

Freshman orientation

Incoming frosh numero 'uno' on invention list

David Chandler
News Office

Canadian teenager Ben Gulak got a bit of a head start on his training in mechanical engineering. As an incoming freshman in the MIT Class of 2012, he's already been featured on the cover of Popular Science magazine for having come up with one of the year's top 10 inventions.



IMAGE COURTESY OF POPULAR SCIENCE

In fact, his was number one.

Gulak, who is just 18, will also be a guest on the Tonight Show with Jay Leno later this month, demonstrating his unique electric unicycle-like vehicle. He has been working on the project for two years, initially as a science fair project that made it all the way to second place in the Intel International Science and Engineering Fair (where he also won a special award for the project with the most marketability).

Gulak first applied to MIT last year, but was wait-listed and decided to take a year off rather than settle for another school. So he spent the intervening year working on his invention—designed to be a practical commuting vehicle for dense urban areas—before applying again to MIT.

"The perspective that MIT brings to engineering is really unique," he says. "I really like the experience that

MIT brings to engineering, especially the hands-on approach." The inspiration for the cycle came when Gulak visited China in 2006 and was amazed at the overwhelming pollution that completely blocked the view of the surrounding country as his airplane came in for landing. He realized that much of that smog was coming from the thousands of motor scooters whizzing through the streets and figured that there had to be a better way.

The design he came up with has two wheels mounted side by side, very close

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Dean of Admissions
Stuart Schmill answers
questions about the
other members of the
Class of 2012.
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How do we know what other people are thinking? How do we judge them, and what happens in our brains when we do?

MIT neuroscientist Rebecca Saxe is tackling those tough questions and many others. Her goal is no less than understanding how the brain gives rise to the abilities that make us uniquely human—making moral judgments, developing belief systems and understanding language.

It's a huge task, but "different chunks of it can be bitten off in different ways," she says.

Saxe, who joined MIT's faculty in 2006 as an assistant professor of brain and cognitive sciences, specializes in social cognition—how people interpret



PHOTO COURTESY OF
GLENN ROBERTS,
MOTORCYCLE
MOJO MAGAZINE

Ben Gulak, an incoming member of the Class of 2012, rides the 'Uno'—a scooter-like vehicle he invented that was named the top invention of the year by Popular Science.

Thought provoker: MIT's Rebecca Saxe probes mechanics of judgment, beliefs

Anne Trafton
News Office

I'm doing this because I want to pursue these more abstract questions, maybe at the cost of never finding out the answers.

MIT neuroscientist Rebecca Saxe

measure which brain regions are active while people are thinking about certain things. Saxe probes the brain circuits underlying human thought with a technique called functional magnetic resonance imaging (fMRI), a type of brain scan that measures blood flow.

Using fMRI, she has identified an area of the brain (the temporoparietal junction) that lights up when people think about other people's thoughts, something we do often as we try to figure out why others behave as they do.

That finding is "one of the most astonishing discoveries in the field of human cognitive neuroscience," says Nancy Kanwisher, the Ellen Swallow Richards Professor of Brain and Cognitive Sciences at MIT and Saxe's PhD thesis adviser.

"We already knew that some parts of the brain are involved in specific aspects

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other people's thoughts. It's a difficult subject to get at, since people's thoughts and beliefs can't be observed directly.

"These are extremely abstract kinds of concepts, although we use them fluently and constantly to get around in the world," says Saxe.

While it's impossible to observe thoughts directly, it is possible to



Assistant Professor of Cognitive Neuroscience
Rebecca Saxe

PEOPLE

Ghoniem gets KAUST grant

Ahmed F. Ghoniem, the Ronald C. Crane (1972) Professor of Mechanical Engineering, has won a \$10 million grant from the King Abdullah University of Science and Technology.

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2.007

Annual competition puts student-made robots to the test.

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RESEARCH

X-Prize marks the spot

MIT and the California-based X-Prize Foundation collaborate on a new competition looking to solve health-related problems.

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► OBITUARIES

Robert I. Hulsizer Jr., physics professor emeritus, 88

Professor of Physics Emeritus Robert I. Hulsizer Jr. PhD '48, a former chair of the faculty and expert on elementary particle physics whose zeal for teaching science made him a student favorite at MIT, died on April 30 of complications from Alzheimer's. He was 88.

Born in East Orange, N.J., in November 1919, Hulsizer received his BS in math from Bates College in 1940, an MA in physics from Wesleyan University in 1942 and his PhD in physics from MIT.

During World War II, Hulsizer helped develop radar at the Radiation Lab at MIT. Among the applications he worked on were radar-guided bombsights that allowed bombers to find their targets through cloud cover, which was an important advance for wartime pilots who previously relied on visual sighting.

In 1964, after spending 15 years at the University of Illinois, he returned to take a professorship at MIT and to direct what became the Education Research Center, which was focused on new ways of teaching science and integrating the humanities and social sciences.

A tremendously popular and inspiring professor, Hulsizer saw teaching as an essential part of being a scientist. For many years, he taught the 8.01 and 8.02 elementary physics courses required of all MIT students, where he created many lively, vivid lectures and demonstrations that brought the subject to life.

Ray Magliozzi '72, better known as half of Click and Clack from the National Public Radio series Car Talk, said Hulsizer was one of his favorite professors at MIT.

"I only took one course with him but he made a tremendous impression on me—he had a very gentle, nonimposing way of conveying complex concepts," Magliozzi told the MIT News Office. "I would say he gave me the confidence to tackle a few courses that I probably should have flunked."

Hulsizer's talent as a teacher sprung from his insights, deep empathy and his conviction that complex ideas can be made understandable to anyone. One student evaluation from his class read, "We ... wanted to learn because of his zeal and absolute enthusiasm for the subject. To learn from a man like him makes me feel really special. He is considerate, kind, highly intelligent and can relate to students even though he is decades older."

Hulsizer and his wife were housemasters of Ashdown House, a graduate dormitory, from 1974-85. The pair hosted a popular weekly evening of ice cream and socializing. When they stepped down as housemasters, the space where it was held was renamed the Hulsizer room.

Hulsizer retired in 1986 after 22 years as a professor at MIT, and continued teaching at the Institute for many years after. In Chilmark, Mass., where he had a second home, he served as chair of the Zoning Board of Appeals and of the Town Affairs Committee.

He was a fellow of the American Physics Society and a member of Sigma Xi, Phi Beta Kappa, the American Association of University Professors and the American Association of Physics Teachers. Hulsizer also served as the chair of the MIT faculty from 1977-79.

Hulsizer's memory began to fail him several years ago. He gave up teaching when he could no longer recall scientific formulae fast enough to stay ahead of his students. He was diagnosed with Lewy Body dementia, an Alzheimer's-like disease.

He is survived by his wife of 41 years, Carol Kasen Hulsizer. His marriage to Bernice L. Hulsizer ended in divorce in 1965. He is survived by his children from his first marriage: Stephen Hulsizer and wife, Elsie, of Seattle; Ann Wymore of Jemez Springs, N.M.; Morgan Jenkins and husband, Bill Jenkins, of Fredericksburg, Va.; and Cynthia Hulsizer and husband, Bob Bernahl, of Philo, Ill. He is also survived by his stepchildren, Elizabeth Ascher and husband, Michael Yogman, of Cambridge, Mass.; Ellen Ascher of San Diego; and Steven Ascher and wife, Jeanne Jordan, of Newton, Mass.; and grandchildren Adam Wymore, Sara and Robin Jenkins, Madeline and Alexandra Yogman, Jordan Ascher and Ana Maria Ascher.

Memorial services will take place Saturday, July 19, in Chilmark and at MIT on Sunday, Oct. 19. In lieu of flowers, gifts may be made to MIT for the Robert I. Hulsizer Jr. (1948) Memorial Fund. For more information about memorial gifts, please contact Bonny Kellermann at bonnyk@mit.edu or 617-253-9722.

Ghoniem to receive \$10 million, five-year KAUST award

Ahmed F. Ghoniem, the Ronald C. Crane (1972) Professor of Mechanical Engineering, has been selected to receive a \$10 million, five-year award from the King Abdullah University of Science and Technology (KAUST).

Ghoniem is one of 12 researchers from universities around the world—including Stanford, Berkeley, Caltech, Cambridge, Oxford, Tokyo and Rome—to be named as Global Research Partnership Investigators. The award will support a group of faculty working at MIT on advanced energy conversion systems, focusing on clean, high-efficiency, low-carbon emissions technologies with emphasis on integrating process, component and systems-level analyses.

KAUST is being built in Saudi Arabia as an international co-ed research university focusing on energy, bioengineering, material science, mathematics and computational sciences. It is supported by a multibillion-dollar endowment and governed by an international independent self-perpetuating board of trustees.



Ahmed F. Ghoniem

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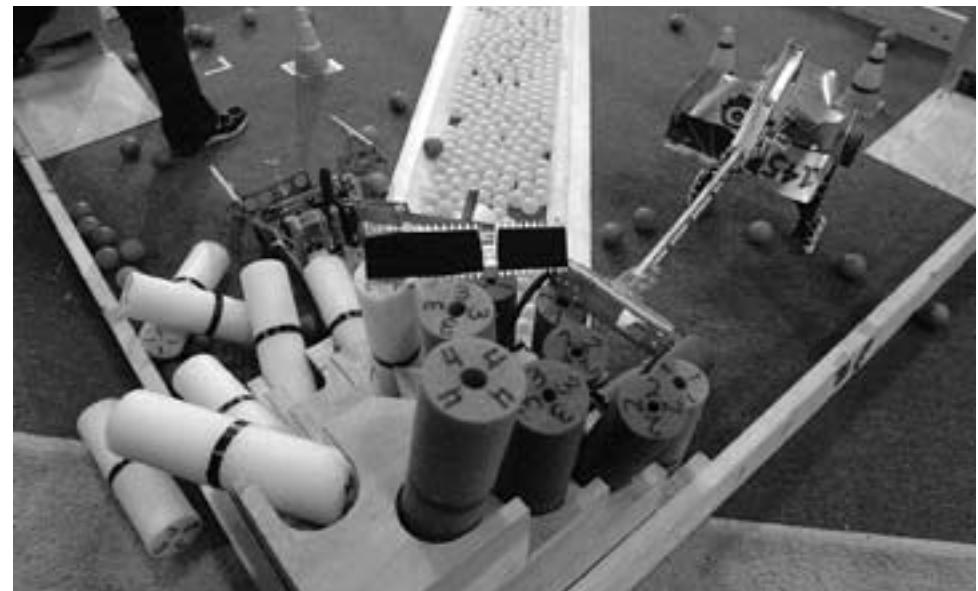
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PHOTOS / DONNA COVENY

ABOVE: Students' robots in this year's 2007 contest competed in performing beaver-like tasks, including knocking down pool-noodle 'trees' and dumping them into a river made of ping-pong balls to score points.

BELOW: Two student robots clash as they try to knock down the 'trees' during the final rounds of the competition.

**Beaver-like robots face off in annual 2.007 contest**

Sarah H. Wright

News Office

All will travel to Brazil this summer to participate in the annual International Design Contest, a global version of MIT's 2.007 in which students from different countries form engineering design teams and build robots.

Alexander Slocum, professor of mechanical engineering, emceed the event, mixing his signature auctioneer's patter with a message about why the contest and MIT students' excitement about hands-on engineering is so important.

"MIT is the world university, and when kids work together this way I know there's hope. This is what the future of the planet is about—experimenting, testing, failing and playing with ideas. That's how learning takes place," he said. "That's how deep geek-dom turns into cool technology."

Slocum, who has run the 2.007 contest and taught the Introduction to Design course for more than a decade, added energy-awareness as an engineering principle this year, he said.

Notably absent were the massive plywood and lumber contest tables of previous years. The robots now run on the floor, saving wood and other materials.

"This is our first attempt to do a green contest. We've saved materials by using the floor, and other MIT programs like MITES and the Edgerton Center will use the scoring furniture. Everything is recycled," Slocum said.

Yet the spirit of invention prevails. As Slocum put it in his wrap-up of 2.007 for 2008, "The machines, the students, it's all geek-alicious. It's geek-aliciously manufacturistic robustification."



MIT In the World

Using art to pay for clean water

David Chandler
News Office

The economic issues are often as important as the technical challenges when you're trying to improve the lives of people in impoverished communities. That's what environmental engineering student Kendra Johnson found when she tried to improve water quality in a rural Ecuadorian village and ended up devising an innovative way of using local arts and crafts to pay for the project.

When Johnson first arrived two years ago in the tiny village of Santa Ana, in the headwaters of the Amazon, she was expecting to help design a water-filtration system for the residents. It turned out that an existing water project already included plans for such a filtration system, so Johnson pitched in and helped the local people get the project completed. It turned out to be harder than she expected. By the end of that summer, the water system was in place and Johnson, along with fellow student Froylan Sifuentes, now a senior in chemical engineering, had written an operating manual for the system and held training sessions in how to keep it running. The filtration system, however, still wasn't working.

It took two years and two return visits, with funding from grants from MIT's Public Service Center, to get



PHOTO / KENDRA JOHNSON

Froylan Sifuentes '09 works with members of the community to construct a 6-meter dam in the river intake.

everything working. Initially, the delivery system was full of leaks, but Johnson and Sifuentes (and eventually another student, Fernando Funakoshi) helped the villagers go through the system, pipe by pipe, and plug all the holes. They also helped to build a section of concrete dam to prevent the river from swamping the water system's inlet pipes, helped to get the system's slow sand filter working properly, and painted the inside of an elevated water tank that was to hold a day's water supply. Now the town has an effective delivery system with filtration and chlorination that provides water for sinks and toilets at most of the

residents' wood-and-thatch homes.

With the leaks all fixed, Johnson says, "finally, a whole tank of water will last a whole day."

But that was not the end of the problems. Maintenance, supplies and operation costs for the system were more than the 250 villagers, who mostly subsist through a traditional form of sustainable-subsistence agriculture, could afford.

On one of Johnson's trips to Ecuador, her mother Tera Johnson came to visit her and bought one of the decorative ceramic bowls that the local women make. When a visitor to her home in Wisconsin saw the bowl and suggested that people would pay a lot for such pieces, the idea was hatched: Creating a market for the local crafts could produce enough income for the families to keep up the water system—and turn a profit.

On their next visit to Santa Ana, Johnson and her mother bought a collection of the bowls, along with jewelry made from local seeds, and have been selling them through a gallery and a website (sachayaku.org) and occasionally, like last Friday, in MIT's Lobby 10.

"It's an amazing culture, extremely collaborative," Johnson says. She will return to Santa Ana this summer with three other MIT students, to further improve the water system and do some health screening to measure the impact of the clean water on the people's health. She hopes to see the project become an ongoing, sustainable solution to the town's needs for safe water.

Johnson hopes to become a doctor, and says that maybe someday she would return to this region and perhaps set up a clinic. But she also hopes that the basic concept, of making use of local people's artistic and crafts skills to support important local needs, can be expanded to small communities all over the developing world.

"The goal would be to figure out a model to export this to other communities, of linking the art to the water," she says. "I want to make sure this continues."

Alexander Rich receives prestigious Welch Award

For his pioneering work that has helped scientists unlock the mysteries of RNA and DNA, as well as more than half a century of important scientific discoveries that have opened up new fields of science, Alexander Rich was last week named the 38th recipient of the international Welch Award in Chemistry.

Rich, the William Thompson Sedgwick Professor of Biophysics, is the first MIT faculty member to receive the Welch Award, which is given annually to foster basic chemical research and recognize how chemical research benefits humankind.

"Dr. Rich is one of the towering intellects in science of the 20th and 21st centuries," said James L. Kinsey, chair of the Welch Scientific Advisory Board. "His numerous contributions have provided such important fundamental insights that virtually every important area of biochemistry or molecular biology today has Dr. Rich's fingerprints on it."

The Welch Foundation, based in Houston, is one of the nation's oldest and largest sources of private funding for basic research in chemistry. It will present the \$300,000 award and gold medallion to Rich at a banquet in his honor in October.

"I had the good fortune of beginning my research when it was still possible to ask fundamental questions about the nature of nucleic acids and how information is transferred in living systems. Because of that, I was able to make some important discoveries, which has been exhilarating," Rich said. "I am truly honored that my work is being recognized with the Welch Award, which is made more meaningful by the fact that I admire and so deeply respect the past recipients."

When Rich began his career in the early 1950s, DNA's double helix had been deciphered; however, very little was known about RNA until Rich discovered that RNA could produce a double helix. He also discovered the first hybridization reaction. This revelation produced a major paradigm shift in scientific thinking at the time.

Rich joined MIT in 1958, becoming the first to carry out DNA-RNA hybridization, which opened the door to understanding how information can be transferred from DNA to RNA. He also discovered left-handed DNA, which has proven to be extremely important to biological systems and immunology in the ensuing years. Rich is currently researching the biological roles of the left-handed form of DNA—called Z-DNA—and the proteins that bind to it.



PHOTO / SARAH FOOTE

MIT Sloan School of Management Board Fellows and program organizers, from left to right, Dana Sakal, MBA '09, organizer co-president; Kaushal Challa '08, Project Walk; Harpreet Singh, MBA '09, organizer, co-president; Matt Albrecht, MBA '08, Museum of Science; Joanna Brownstein, MBA '08, Project Walk; Ellen Correia, MBA '08, ACCION; Yishai Knobel, MBA '08, Fenway High School; Shivani Garg, MBA '08, co-founder; John Clingan, MBA '08, co-founder.

MIT Sloan Board Fellows honored

Five MIT Sloan School of Management MBAs were honored during an inaugural-year celebration of the school's new MIT Sloan Board Fellows program on Tuesday, May 6.

Established in 2007, the Board Fellows program enables MIT Sloan students to become nonvoting members on a nonprofit board for one year. During this period they are responsible for completing a 40-hour strategic project with the board.

Selected Board Fellows and their placements are Matt Albrecht, MBA '08, Museum of Science; Joanna Brownstein, MBA '08, Project Walk; Kaushal Challa, MBA '08, Project Walk; Ellen Correia, MBA '08, ACCION; and Yishai Knobel, MBA '08, Fenway High School.

Guest speaker Charlie Baker, CEO of Harvard Pilgrim Health Care, discussed how his participation on nonprofit boards has strengthened his business career, increased networking opportunities, honed leadership skills and provided personal satisfaction. Baker serves on the boards of the Kenneth Schwartz Center, the Greater Boston Chamber of Commerce, the MA Association of Health Plans, America's Health Insurance Plans and the Rose Kennedy Greenway Conservancy.

MIT Sloan will accept applications from Sloan students for the next class of Board Fellows in September 2008. For more information, please contact Board Fellows Vice President Harpreet Singh at harpreeet.singh@sloan.mit.edu.

MIT: How to slash vehicle fuel use

Nancy Stauffer
MIT Energy Initiative

It is possible to slash fuel use by all vehicles on U.S. roads to pre-2000 levels within a few decades, but doing so would require immediate action on several challenging fronts, according to a new analysis by MIT researchers.

Left unchecked, U.S. vehicle fuel use is expected to rise to about 765 billion liters of gasoline equivalent per year by 2035, up 35 percent from 2005, according to the researchers. Their analysis shows, however, that hybrids, plug-in hybrids and other advanced vehicle systems could be incorporated into America's vehicle fleet rapidly enough to make a significant dent in total fuel use by 2035. Reductions would come faster if Americans were to start using technology improvements to make mainstream gasoline vehicles more fuel-efficient, and to adopt measures to slow the growth in demand for vehicles and the distance they travel.

Among the biggest hurdles will be changing consumer expectations. To make a dent in fuel use, vehicle makers will have to emphasize fuel efficiency over other vehicle improvements. In other words, consumers will need to understand that next year's model won't necessarily accelerate faster or be bigger than last year's model, but it will get more miles per gallon.

"The magnitude of the changes required to achieve these reductions is daunting, especially as current trends all run counter to those changes," said Anup Bandivadekar, who until recently was a postdoctoral associate in the MIT Energy Initiative and is now an analyst at the International Council on Clean Transportation. John B. Heywood, the Sun Jae Professor of Mechanical Engineering and director of MIT's Sloan Automotive Laboratory, Bandivadekar and others developed the models key to the study.

Research has shed light on future fuel economy and emissions improvements possible with specific technologies. But knowing the potential impact on total fuel use

Task is challenging, requires immediate action, researchers say

and emissions requires understanding how quickly those technologies are likely to get on the road, how much difference they will make and when.

Bandivadekar and colleagues set out to answer those questions. "Like everyone else, we don't have the ability to predict the future," said Bandivadekar, who received his PhD from MIT's Engineering Systems Division earlier this year. "So we develop various transportation scenarios, each of which combines a number of vehicle technologies, assuming that their market shares grow at different—but plausible—rates between now and 2035. We then assess the impact of each scenario on fleet-wide fuel use and emissions."

Conversely, given a fuel use or emissions target, their methodology can determine plausible pathways for getting there.

The researchers compared fuel use for different scenarios that would meet projected demand for light-duty vehicles between now and 2035. For each, they assumed that half of all technology improvements would be used directly to increase fuel economy, a variable they call "emphasis on reducing fuel consumption," or ERFC.

In the first scenario, by 2035 the advanced technologies considered in the study—turbocharged gasoline, diesels, gasoline hybrids and plug-in hybrids—have gained fractions of the U.S. market, but more than a third of all cars sold are still conventional gasoline internal combustion engine vehicles. In the second, battery devel-

opment stalls, hybrids remain expensive, but turbocharged gasoline and diesel vehicles do well, taking over 75 percent of the market by 2035. The third scenario assumes that hybrids and plug-in hybrids succeed and by 2035 they make up 55 percent of the market.

The hybrid-strong scenario gives the largest cut in fuel use. Further, if combined with 100 percent ERFC, fuel use in 2035 is almost 40 percent lower than it would be if no action were taken.

"Now you're talking really big reductions," Bandivadekar said.

"Despite enormous growth in demand, fuel use in 2035 would be lower than it was in 2000."

The overall message? "If our goal is to achieve deep, long-term reductions in fuel use and emissions we should do all these things—increase the ERFC, improve today's engines, increase the market penetration rate of advanced propulsion technologies and find ways to reduce the rate of growth in demand. With that combination we can get very deep cuts by 2035," Bandivadekar said. "To make those things happen, we need strong, long-term policies and we need to adopt them now because the longer we wait the higher the starting point is and the more difficult the task."

Funding came from the Martin Family Society Fellowship for Sustainability, the Ford-MIT Alliance, Concawe, Eni S.p.A., Shell Hydrogen and Environmental Defense.

For more information, go to <http://web.mit.edu/mitei/research/spotlights/hybrids.html>.



PHOTO / JUSTIN KNIGHT

Anup Bandivadekar

-PRIZE marks the spot

New collaboration yields innovative health-related ideas

David Chandler
News Office

Can a prize designed for the high-tech challenge of helping to get people into space be applied to solving low-tech, down-to-Earth problems of life and death? Pose the question to a class of MIT students and two out of three give a resounding "yes." And the other third adds a strong "maybe."

That was the outcome of the first class held under a new collaboration between MIT and the California-based X-Prize Foundation, whose founder and chair is MIT alumnus Peter Diamandis '83, SM '88 HST '89. The class had the task of trying to design a new \$10 million X-Prize aimed at addressing health-care issues in the developing world.

The class was taught by Erika Wagner SM '02, PhD '07, an instructor in the School of Engineering and director of the new collaboration, X-Prize Lab @ MIT. The class formed three teams, each of which was to come up with a detailed proposal.

Two of the teams did just that, proposing specific awards that the foundation may decide to adopt. But the third team, after studying several possibilities, found major problems with either identifying specific goals that weren't already the subject of intense research, or of being able to quantify the outcomes in a reliable way to award the prize. Instead, they offered advice to the foundation on how to address such problems in the future, such as by offering several smaller prizes instead of a single large one.

Of the specific proposals, one team suggested a prize for a major milestone in dealing with the problem of TB, which remains endemic in 22 nations and costs 1.7 million lives every year. Effective treatments exist, but the testing is relatively expensive and often misses active cases. So they proposed a \$10 million prize for a new cheap, fast and accurate diagnostic system that could reach most of the 50 percent of cases that now go undiagnosed. Winning the prize would require not just laboratory demonstrations but field tests on 1,000 patients to show that it really works under difficult conditions.

"We could have chosen to focus on a number of problems," said team member Judy Maro, a graduate student in the Technology and

Policy Program. "We chose TB on the basis of impact—where could we make the greatest difference." With AIDS, for example, effective and affordable treatments are not yet available and efforts to combat the disease are already receiving considerable attention and funding.

The second proposal was for a simple, portable system that could be used by community health workers to carry out initial diagnostic evaluations for the 10 most widespread fatal, transmissible diseases. Such screening could lead to prescriptions of drugs or treatment for some conditions or referral to a doctor or nurse for conditions that require skilled care or more difficult diagnosis.

The team proposed that to win, the new device would have to lead to a fourfold improvement in the level of diagnosis of these major killers, which in an impoverished country like Malawi now stands at about 12 percent because so few people live within reasonable distance of a health professional. "There are 12 million people dying in the developing world from treatable diseases," said team member Devon Roshan, a senior in chemical engineering.

The whole concept of the X-Prizes, which started with the Ansari X-Prize for the first privately funded craft to reach space (won in 2004 by SpaceShipOne), is "changing the way people think about subjects," Diamandis said. "We want to encourage unrestrained, open-platform thinking." And that's why the foundation has formed this new partnership with MIT, he says. "We're looking for MIT students to shake things up for us. We're looking for unconventional ideas."

The final presentations by the class last Friday were judged by four members of the X-Prize board, including Dean Kamen, inventor of the Segway transporter and founder of Deka Research & Development; Barry Thompson, a former investment banker who works on incubation of startup companies; Jeffrey Shames, executive-in-residence at the MIT Sloan School of Management; and Diamandis. The reports will be evaluated later by the foundation's full board.

"There's a lot of interest in the TB one, in particular," Diamandis says.

Next fall, there will be another MIT X-Prize course, this time to formulate possible prizes for sustainable energy solutions.

IMAGES / ISTOCKPHOTO

\$4 million gift from The Picower Foundation to support neuroscience innovation

Restoring and disrupting memories by flashing brain cells with lasers, creating animals whose symptoms mimic schizophrenia and dissecting the genetic basis for language learning are among the cutting-edge projects at the Picower Institute for Learning and Memory at MIT to be funded with a new \$4 million gift from The Picower Foundation.

The gift launches the Picower Institute Innovation Fund, which will provide support to Picower Institute faculty members for innovative or high-risk neuroscience research activities. Funds also will be used to seed a new facility geared toward enabling the use of viruses to deliver genes to neurons—a powerful research tool for neuroscientists.

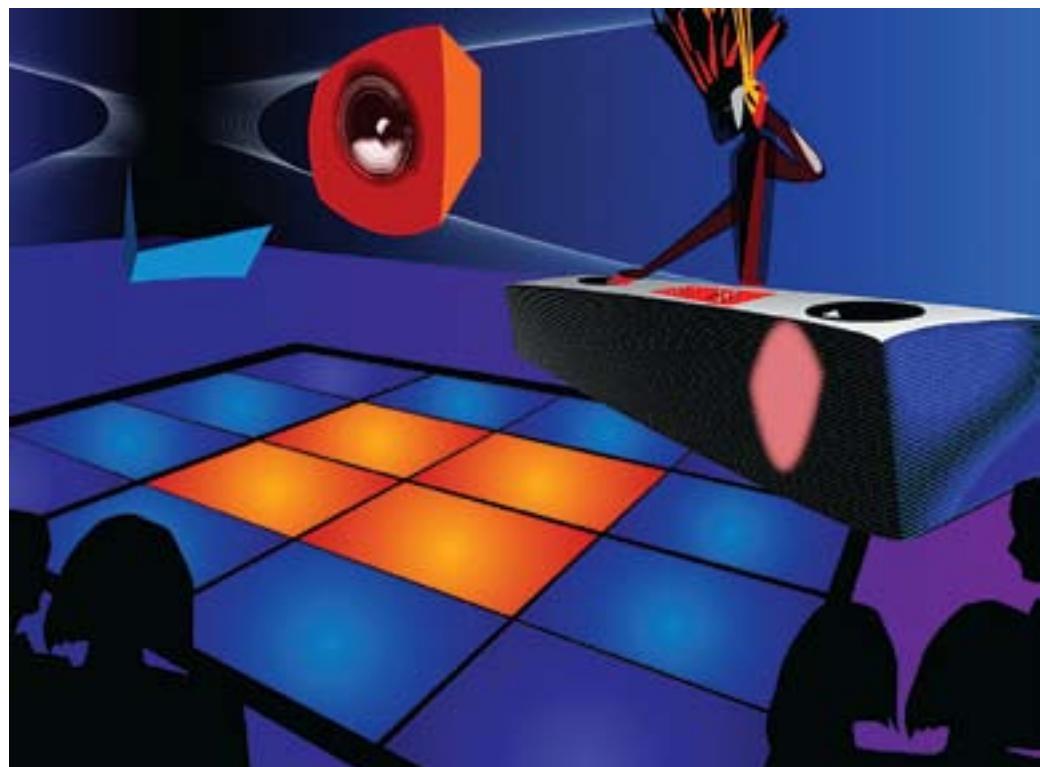
"This flexible source of funding is designed to promote faculty investigation into areas not usually funded by traditional sources," said Mark F. Bear, director of the Picower Institute and Picower Professor of Neuroscience. "The history of science teaches us that the key ingredients for major scientific breakthroughs are a creative and collegial faculty, excellent infrastructure and flexible funding for 'blue sky' projects. Thanks to the wonderful environment at MIT and the continuing support of The Picower Foundation, all these pieces are now in place."

"Drawing on more than 16 years of grantmaking experience in medical research, The Picower Foundation recognizes that private funding can and should support innovative research and promote meaningful collaboration among scientists. Unfortunately, public funding remains inadequate," said Barbara Picower, president and trustee of The Picower Foundation. "To make matters worse, the limited pool of funding has encouraged conservative science both in terms of the research proposals submitted and those accepted by public-funding agencies. As a result, talented scientists at PILM and elsewhere spend more time applying for grants and less time doing science, particularly exciting novel work. We believe that by supporting Picower scientists in their quest to do innovative, high-risk science, we will achieve high returns. The innovation fund is an excellent way to achieve great results."



IMAGES COURTESY OF THE SINGAPORE-MIT GAMBIT GAME LAB

Screenshots from a video/audio game called AudiOdyssey developed by the Gambit Game Lab.



LEVELING the playing field

David Chandler
News Office

A new computer game developed by MIT and Singaporean students makes it possible for visually impaired people to play the game on a level field with their sighted friends.

The game, called AudiOdyssey, simulates a deejay trying to build up a catchy tune and get people dancing. By swinging the remote-control device used by the Nintendo Wii, which senses motion, the player can set the rhythm and lay down one musical track after another, gradually building up a richer musical track.

Eitan Glinert, a graduate student in computer science at the Singapore-MIT Gambit Game Lab, says that the introduction of the Wii controller attracted many women and older players for the first time to the world of video games. "Lots of

people who had never played video games were now playing them all the time," he says. "I started to think, who's been left out? What groups are left behind even with all the new technology, these new systems?"

Then it hit him. "People with disabilities had been left behind. I began to speculate, how could you bring these people into the fold and have them be able to play these games?" He started by looking up everything that was available in terms of computer games for the visually impaired, and found there were already about 200 titles.

"I thought, 'Oh well, it was a good idea. But then I noticed something: As a sighted player, I was unable to play any of these.'" The games had been so specifically adapted for sound and tactile play that they gave the visually impaired too much of an advantage, making it impractical for them to play with sighted friends. "There were games for sighted people, games for blind people,

New game lets visually impaired share the fun

and never the twain shall meet," he says. "I thought, maybe I could build a game that could be played by both, equally well."

Working as the first student in Gambit, the Singapore-MIT game lab, with a team of seven other students he developed the prototype for AudiOdyssey in the summer of 2007, and has since been testing it with various groups of players. Since not everyone has access to the Wii controller, the game is also designed to be playable using regular keyboard.

The game "is an early prototype, it's limited in the things people can do," Glinert says. "But people seem to really enjoy it."

Count Alicia Verlager among them. A recent graduate of MIT's Comparative Media Studies program, Verlager, who is blind, helped with the development of the game.

"As a media studies scholar and a blind consumer, I am very excited to see that

Eitan and other game developers are working to make games more available to gamers with disabilities, especially when those games can be shared between players with and without disabilities," Verlager says.

"The element I probably most envy about gamers is just the way they hang out together and share doing something fun," she says. "It's the social aspects of Guitar Hero and World of Warcraft that I really want to try myself and so hanging out with other gamers playing AudiOdyssey was really fun."

Meanwhile, Glinert has been working on a more advanced version of the audio game that will allow for playing against others online, and will be released late this summer. AudiOdyssey is available for free download (Windows only) at <http://gambit.mit.edu/loadgame/audiodyseey.php>. The new game will also be available on the Gambit site as soon as it becomes available.

Study suggests caution on new anti-obesity drug in children

Anti-obesity drugs that work by blocking brain molecules similar to those in marijuana could also interfere with neural development in young children, according to a new study from MIT's Picower Institute for Learning and Memory.

Marijuana is known to be an appetite stimulant, and a new class of anti-obesity drugs—such as rimonabant (trade name Acomplia) developed by Sanofi-Aventis and awaiting approval for use in the United States—work by blocking brain receptors that respond to a chemical in marijuana and other cannabinoids.

Marijuana, derived from the plant *Cannabis sativa*, contains special active compounds that are referred to collectively as cannabinoids. But other cannabinoids (endocannabinoids) are generated naturally inside the body.

The MIT study, which was done in mice, found that blocking cannabinoid receptors could also suppress the adaptive rewiring of the brain necessary for neural development in children. The work was reported in the May 8 issue of *Neuron*.

"Our finding of a profound disruption of cortical plasticity in juvenile mice suggests caution is advised in the use of such compounds in children," wrote lead author Mark F. Bear, director of the Picower Institute and Picower Professor of Neuroscience.

The researchers investigated plasticity—the brain's ability to change in response to experience—by temporarily depriving newborn mice of vision in one eye soon after birth. This well-known experiment induces a long-lasting loss of synapses that causes blindness in the covered eye, while synapses shift to the uncovered eye. How and where this synaptic shift occurs in the primary visual cortex has remained controversial.

Understanding the mechanism behind this phenomenon is key because the same brain mechanisms are used for normal development and may go awry in conditions that cause developmental delays in humans, and may reappear in old age and contribute to synaptic loss during Alzheimer's disease, Bear said.

In mice, the MIT researchers found, even one day of deprivation from one eye starts the shift to dominance of the uncovered eye. But injecting the mice with a cannabinoid receptor blocker halted the shift in certain brain regions, indicating that cannabinoids play a key role in early synaptic development.

Blocking cannabinoids receptors could thwart this developmental process, the researchers said.

This work is supported by the National Eye Institute and the National Institute of Mental Health.

Four undergraduates win \$25,000 prize in Google mobile software competition

Four MIT undergraduates shared a \$25,000 prize as round-one winners in Google's Android Developer Challenge, a worldwide open competition for software developers based off Google's Android software stack for mobile applications.

The students—sophomore Clare Bayley and seniors Carter Jernigan, Jasper Lin and Christina Wright—were awarded the prize for their term project in 6.087/6.081: "Building Mobile Applications with Android."

The winning project, "Locale," lets cell-phone users manage settings on their mobile devices. Unlike normal settings managers, Locale can automatically change settings based on your current location, for example turning the ringer to vibrate when you enter work or class, or automatically forwarding calls to a landline when you are at home.

6.087/6.081 is an experimental course offered this semester by the EECS department in cooperation with MIT's Information Services and Technology (IS&T). The course was taught by EECS Professor Hal Abelson with the assistance of Andrew Yu, manager of IS&T's mobile-devices platform project. The course taught how to pick a project idea and rapidly bring it to fruition through the prototype phase.

One noteworthy feature of the course was its use of mentors—professional application developers from the Boston-area software developer community who volunteered to work with the teams. The mentor for the Locale team was Eric Carlson of ConnectedBits.

Locale was one of 50 winning projects selected from a field of 1,800 entries. As round-one winners, the MIT students are eligible to compete for higher levels in the challenge, leading to prizes of up to \$275,000.



PHOTO / DONNA COVENY
Electrical Engineering and Computer Science Professor Hal Abelson, left, stands with students who won the Google Android Prize, from left to right: Christina Wright, senior in electrical engineering and computer science, Claire Bayley, sophomore in physics, Carter Jernigan, senior in electrical engineering and computer science, and Jasper Lin, senior in math.

AWARDS & HONORS

Russell Tedrake, EECS assistant professor and member of the Computer Science and Artificial Intelligence Laboratory, is one of five young faculty members from across the United States chosen for the 2008 Microsoft New Faculty Fellowship Program. This program was created in 2005 to honor first-, second- and third-year university professors who demonstrate exceptional talent for unique research and thinking, showing leadership in computer science and related fields.

President Emeritus **Charles M. Vest** was named a member of the American Philosophical Society in its Arts, Professions, Leaders in Public and Private Affairs category on April 26.

Department of Economics Associate Professor **David Autor** has been awarded the 2008 Sherwin Rosen Prize by the Society of Labor Economics, recognizing his outstanding contributions to the field of labor economics.

Gabriel Chan, a junior in the Department of Earth, Atmospheric and Planetary Sciences; **Jeff McAulay**, a graduate student in Engineering Systems Division; and **Ming Leong**, a junior in mechanical engineering, have been named student fellows in the Sustainable Energy Fellowship program. The year-long fellowship, being held at Duke University this year, is designed to be a unique educational and research experience for students to address the global need for the use of energy reduction designs supplemented by renewable energy

technologies.

The MIT chapter of Chi Epsilon welcomed seven new members into its fold April 29 with a dinner at the Faculty Club and a talk by Professor Dee Ann Sanders, the first woman to hold the honor society's elected position of national council vice president. Sanders spoke of changes in the engineering field since she was an undergraduate. She recalled often being the only woman student in her classes and said that engineering courses were taught in a building with no women's restrooms. All the new MIT members for 2008 are women. They are seniors **Katherine Jarrell**, **Tamara Sheldon** and **Alia Whitney-Johnson** and juniors **Lauren Biscombe**, **Alexandra Konings**, **Allison St. Vincent** and **Patricia Taciuc**.

A team comprised of juniors **Aliya Popatia**, **Dawood Rouben**, **Suhni Chung**, **Shani Cho**, and **Esther Chung** won first place in the first annual Undergraduate Design and Build Competition, organized by Professor Jan Wampler of the Department of Architecture. Contestants were given the theme of "Sky and Land: the space between," focusing on the ways architecture mediates the transition between the ground and the air. Each design had to address the practical elements of actually being built, incorporating MIT's philosophy of uniting mind and hand. The winning team's design will be built on the platform in front of Building 9 between the end of exams and Commencement.

Q&A with Stuart Schmill, admissions dean

Ben Gulak is just one of more than 1,000 students headed to MIT in the fall. In this interview with the MIT News Office, newly appointed Dean of Admissions Stu Schmill '86 shares more details about the students who have accepted MIT's offer—including a full set of quadruplets—and discusses why the selection panel's work was tougher than ever this year.



Q. What can you tell us about the Class of 2012 by the numbers (i.e. total size, gender split, countries and states represented)? And on that same topic, how did our yield this year compare with previous years?

A. For the Class of 2012, which will number 1,040 students, we received a record number of applications, an 8 percent increase over last year. We admitted fewer than 12 percent of the 13,396 applicants, our lowest admit rate ever.

Due to changes in other school's early application programs and financial-aid programs, this year was the most competitive climate ever in the yielding of top students. Despite this, MIT's yield held strong at 66 percent, only a small drop from last year and our third-highest yield ever.

We are planning to go to the wait list for a small number of students, but as of right now the class is 46 percent women, 25 percent under-represented minority (10 percent African American, 14 percent Hispanic and 1 percent Native American), 18 percent who are first generation to college, from 49 states and 56 countries.

Q. Are there any interesting anecdotes you can share with us about the students who accepted MIT's offer?

A. We are enrolling what, as far as I know, is our first set of quadruplets. We have a student coming from Gaza, who has thrived despite a severe lack of opportunity; a woman who won a gold medal at last year's International Math Olympiad, tied for No. 7 in the world.

There is a student who, after helping his grandmother in her tomato garden, completed a two-year study of the long-term effects of exposure to pyrethroids, commonly found in household and agricultural pesticides. He won second place in the Intel Science Talent Search (STS) for his project. The third-place Intel STS winner, whose project involved developing new types of solar cells, is also enrolling at MIT.

There is a student who owns a company that has built 300 houses for low-income families in Guatemala using "green cement" and schools he has built in China have reached 1.5 million students. Another student created a community-based microfinance program for transgendered individuals and intravenous-drug users in Delhi.

Coming to campus in the fall will be a DJ, a leader of Future Farmers of America who raises goats and pigs and a 6-foot-11-inch basketball player who has taken multivariable calculus.

I could go on and on.

Q. Were there some things about the applicant pool this year that surprised you?

A. What stood out to me this year was the increased depth of the applicant pool. While we have always had strong students applying to MIT, this year there were more of them. It made our decisions in selection committee extremely difficult and I would say more difficult than ever. And so the increased size of the applicant pool was not just more numbers—it represented a lot of really talented high school students, many of whom would be great to have on campus. The entire admissions staff is very excited about the students who are in the Class of 2012.

Q. Are there any new trends that have become clearer as you wrap up this year's admissions cycle?

A. What we see more of in our current applicants is an extension of the trend of increased volunteering. There are more students who are interested in truly making a difference in the world. For example, more students are interested in energy and the environment. This transcends course of study—students who may be interested in a variety of majors are interested in making a difference in these areas. We also see more students interested in pursuing bioengineering. I would say that students across the world have become more interested in these areas as their visibility has increased recently, but also that MIT has major initiatives in these areas may well be attracting more applicants, as well.

MIT cyclists win Division II national championship

The MIT Cycling Team won the 2008 Division II national road racing championships after a weekend of exceptional performances by its men's and women's teams. At the USA Cycling Collegiate National Championships, held May 9-11 in Colorado, MIT Cycling seized an early lead in the opening team time trial and built their advantage throughout the weekend to take a surprise victory.

The women's team scored first with a win in Friday's team time trial. Martha Buckley, Yuri Matsumoto, Zuzka Trnovcova and Sonya Cates powered through a flat and windy course, covering 20 kilometers in 29 minutes and 51 seconds to take the win by 8 seconds over their closest rivals.

Later that day, the men's team of Jason Sears, Eric Edlund, Seth Behrends and Issao Fujiwara beat a host of strong competitors to finish fourth in the men's team time trial in 25 minutes and 10 seconds.

MIT's women added to their laurels over Saturday's 51-mile road-race course, which featured a combination of flat terrain exposed to the wind and difficult power climbs. Buckley finished a strong third, Matsumoto came in 10th and Cates took 19th. In the men's



race, Edlund took 13th in the field sprint while Fujiwara came in 57th.

With these strong finishes, the Engineers were still ahead coming into Sunday's flat, fast and technical criterium race, and once again MIT's women turned in great performances. Matsumoto unleashed her devastating sprint, which had earned her the Eastern Collegiate Cycling Conference Division II women's championship only two weeks before, to finish sixth. Buckley came in two spots behind and Cates finished only a few seconds behind the day's race leaders, in 27th.

In the 75-minute men's race, Sears sprinted to an outstanding fourth, beating his own seventh place from last year's nationals criterium. A veteran of many collegiate cycling championships on road and track, Sears made sure he was part of the day's key breakaway group that finished ahead of the main field. Edlund, Fujiwara and Behrends all finished in the main pack.

When all the points were tallied, MIT had ended its stunning weekend with 395 points, beating Dartmouth's 364 points to take first place among Division II schools across the country.

GULAK: Incoming freshman already has a top 10 invention

Continued from Page 1

together, and powered by electric motors. A computerized control system keeps the vehicle balanced, in a system similar to the Segway personal transporter. But unlike that vehicle, which is ridden in a standing position and is not considered a street vehicle, Gulak's "Uno" is ridden like a motorcycle and designed for ordinary roads.

Operating the Uno is so simple that it requires no controls at all. There is only an on-off switch. Once it's on, the driver accelerates by leaning forward, stops by leaning back, and steers by leaning to the side. By sitting upright, the driver can balance in one spot.

Gulak, who grew up just outside Toronto, has been tinkering most of his life. He started working with machine tools with his grandfather, who had a fully equipped machine shop in his house, "as early as

I can remember, certainly by the time I was 5," he says. When his grandfather died in 2004, Gulak inherited all the equipment. "I only wish he was here now, for all the things that are going on," he says. "The more I get into engineering, the more I miss him."

Gulak knows that despite his achievements so far, he still has a lot to learn, and that's why he was determined to study at MIT, where he plans to take a dual major in mechanical engineering and business. But he's not abandoning his pet project: He has already formed a company to develop the Uno, set up a web site and filed for patents in several countries (the United States, Canada and the European Union for starters). And as a result of the recent publicity he has already started to get calls from "quite a few investors," some able to provide production facilities for the vehicle.

When he found out Jay Leno wanted him on his show, Gulak rushed to complete a whole new version of his prototype bike, incorporating several new features in time to demonstrate it on the program.

Why bother with school with such business prospects already in front of him? Gulak takes the long view. "I think the Uno has a lot of possibilities, and people really seem to like it. The reaction from the public and the press has been quite overwhelming. However, I really wouldn't want to jeopardize my future or limit my options by just going ahead without getting a degree. So I'm very committed to coming in the fall—MIT has a lot to offer and I'm really looking forward to it."

"The Uno has taught me how important it is to have a deep and varied knowledge base and a solid grounding in all the basic engineering principles," he says. "When I was working on the bike, much of what I learned came through trial and error, so I know first hand the value and importance of increasing my knowledge base through education."



PHOTO COURTESY OF GLENN ROBERTS, MOTORCYCLE MOJO MAGAZINE

Ben Gulak, an incoming freshman at MIT, stands next to the 'Uno'—a scooter-like vehicle he built that was named the top invention of the year by Popular Science.

DIGITALK: Where IT's at**MIT Mobile Web**

Information Services and Technology (IS&T) has released a beta version of the MIT Mobile Web at m.mit.edu. The site is designed to provide mobile-device users in

the MIT community with convenient, fast access to useful information. The beta version provides links to the MIT People Directory, Campus Map, Shuttle Schedule, Events Calendar, Stellar, Emergency Information and 3DOWN (Services Status).

Users can access this site from any cell phone with mobile-browsing capability (feature phones) or any mobile device with a web browser (smartphones, including Apple iPhone, Windows Mobile, Palm OS and BlackBerry devices).

In June, IS&T will officially launch the MIT Mobile Web service with offerings that will evolve and grow over time. Feedback is welcome; send your comments to mobiweb@mit.edu.

Support for win.mit.edu

The IS&T Computing Help Desk now offers support for win.mit.edu domain users and container administrators. The domain, a centrally managed Windows environment for the MIT campus, offers opportunities for greater efficiency and collaboration via a common set of services, data and tools. It is integrated with Kerberos, the Moira database and MIT's DNS namespace.

Users of the domain who have questions are encouraged to get in touch first with their container administrator. Help Desk staff will assist container administrators in resolving problems and, if needed, will determine the correct escalation path.

You can get in touch with the Computing Help Desk at 617-253-1101 or computing-help@mit.edu. For links to win.mit.edu documentation and stock answers, visit <http://web.mit.edu/ist/topics/windows/winmitedu>.

Safeguards for SSNs

Last December, MIT launched a program to protect personally identifying information (PII) in response to concerns about identity theft. The initial focus of the program is to identify all the places at MIT where Social Security numbers (SSNs) have been collected or recorded—computer systems as well as paper files.

In parallel, the program is working to reduce MIT's risks by limiting the number of places where SSNs are collected, reducing the number of people with access to SSNs and ensuring that SSNs needed for business purposes are effectively protected.

Since the data-collection effort encompasses the whole campus, members of the PII Team are available to talk with groups or individuals about different protection methods, from using cross-cut shredders to replacing SSNs with MIT ID numbers on forms.

The PII Team is interested in hearing from community members. If you encounter SSNs, especially in unexpected places, or want to request a presentation, contact the team at pii-protect@mit.edu. To learn more about MIT initiatives to protect sensitive information, visit <https://web.mit.edu/infoprotect/initiatives/initiatives.html>.

Athena Turns 25

MIT's Project Athena—the springboard for today's campuswide Athena computing environment—had its start 25 years ago this month. Back in 1983, one of the project's key goals was to integrate the graphical and computational power of workstations into the teaching of MIT courses. Although this was not fully achieved, Project Athena's cross-platform, distributed-network environment helped define a new computing paradigm adopted around the world. The project marked a major milestone when it successfully linked 1,000 computers across campus and Athena's Kerberos authentication software and the MIT X Window System have since become international standards.

DEC and IBM provided significant funding and staffing for the original \$100 million project. In 1991, Athena's service-delivery functions were transferred to what was then Information Systems, now IS&T. Today, Athena and its services and software are used for academic computing and research. In addition to private Athena workstations, public Athena clusters and Quickstations dot the campus. The current Athena release (9.4) is fully supported for Sun Solaris 10 and Red Hat Enterprise Linux 4.

To find out more about Athena, visit <http://web.mit.edu/ist/topics/athena>.

Digitalk is compiled by Information Services and Technology.

SAXE: MIT neuroscientist probing mechanisms of thought

Continued from [Page 1](#)

of perception and motor control, but many doubted that an abstract high-level cognitive process like understanding another person's thoughts would be conducted in its own private patch of cortex," Kanwisher says.

Breaking down the brain

Because fMRI reveals brain activity indirectly, by monitoring blood flow rather than the firing of neurons, it is considered a fairly rough tool for studying cognition. However, it still offers an invaluable approach for neuroscientists, Saxe says.

More precise techniques, such as recording activity from single neurons, can't be used in humans because they are too invasive. fMRI gives a general snapshot of brain activity, offering insight into what parts of the brain are involved in complex cognitive activities.

Saxe's recent studies use fMRI to delve into moral judgment—specifically, what happens in the brain when people judge whether others are behaving morally. Subjects in her studies make decisions regarding classic morality scenarios such as whether it's OK to flip a switch that would divert a runaway train onto a track where it would kill one person instead of five people.

Judging others' behavior in such situations turns out to be a complex process

that depends on more than just the outcome of an event, says Saxe.

"Two events with the exact same outcome get extremely different reactions based on our inferences of someone's mental state and what they were thinking," she says.

For example, judgments often depend on whether the judging person is in conflict with the person performing the action. When a soldier sets off a bomb, an observer's perception of whether the soldier intended to kill civilians depends on whether the soldier and observer are on the same side of the conflict.

In a future study, Saxe and one of her postdoctoral associates plan to study how children develop beliefs regarding groups in longstanding conflict with their own group (for example, Muslims and Serbs in the former Yugoslavia, or Sunnis and Shiites in parts of the Middle East).

They hope to first identify brain regions that are active while people think about members of a conflict group, then observe any changes in brain activity following mediation efforts such as "peace camps" that bring together children from two conflict groups.

Big questions

Saxe earned her PhD from MIT in 2003, and recently her first gradu-

ate student, Liane Young, successfully defended her PhD thesis. That extends a direct line of female brain and cognitive scientists at MIT that started with Molly Potter, professor of psychology, who advised Kanwisher.

"It is thrilling to see this line of four generations of female scientists," Kanwisher says.

Saxe, a native of Toronto, says she wanted to be a scientist from a young age, inspired by two older cousins who were biochemists.

At first, "I wanted to be a geneticist because I thought it was so cool that you could make life out of chemicals. You start with molecules and you make a person. I thought that was mind-blowing," she says.

She was eventually drawn to neuroscience because she wanted to explore big questions, such as how the brain gives rise to the mind.

She says that approach places her right where she wants to be in the continuum of scientific study, which ranges from tiny systems such as a cell-signaling pathway, to entire human societies. At each level, there is a tradeoff between the size of the questions you can ask and the concreteness of answers you can get, Saxe says.

"I'm doing this because I want to pursue these more-abstract questions, maybe at the cost of never finding out the answers," she says.



PHOTO / DONNA COVENY

Bridging the gap

Senior Quinn Vollmert, left, and sophomore Adam Talsma, both in the Department of Civil and Environmental Engineering, worked with their team to put the steel bridge they built together in 5 minutes, 50 seconds in front of the Student Center on May 5. Last month, the MIT team placed second in the regional competition of the annual American Society of Civil Engineers steel-bridge contest and they will participate in the national contest on Memorial Day weekend. To see video of the construction, visit the News Office's web site at <http://web.mit.edu/newsoffice>.

CLASSIFIED ADS

Members of the MIT community may submit one ad each issue. Submit by e-mail to ttads@mit.edu.

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INTERVIEW WITH THE DEAN

David Schmittlein, dean of the MIT Sloan School of Management

Over the course of the spring semester, Tech Talk has brought readers a series of interviews with each of MIT's five school deans. The fourth in this series features Dean David Schmittlein of the MIT Sloan School of Management. In the following interview with Greg Frost of the MIT News Office, Schmittlein discusses Sloan's engagement with the global community and his hopes for the school's future.

Q: *Describe your biggest challenge in coming from the University of Pennsylvania to MIT?*

A: My biggest challenge on behalf of this school is to have it fulfill its incredible potential to be not just a leader, but to be the leader, globally, in management education. Further, it can, and must be, the global leader in developing management knowledge that is valuable now and will stand the test of time.

One of the keys to accomplishing that future is deeper and broader and more meaningful engagement with the alumni community, global business community and community of government leaders to be sure we are relevant to what they need from a great school of management now and in years to come.

In that regard, I'm happy that I'm coming on board a moving train: This school has not been static! It has been willing to innovate in creating the portfolio of different educational programs it offers and has also innovated well "inside" each of its programs. It has simply been more responsive than other schools of management to the world's need for different kinds of programs, for different kinds of learners. Undergraduate education in management for the right people. Specialized master's programs, not just the one-size-fits-all, two-year job-switcher MBA. And indeed the MBA, as one important part of that portfolio. The growth in the recent past of the nondegree executive education that the school runs. So we have been willing to experiment with and to maintain a broader portfolio of degree and nondegree programs. The school is positioned to offer the right set of programs for the diverse needs of different kinds of current and future managers in different kinds of organizational settings.

There's also been great innovation inside our programs and I'm very proud of that: A great track of study for entrepreneurship and innovation, better opportunities for global internships and also a focus on this time period's key issues for companies, e.g. sustainability. If you look back 10 years, this was the school that gave people the best head start in answering companies' questions about eCommerce, because every company, whether they were an eCommerce company or not, needed to figure out what to do about electronic commerce. MIT Sloan had then (and has now) more to offer those companies in this regard. And for this time period a similar issue is sustainability. Whether a company is in the "sustainability business" or not it wants incoming management program graduates who have just gone through a thoughtful educational experience to be able to help the organization figure out the key issues of the day, because the people who've been around the organization for 10 or 15 years don't know the current thinking in these new emerging areas.

In other words, that new graduate needs to offer not just expertise in supply-chain management, marketing, finance, etc., but also the firm expects the person to be able to contribute to the transformational business issues of the day. And this school is doing a great job providing its students insights into issues that are transforming economies and business models.

Another piece of that challenge of visibility and engagement is relevance to the world: What is going to make that great aspiring manager who happens to live in Beijing or Singapore or Mumbai or Geneva decide that MIT Sloan is relevant to her or him? We need to start thinking very hard now about the kind of relevance we will have to those folks in the future. In that regard, I'm pleased that this school's approach to global relevance has not been to simply set up a "lemonade stand" in Beijing or Mumbai selling cheap co-branded degrees in conjunction with a local institution or shipping its own faculty in once a month for a quickie MBA, making some money on the side. Instead it has committed itself to deep engagement with organizations that will be, and often are, already the regional leading educational institutions. We help them develop their faculty and organizational leaders through what is sometimes called a "train-the-trainer" model and so achieve a multiplier effect improving the state of management practice regionally. This deep engagement also provides opportunities for MIT Sloan faculty and students to learn more about what business leaders in the region are doing, which is of course crucial to MIT Sloan's own educational and research programs. This particular



PHOTO / DONNA COVENY

MIT Sloan School of Management Dean David Schmittlein

kind of global engagement is really expensive and it's difficult to sustain, but it is important and is making a material difference in our visibility globally.

Q: *It's still early in your tenure, but can you give the MIT community a sense of your top short-, medium- and long-term goals?*

A: We need to demonstrate greater engagement with alumni and the broader business community. There are short-term steps to do that—the dean being on the road and also experimenting with new kinds of events where MIT Sloan is a forum and a safe place around which business leaders can gather and so on. We've done some of these things in the past but there is an opportunity to do more, and to experiment with different kinds of activities.

Among the longer-term goals, we need to start building the platforms to tell our own story to the world. We cannot, as a leading school of management, simply rely on the goodwill of editors, or the editorial decisions of the moment for particular magazines and newspapers, to be the main conduit for how people understand us.

With respect to innovation in our educational programs, there are discussions and plans internally to reconsider the particular portfolio of customized offerings from the MIT Sloan school for the world.

Q: *You're running the MIT Sloan School of Management, but you're a world-renowned marketing expert. How much of that marketing background do you expect to rely on in this job?*

A: Well, I know a lot about specific marketing concepts and methods, about doing surveys and constructing communication programs and so on. But that's not the kind of background that's most important, I think, in this leadership setting. There is, however, a marketing perspective that starts the whole enterprise's activity with a commitment to understanding the needs of our constituents and for a business school it's not just students, and it's not just faculty, and it's not just alumni, and it's not just business leaders, but it's all those groups. And that commitment goes along with a certain humility, a recognition that we don't necessarily know the answers to what those needs are and that we're willing to listen and we're willing to come to understand our own capabilities, and through the right timeframes to build and change those capabilities, to be relevant to the legitimate needs, the legitimate aspirations of those constituents—those disparate communities. That, fundamentally, is marketing, and is the aspect of my marketing background that I draw on: but it's the "product design" side of marketing, not the "selling the sizzle rather than the steak" side of marketing.

Also, I said earlier that we need to be visible, we need to communicate well and we can do more in those areas if we use a bit of a marketing perspective. Take for example G-Lab, which is a global internship experience for our

MBA students. This is a great experience for students: Helping some company in another country and learning about global markets by doing. But frankly every other school has some kind of internship for some kind of student going to some kind of place to do some kind of something. But here's a fact that too many potential MBA students don't know: at this school last year, about half of our students did that, actually did it. And collectively they did it in 17 different countries. Typically at leading schools only a small fraction of students would have such an opportunity and with only a very small number of countries. Frankly, what we're doing here is killing ourselves administratively, managing a program at a large scale, with a great value to our students, that no other school is doing to the best of my knowledge. Yet people don't know about it. MIT Sloan is doing things that we can own in the eyes of the world, that are demonstrable, credible, linked to a real benefit, that no other school either could or would match. I'd rather build a strategy around what we are great at, and can be great at, and that people value, and tell the world about it, than build a strategy around a kind of omnibus survey regarding what people in general say they would like business schools to do, and then somehow claim that we're doing all that stuff.

Q: *What is the most surprising thing you've run into so far in your role?*

A: The positive engagement of the alumni community, staff, faculty and students, but among those four especially the students. By that I mean the inclination to want to take ownership of the solution of a problem, not just to be the articulator of a problem.

At some other leading schools many of the MBA students fundamentally chose the school for its "brand." Most of our students do not choose us for some fuzzy omnibus B-school brand. They choose us out of a detailed knowledge of who we are and what we offer. And when you have students who have been more thoughtful about why they want to be at a particular place, they are much more likely to be happy and to be engaged in that place. Our students are distinctly engaged—and I celebrate that.

Q: *What do you do for fun in your spare time?*

A: I love travel, including being exposed to the cultures and peoples of the world. I've just liked that for a very long time. A lot of the remaining leisure time that I have is taken up with my two kids—they're twins, and they're 10 years old. And so there's a lot of fun around the usual stuff that interests 10-year-olds, including sports and music. The children are not a "hobby" of course, but when you put together the desire to be a thoughtful leader of a large organization, and hopefully a thoughtful and engaged parent of a couple kids, those goals soak up the time pretty well.