of computer systems, ethical issues for practitioners, employment, freedom of speech, social networks, and intellectual property. The course is structured as a combination of lecture and seminar; discussion and opinions are strongly encouraged.

Adjunct Professor Sameer Maskey taught a new course, COMS 6998-007, *Statistical Methods for Natural Language Processing*, in the Spring 2010 semester. Prof. Maskey is a Research Staff Member at the IBM T.J. Watson Research Center. The course explores topics in Statistical Methods/Machine Learning for real-world Natural Language Processing (NLP) problems. Students study ML topics that are commonly used in NLP such as Maximum Entropy Models, Hidden Markov Models, Clustering techniques, Conditional Random Fields, Expectation-Maximization algorithm, Active Learning and Support Vector Machines. The course explains how these methods are applied to real world NLP problems such as information extraction, stochastic parsing, text segmentation and classification, topic/document clustering and word sense disambiguation. Students also study the details of inference algorithms such as Viterbi, Synchronous Chart Parsing and Beam Search. Students get hands-on experience by implementing some of these ML techniques for classification, clustering and a complex NLP task of machine translation.

Professor Vishal Misra taught a new course, COMS 6998-002, *Internet Economics*, in the Spring 2010 semester. This course introduces modern topics in Internet Economics. The course first addresses the theoretical foundations from a game theoretic perspective, covering topics from cooperative and non-cooperative game theory. Topics include Information, Auctions, Bargaining and Coalitions and Mechanism Design. The course then moves on to application areas such as ISP settlements, Computational Advertising, P2P incentive mechanisms and Spectrum Auctions. Both real life case studies as well as research papers are covered in class.

Adjunct Professor Erieh Nahum taught a new course, COMS 6998-006, *Network Systems Design and Implementation*, in the Spring 2010 semester. Prof. Nahum is a Research Staff Member at the IBM T.J. Watson Research Center. This class takes a deep look at how network protocols are designed and implemented using the Linux kernel as a case study. The goal is to understand how this important subsystem works in detail in order to conduct experimental research using the Linux kernel. The class includes detailed code walkthroughs of a recent Linux kernel (most likely 2.6.31), a class project, and relevant research paper readings and presentations. Topics include:

- Specific network protocol implementations such as sockets, TCP, IP, Ethernet, ARP, network device drivers, routing and bridging;
- Support mechanisms such as buffer management, packet queuing, timers, hash tables, interrupts, and synchronization;
- Network-related security mechanisms such as packet capture, filtering, firewalling, iptables, and netfilter;
- Other kernel support facilities such as profiling, tracing, and debugging.

Grading is based on class participation, an in-class presentation and a project involving modifying the Linux kernel.

Adjunct Professor Pablo Rodriguez taught a new course, COMS 6998-003, *Next Generation Network Architectures*, in the Spring 2010 semester. Prof. Rodriguez is the Internet Scientific Director at Telefonica Barcelona, where he leads the systems and networking research team. Students in this course learn the network architectures behind some of the most successful Internet services (e.g. Facebook, Twitter, Spotify); learn about the latest modern Internet architectures (greener networks, networking technologies for emerging regions, Data Center networking, clean slate designs); become equipped for researching modern networks and distributed systems; and gain exposure to practical, real world network architectures.

Professor Vishal Misra taught a new course, COMS 4995-001, *Principles of Innovation and Entrepreneurship*, in the Spring 2010 semester. Dell, Yahoo, Google and Facebook were founded by college students. Could you be building the next star technology startup? While the future will tell, this course provides the basic knowledge and skills to help you answer this question. Among other topics, the course studies how changes in technology paradigms give rise to novel opportunities; how to identify, analyze and exploit these opportunities; how to design innovative products and business models to create sustainable competitive edge; how to transform loose hypotheses—on technologies, opportunities, customers, markets, etc—to effective strategic business plans; and how to translate these plans into focused execution while avoiding common 'bugs'. Classes include discussions of the basic principles of innovation; brief workshops in applying them; presentations by founders/CEOs of high-tech startups; and assignments and team projects to create early stage startups. Teams of 3-4 students will pursue an incremental sequence of assignments, emulating early development of a startup. These assignments will culminate in a business plan and proof-of-concept prototypes. The course is intended for graduate and advanced undergraduate CS students, but is suitable for other engineering, science and business school students.
Professor Luis Gravano won a Google Research Award for his project titled “Finding and Characterizing the World’s Event Media.” Social media sites make it easy for users to publish content that is captured or produced in association with real-world events. These events range from widely known ones, such as a presidential inauguration, to smaller, community-specific events, such as an annual convention or a local gathering. Unfortunately, the existing tools to find, organize, and search the social media content associated with events are extremely limited. This project aims to transform the way in which people search and consume social media content from real-world events, a key information-seeking task, by addressing two important problems: identification of events and their associated social media content, and event search.

Professor Tony Jebara won a Google Research Award for his project titled “NetTrailMix.” The goal of this project is to set up a collaborative filtering problem much like the Netflix challenge where recommendations are provided to users based on large amounts of unsupervised human social activity (as opposed to more standard rating data).

Professor Tal Malkin won a Google Research Award for her project titled “Efficient Routing by Oblivious Nodes.” The research will enhance routing protocols such that they can compute high-performance routes in a computationally efficient manner without revealing information that might reveal the location of participating nodes. This allows users to send and receive high-bandwidth, low-latency transmissions such as video and audio feeds without revealing their location. Potential applications include celebrity multimedia twitvienlike feeds, and network-supported action gaming.

Professor Vishal Misra won a Google Research Award for his project titled “Incentivizing Managed Peer to Peer Systems: A Fluid Shapley Value Approach.” With the spread of technology today, users everywhere have some resources that can aid providers in increasing revenue or reducing costs. Examples range from users contributing popular viral videos on YouTube to cellphone customers collaborating femtocells at their residences to reduce network load. This project aims to study the right incentive mechanisms for both providers as well as customers to participate in the system based on some recent analytical techniques developed by Prof. Misra and his collaborators.

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We started with time-varying appearance for opaque surfaces. Using a computer-controlled dome equipped with 16 cameras and 160 light sources, we acquired the first database (with 28 samples) of time- and space-varying reflectance, including a variety of natural processes—burning, drying, decay and corrosion. We also proposed a space-time reflectance model which disassembles the high-dimensional appearance phenomena into components that can be independently modified and controlled for rendering.

We then focused on time-varying appearance of transparent objects. Real-world transparent objects are often time-varying over their entire surface, as they are covered by a variety of contaminants, which produce the weathered appearance that is essential for photorealism. We derived a physically-based time-varying reflectance model for recreating the weathered appearance in real-time and developed a single-image based method to measure contaminant patterns on real surfaces.

The understanding of the weathered appearance of transparent surfaces is complicated by the fact that removing artificial artifacts caused by dirty camera lenses. In a computer graphics, we developed two fully-automatic methods to remove the artifacts caused by dirty camera lenses as well as automatic identification techniques for removing image artifacts caused by dirty camera lenses. These image enhancement methods can be used for post-processing existing photographs to improve their quality and can also be used for recovering clean images for automatic imaging systems such as security cameras.

Finally, we studied time-varying appearance of volumetric phenomena, such as fog, smoke and smoke. For generating realistic animations of such phenomena, it is critical to develop a physically-based volumetric model and database generator for fog, smoke and smoke. We developed a physically-based volumetric model and database generator for fog, smoke and smoke. We used a physically-based model and database generator for fog, smoke and smoke. We used a physically-based model and database generator for fog, smoke and smoke.
The user is readily available, or can be derived, and can be used to improve the user’s online experience, in a more productive, more creative, and better entertained online. Thus it is a need for contextual awareness and data management mechanisms to support a user-centric data exploration and do so efficiently on the large scale. In a complementary trend, scientific domains, most notably the domain of life sciences, are experiencing unprecedented growth. The ever-increasing amount of data and knowledge requires the development of new semantically rich data management techniques that facilitate system-wide analysis and scientific collaboration. Literature search is a central task in scientific research. Controlled vocabularies and ontologies that exist in this domain present an opportunity for improving the quality of ranking.

The Web is a multifaceted medium that gives users access to a wide variety of databases, and varies diverse information needs. Some Web users look for answers to specific questions, while others browse content and explore the richness of possibilities. The notion of relevance is intrinsically linked with preference and choice. Individual items and item collections are characterized in part by the semantic relationships that hold among values of their attributes. Exposing these semantic relationships helps the user gain a better understanding of the dataset, allowing them to make informed choices and anticipate the performance of the stock market, to identifying genetic disease susceptibility, or looking for a date. In this thesis we propose novel search and ranking techniques that improve the user experience and facilitate information discovery in several semantically rich application domains. This process is commonly known as data exploration, and has applications that range from research and the performance of the stock market, to identifying genetic disease susceptibility, or looking for a date.

Two teams sent by Columbia University’s Department of Computer Science have ranked among the top of competitors in the Greater New York Region of the 2009-2010 ACM International Collegiate Programming Contest. The teams ranked 2nd and 6th out of 51 teams.

Team Columbia 1 (ranked 2nd):
Jingyue Wu (PhD, Computer Science)
Vanun Jalan (MS, Computer Science)
Zifeng Yuan (PhD, Civil Engineering)

Team Columbia 2 (ranked 6th):
Chen Chen (PhD, EIEO)
Husnula Haileyawa (MS, Computer Science)
Jiayang Jiang (Junior, Mathematics)

Due to their performance, team Columbia 1 was also selected to be one of 100 teams chosen from over 7000 around the world to advance to the world finals competition, held in Harbin, China from February 1-6. The teams were led by both John Zhang (PhD student, Computer Science) and Professor Steven Bellovin.

PhD student Ilias Diakonikolas was also named to the IEEE Computer Society’s Technical Committee on Security and Privacy (IEEE CSTB) as one of the top 100 scientists worldwide— for his “great accomplishments and (McGill’s) confidence in [Chen] as a future leader.”

PhD student Dennis Hefferek received the Best Paper Award at the IEEE ISM 2009, held in Orlando, FL. IEEE ISM 2009 was the International Symposium on Mixed and Augmented Reality is the premier conference in its field. The paper, “Evaluating the...”
Benefits of Augmented Reality for Task Localization in Maintenance of an Armored Personal Carrier: Tuning,” was coauthored by Steve Henderson and Professor Steve Feiner.

Professor Tony Jebara delivered a keynote speech at the 21st International Conference on Tools with Artificial Intelligence (ICTAI) which was held in Newark, NJ.

Professor John Kender delivered the keynote address to this year’s Family Weekend, on October 16, 2009, to the assembled first year CC and SEAS students and their visiting parents. He was the first SEAS professor to be invited to do so. The address is available online at: http://www.studentaffairs.columbia.edu/parents/communications.php

Professor Aaron Johnson of the Department of Computer Science was selected as one of three recipients of a “Women of Vision Award” by the Anita Borg Institute of Women and Technology (ABIT). The recipients will receive for their accomplishments and contributions as women in technology at ABIT’s annual Women of Vision Awards Banquet at the Mission City Ballroom, Santa Clara, CA on May 12, 2010.

Professor McKeown also hosted a NACLO (North American Computational Linguistics Olympiad) site at Columbia in February. The NACLO is an Olympiad for high school students to expose them to computational linguistics and artificial intelligence. More than 1100 students participated in the Olympiad across the country including 58 students participating at Columbia.

T.C. Chang Professor of Computer Science and Computer Science Department Chair Shree Nayar has been awarded Carnegie Mellon University’s 2009 Alumni Achievement Award, which recognizes an individual for exceptional accomplishments that have brought honor to the recipient and to Carnegie Mellon. He is being recognized for his “pioneering research contributions and teaching in the field of computer vision.”

Also, after 10 years of service Professor Traub has stepped down as Chair of the Computer Science and Telecommunications Board (CSTB). He served as founding chair from 1986 to 1992 and served again from 2005 to 2009.

Professor Scoot Servedio was promoted to the rank of Associate Professor with tenure.

Postdoc Sean White was named one of this year’s 2009 Tech Award Laureates for his work addressing environmental issues. The Tech Awards 2009, a humanitarian program recognizing technological solutions aimed at world-wide challenges, selected 15 Laureates from a pool of 650 nominations representing 66 countries. Dr. White won for his work on the mobile, handheld, and augmented reality versions of the Electronic Field Guide. The 2009 Tech Awards Laureates represent regions as diverse as Nigeria, Brazil, Great Britain, the United States and Bangladesh. The Laureates and former Vice President Al Gore, this year’s James C. Morgan Global Humanitarian Award recipient, were recognized at The Tech Awards Gala on November 11th at the San Jose McEnery Convention Center.

Knaurig Arashbahan (PhD ’09) is a Member of Technical Staff at Alcatel-Lucent Bell Labs. Initially, she joined the team in Antwerp, Belgium. After working there for almost a year, she recently transferred to Murray Hill, NJ and resides once again in the Columbia University neighborhood. Her current research is focused on building a system that uses ontologies for context aware tagging of resources on the Internet. She is also working on describing and composing services using ontologies in order to create personalized mashup applications.

German Creamer (PhD’06) writes: “After I left school in 2006, I joined the Risk, Information and Banking division of American Express as a manager, and then I was promoted to senior manager. I worked in projects related to data mining and direct marketing and enterprise-wide risk management. I recently co-authored with my former advisor Sal Stolfo the paper ‘A Link Mining Algorithm for Earnings Forecast and Trading’ at Data Mining and Knowledge Discovery, and also co-authored with my former advisor Yoav Freund the paper “Automated Trading with Boosting and Expert Weighting” which is accepted for publication at the Quantitative Finance journal. I recently joined the Stevens Institute of Technology as an associate professor in quantitative finance and financial engineering.

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Computer Science Department Faculty Participate in Elementary School Science Expo

On Saturday February 6, more than 30 scientists from Columbia University and elsewhere led a Science Expo at The School at Columbia, a University-affiliated elementary school in Morningside Heights.

Each scientist manned an interactive museum-style exhibit and explained the great questions that motivate and inspire their work to hundreds of elementary school attendees and their families.

The Computer Science Department was well-represented at the Science Expo. Professor Dana Pe’er co-organized the event, and Professors Steven Feiner, Dana and Itsik Pe’er, and Rocco Servedio all led exhibits.