



Volume 49 – Number 15  
Wednesday – January 26, 2005

## Blizzard blankets the Northeast

*30-inch snowfall hits campus grounds workers particularly hard*

Sasha Brown  
and  
Denise Brehm  
News Office

While Boston Mayor Thomas Menino was cancelling schools for both Jan. 24 and 25 and Massachusetts Governor Mitt Romney was declaring a state of emergency, 45 MIT workers labored around the clock for two days to pull MIT through the blizzard of 2005. The storm dumped more than 30 inches of snow on Cambridge.

Starting at 6:30 p.m. on Jan. 22, Grounds Services workers and volunteers from Mail Services, Custodial Services and Housing used a variety of equipment including four front loaders and five small dump trucks to plow, salt and sand. Somewhere between 20 and 25 tons of rock salt were used on MIT roads and bigger plazas, and 18,000 pounds of an environmentally safe, pink ice melt were scattered to try to make the roads and walkways throughout campus safe for passing, said Norman Magnuson, operations manager for Grounds Services. He and David McCormick, assistant director of operations for Facilities, managed the campus impact of the storm. All told, about 17 truckloads of snow were hauled off campus Sunday night and Monday.

"It's the type of campus that's open 24 hours a day,



PHOTO / DONNA COVENEY

This peaceful scene of the bike racks in front of the Student Center on Monday belies the violence of the previous day's snowstorm, which dumped more than two feet of snow on the campus.

I think that's the biggest challenge," said Magnuson. "There's never an area of campus that we can let go. Believe me, at 2 o'clock in the morning it's as busy as 2 o'clock in the afternoon sometimes."

As a staff member of the Institute for 31 years and a supervisor with Grounds Services for 18, Magnuson has

seen his share of snowstorms. "This is probably one of the top five storms that I can remember," said Magnuson. But it was not the worst. "During the Blizzard of 1978 we were

See **BLIZZARD**

Page 6

## President Hockfield speaks out on women in science

The topic of women in science and engineering fields has been prominent in the news during the past week, following comments by Harvard President Lawrence Summers on this subject and his subsequent announcement that Harvard would take a proactive stance in recruiting and support-

ing women faculty in their careers there. Because of the leadership that MIT has shown in this regard, the Institute has been prominently mentioned in many of the articles, and many members of the MIT community have asked about the current status of women faculty and students here.

In response to these many inquiries, MIT President Susan Hockfield, who took office on Dec. 6, 2004, made the following comments:

"One of MIT's central values is its commitment to being a true meritocracy, where success is measured by talent and accomplishment alone. This commitment is reflected in the growth of women faculty and students at MIT over the past couple of decades," said Hockfield. "We can, of course, do more—and we will."

"We have a good sense of what the challenges and opportunities are, thanks to the extraordinary work of MIT's women science faculty six years ago in bringing issues of gender equity to the forefront of our agenda. The response

by the leadership of MIT to their report was remarkable," Hockfield continued. "I can say from experience that MIT's commitment to women faculty has been an inspiring model to colleagues and institutions all across the country."

Between 1990 and the fall of 2004, women faculty increased from 10 percent to 18 percent of the total faculty (from 96 to 178, an increase of 85 percent). Women grew from 34 percent to 43 percent of the undergraduate student body and from 20 percent to 30 percent of the graduate student population.

During that same period, MIT's first five women vice presidents were appointed, and in 2004, the first woman, Hockfield, was elected president of the Institute.

In recent years, the Institute has appointed women to key positions in academic and administrative leadership. Eight women now sit on the 22-member Academic Council (the president's cabinet):

See **WOMEN**

Page 6



Susan Hockfield

## Sleepless in Cambridge, they hunt the mystery coin

Sleep was scarce for close to 1,000 people on dozens of teams who logged more than 50 hours searching for a "coin" hidden somewhere on the MIT campus over the Martin Luther King, Jr. weekend.

At 54.5 hours, the 25th annual IAP Mystery Hunt was shorter than in past years. The hunt begins at noon on a Friday

**IAP  
STORIES**  
Page 5

and continues until the coin is found, sometimes late into the following Monday night.

"People fly in from all over the world for this," said Tufts University chemistry professor Chris Morse (Ph.D. 1998), a member of last year's winning team and one of this year's organizers.

Started in 1980 by a physics graduate student and puzzle-lover, Brad Schaefer (S.B. 1978, Ph.D. 1983), the legacy of the hunt asks each year's winner to assume the task of creating the following year's hunt. After winning three times (in non-

consecutive years) and creating three hunts, his team is ready to leave the winning to someone else.

"Creating this hunt was like having a full-time job on top of my full-time job," said Morse. Like many other teams comprising mostly alumni, Morse and his team return for the hunt every January. Team sizes run the gamut, some with upwards of 100 people and others as small as two individuals. The winning team this year had about 130 members.

Each year the puzzles fit around a certain theme. This year the theme was "Normalville," a utopia-esque town that had been hit by a meteor. Each team must solve a series of puzzles that open the door to another series of puzzles until the final prize—or coin—is found. This year, the coin was a fragment of meteor hidden behind a fire hose across from Room 10-250.

"Physical Plant" claimed victory early Sunday evening.

—Sasha Brown

### NEWS

#### CNN NAMES WWW TOPS

The Lemelson-MIT Program worked with CNN on the "Top 25" special that aired last weekend. The Internet was named #1 on the list of innovations.

Page 3

#### OPEN AND SHUT CASE

Media Lab Europe will close its doors Feb. 1.

Page 6

### RESEARCH

#### A NON-PERIPHERAL FINDING

Scientists learn that significant brain reorganization accompanies macular degeneration.

Page 4

#### MODELING CHINA

An hydrologic analysis shows that with more irrigation, China can feed its growing population.

Page 4

### ARTS

#### THINK TWICE BEFORE TOSSING

Artists find beauty in the trash heap; no object is immune to their quest for beauty in the rubbish.

Page 5

#### AN ANCIENT ART

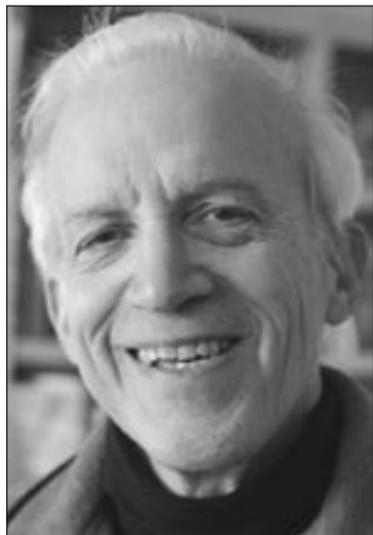
MIT's traditional Korean folk ensemble, Oori, will perform at the Peabody Essex Museum in Salem.

Page 7

# Kleppner wins Wolf Prize

Elizabeth Thomson  
News Office

Professor Daniel Kleppner has won the 2005 Wolf Prize for physics for his groundbreaking work in atomic physics. The \$100,000 prize was announced this week by the Israel-based Wolf Foundation Council.



Daniel Kleppner

Kleppner, the Lester Wolfe Professor of Physics, was cited by the foundation for making "fundamental contributions to atomic physics and quantum optics, mainly using hydrogen and hydrogen-like atoms. He built new devices, performed spectroscopic tests of extreme precision and investigated novel quantum phenomena."

For example, in 1960 Kleppner developed with Norman Ramsey the hydrogen maser, which was later used as an atomic clock of unprecedented stability. Applications of this early work range from coordination of radio-signals in long base-line radio astronomy to satellite-based global positioning systems.

Kleppner and colleagues also pioneered a whole new field of physics, the study of ultra-cold gases. They developed tools instrumental to the 1995 discovery of Bose-Einstein condensates (BECs) in alkali atoms by Eric Cornell, Carl Weiman and MIT's Wolfgang Ketterle. (The three shared the 2001 Nobel Prize in physics for

that work.) BECs, which represent a new form of matter at the lowest temperatures ever achieved, are currently created under various forms in many laboratories around the world. Their study opens fascinating perspectives for applications in both fundamental and applied research.

In addition to his outstanding research achievements, Kleppner has been a dedicated teacher, advising many Ph.D. students who have gone on to attain prestigious positions in major universities. Kleppner, a statesman of science who is always willing to serve the common good, has served on numerous committees charged with investigating key scientific or social issues.

Wolf Prizes have been awarded since 1978 to outstanding scientists and artists "for achievements in the interest of mankind and friendly relations among peoples, irrespective of nationality, race, color, religion, sex or political view."

The prizes are given every year in four out of five scientific fields, in rotation (agriculture, chemistry, mathematics, medicine and physics), as well as an arts field.

## AWARDS AND HONORS

Professor **Daniel G. Nocera** won a 2004 Italgas Prize worth 80,000 Euros (\$100,000) for his work on science and the environment. Nocera, the W. M. Keck Professor of Energy in the Department of Chemistry, was cited for his work "on molecular chemistry for the production of renewable energy," according to Italgas, which instituted the prize in 1987. Nocera's research resulted in development of the first photocatalytic cycle for the production of hydrogen. The Italgas Prize has three sections: science and the environment (which Nocera won), project for the environment, and research debut for young scientists. Nocera will receive his prize in Turin in February.

Professor **David Bartel** of biology was selected in December to receive the Vladimir Karapetoff Award in recognition of his research in connection with understanding RNA, the molecule that is essential for cells to read genes. Established at MIT in 1988, the Karapetoff Award is given by the Dean of Science to a member of the MIT community who has "by research, theorizing or teaching, made the most valuable discovery for, or contribution to, the benefit of science and/or mankind." The award provides a \$10,000 discretionary research allowance. Prior awardees are Heidi Hammel (1994), Timothy Swager (2000) and James Fujimoto (2002).

Professor **Amedeo Odoni** of aeronautics and astronautics and civil and environmental engineering has been named a Fellow of the Institute for Operations Research and the Management Sciences (INFORMS). INFORMS cited Odoni for his "outstanding contributions, achievements, and services that have advanced the profession of operations research and the management sciences."



Amedeo Odoni

Operations research and management sciences are professional disciplines that provide rational bases for decision-making by seeking to understand and structure complex situations and use this understanding to predict system behavior and improve system performance.

MIT's booth won a runner-up prize for Best Display at the Earth Night Fair at the Boston Convention Center last November. About 600 people attended the fair and saw the display prepared and staffed by MIT's **Environmental Programs Office** and the **Laboratory for Energy and the Environment**. The booth, one of 36, showcased the innovative collaboration between researchers, administration and campus operations to minimize the environmental impact of the Institute. Featured prominently were two Tech Talk articles blown up to poster size, an innovative lamp made of recycled library books, and a recycling game.



Steven Lanou of the Sustainability Initiatives in the Environmental Programs Office and Beth Conlin of the Lab for Energy and the Environment organized and staffed the booth at the Earth Night Fair.

# Math junior garners outstanding award

Mihai Patrascu, a junior majoring in mathematics, has been named the national Outstanding Male Undergraduate by the Computing Research Association.

Patrascu's research is in the area of data structures and algorithms. He has solved three major open problems during his three years at MIT. While still a freshman, Patrascu solved a problem in data structures that had remained open for the last 20 years—tight upper and lower bounds on the partial-sums problem. As a sophomore, he proved logarithmic lower bounds for several problems that had been conjectured to require logarithmic time for more than 20 years. And in his fourth semester at MIT, he made a major breakthrough in dynamic optimality for binary search trees.

These and related results have been published in two papers from the top theoretical computer science conferences, and in two separate papers at the premier algorithms



Mihai Patrascu

conference. He has published four additional papers.

Patrascu also has a perfect academic record. Before entering MIT, he received numerous silver and gold medals in Informatics Olympiad competitions. Since then, he has worked as a volunteer to help organize the high-school Olympiads in Romania and the Balkans. He plans to attend graduate school to continue his study of theoretical computer science.

The Computing Research Association seeks to strengthen research and advanced education in computing and allied fields. It counts among its members more than 200 North American organizations active in computing research. It was formed in 1972 as the Computer Science Board to provide a forum for the chairs of Ph.D. granting computer science departments to discuss issues and share information.

Andrea Grimes of Northeastern University received the board's Outstanding Female Undergraduate award.

# Page named Whitehead interim director

David Page, professor of biology at MIT, was named interim director of the Whitehead Institute for Biomedical Research in December.

"David Page is both a great scientist and a wonderful person," said Alex d'Arbeloff, chair of the Whitehead board of directors and former chair of the MIT Corporation. "We affirm this appointment with the utmost enthusiasm and look forward to working with him."

Page, who is also an Investigator of the Howard Hughes Medical Institute, graduated from Harvard Medical School and the Harvard-MIT Health Sciences and Technology Program in 1984. That same year he came to Whitehead as one of the Institute's first Fellows.

Throughout his career, Page has

focused on the genetic basis of differences between human males and females, and particularly on the roles of the X and Y chromosomes. During the past two decades, he and his laboratory have revolutionized scientific understanding of the Y chromosome previously thought to be the wasteland of the human genome. For decades, the Y chromosome was thought to be gradually deteriorating due to its inability to fix genetic damage by swapping genetic material with a mate. In the June 2003 issue of *Nature*, Page and colleagues at Whitehead and Washington University in St. Louis described a system of self-repair that is unique to the Y chromosome. Page's lab is now focusing on the question of germ cell sex determination in mammals, and on the development of the embryonic ovary.



David Page

### News Office Staff

- Director ..... Arthur Jones
- Senior Communications Officer ..... Patti Richards
- News Manager/Editor ..... To be appointed
- Associate Editor/Writer ..... Denise Brehm
- Assistant Director/Science and Engineering News .... Elizabeth Thomson
- Communications Officer ..... Kristen Collins
- Assistant Director/Photojournalist ..... Donna Coveney
- Senior Writer ..... Sarah Wright
- Web Developer/Editor ..... Lisa Damtoft
- Reporter/Writer ..... Sasha Brown
- Operations/Financial Administrator ..... Myles Crowley
- Administrative Assistant II ..... Mary Anne Hansen
- Administrative Assistant II ..... Patti Foley
- Computer Support Assistant ..... Roger Donaghy

Tech Talk is published by the News Office on Wednesdays during term time except for most Monday holiday weeks. See Production Schedule at <http://web.mit.edu/newsoffice/techtalk-info.html>. The News Office is in Room 11-400, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA, 02139-4307.

**Postmaster:** Send address changes to Mail Services, Building WW15, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139-4307.

Subscribers may call 617-252-1550 or send e-mail to [mailsvc@mit.edu](mailto:mailsvc@mit.edu).

TechTalk is distributed free to faculty and staff offices and residence halls. It is also available free in the News Office and the Information Center.

Domestic mail subscriptions are \$25 per year, non-refundable. Checks should be made payable to MIT and mailed to Business Manager, Room 11-400, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139-4307.

Periodical postage paid at Boston, MA. Permission is granted to excerpt or reprint any material originated in Tech Talk.

### HOW TO REACH US

#### News Office

Telephone: 617-253-2700  
E-mail: [newsoffice@mit.edu](mailto:newsoffice@mit.edu)  
<http://web.mit.edu/newsoffice>

#### Office of the Arts

<http://web.mit.edu/arts>



Printed on recycled paper

# 25 years of really cool stuff

Lemelson-MIT Program and CNN present 'Top 25' innovations

Melissa Makofske  
The Lemelson-MIT Program

CNN collaborated with the Lemelson-MIT Program to produce a show about the top 25 innovations of the past quarter-century. The one-hour special "Top 25 Innovations" jump-starts a year-long celebration of the network's 25th anniversary on Jan. 16.

The list of 25 top innovations highlights non-medical technological innovations that have become widely used since 1980, are readily recognizable by most Americans, have had a direct and perceptible impact on everyday lives, and/or could dramatically affect our lives in the future.

The countdown began with short-range, high-frequency radio (#25)—the premise behind WiFi and Bluetooth—and climbed to the #1 invention—the Internet. Facilitated by the protocols TCP/IP, which set the rules for communications between computers, the Internet became readily available with the creation of the web in 1991 by Tim Berners-Lee, a senior research scientist at MIT's Computer Science and Artificial Intelligence Lab who is director of the World Wide Web Consortium based at MIT.

Berners-Lee told CNN that the idea behind the Internet was making information accessible to all. "Wouldn't it be nice if actually all the information out there were in a ... what-you-see-is-what-you-get form?" Berners-Lee said. The World Wide Web, with its user-friendly applications, coupled with the first public access web browser Mosaic, enabled

the public to enter the information superhighway.

Second on the list is the cell phone, which may have been conceived as early as the late 1940s, but wasn't widely adopted until the FCC authorized cellular service in the early 1980s. Many of the items on the list have influenced technology's exponential growth rate, especially fiber optics (#4). Created in 1970, the

first transatlantic fiber optic cable, which enabled fast information transmission, was installed in 1988.

The oil embargo in the 1970s spurred interest in creating an electric or hybrid car (#16), which was not made available for purchase until the 1990s. Now demand for the environment-friendly cars is increasing rapidly. The hybrid was made possible by the development of the nickel metal hydride battery, which, coupled with the lithium-ion rechargeable battery common in cell phones, laptops and digital cameras, constitutes advanced batteries (#15).

The Lemelson-MIT Program conducted preliminary research for the list, then gave it to faculty at the MIT School of Engineering, who ranked the items and expanded the list. From there it went to a panel of technology experts outside MIT. Under the chairmanship of Professor Merton Flemings, director of the Lemelson-MIT Program, a sub group of the panel of experts ratified the final 25 ranking.

The TV special also included comments from MIT Professor Eugene Fitzgerald of materials science and engineering, Professor Sanjay Sarma of mechanical engineering, and Flemings.

"This list of 25 innovations is dramatic evidence of the extraordinary rate of technological development during the last quarter century," Flemings said. "Most of the innovations on the list are already household words; they have all enriched our lives. Who among the converted would now want to be without their cell phone or e-mail?"

## ▶ CNN TOP 25

1. Internet
2. Cell phone
3. Personal computers
4. Fiber optics
5. E-mail
6. Commercialized GPS
7. Portable computers
8. Memory storage discs
9. Consumer level digital camera
10. Radio frequency ID tags
11. MEMS
12. DNA fingerprinting
13. Air bags
14. ATM
15. Advanced batteries
16. Hybrid car
17. OLEDs
18. Display panels
19. HDTV
20. Space shuttle
21. Nanotechnology
22. Flash memory
23. Voice mail
24. Modern hearing aids
25. Short Range, High-Frequency Radio

# No replacement for humans' problem-solving capability

Sarah H. Wright  
News Office

A new book by MIT Professor Frank Levy and Richard Murnane of Harvard University portrays the current unsettled American labor landscape—with its widening gap between high- and low-skill level jobs—offers suggestions for how to use education to prepare students and workers for employment, and gives a success story from a Boston elementary school.

"The New Division of Labor: How Computers Are Changing the Job Market," published by Princeton University Press, is an outgrowth of work Levy and Murnane did with David Autor, associate professor of economics at MIT.

According to Levy, the Daniel Rose Professor of Urban Economics, the best way to understand the current stark trend is not to look offshore to developing countries where teleworkers are employed, but to look more closely at the domestic economy, where new technology is causing more dislocation than international trade.

"Whether we look at speech recognition software or airport kiosks for boarding passes, technology is disrupting where work is done, the ways work is done and the skills you need to do available jobs," Levy said.

From one perspective, this disruption is nothing new, he noted. In 1940, "less than one-quarter of all male workers has graduated from high school," Levy said. "But the demands for white collar and industrial skills grew and a high school diploma soon became a necessity. Then, as now, there were new jobs requiring entirely new skills."

Today's "new division" is occurring because of a contemporary version of a similar dislocation of workers—

those who were educated and trained to do work that is repetitive and increasingly replaceable by technology, according to Levy. How can we prepare people for non-routine work, the kind that computers cannot do? he asks.

At the core of the "New Division" is an irony: the best way for humans to keep from being replaced by computers is to be, well, more human.

In researching their book, Levy and Murnane, both labor economists, devoted time and attention to field work, studying the way work is conducted. The result is a series of careful portraits of individual workers applying knowledge, skill and intuition to diagnose and solve complex problems. A particularly compelling segment presents an auto mechanic's process of diagnosing and fixing a car's baffling ailment. According to Levy, resourcefulness in managing non-routine tasks is an irreplaceably human way of being smart.

Schools and workplaces need to be designed to support the exercise of literacy, communications skills and complex problem-solving, the authors assert. The new job market is one in which workers—office workers as well as electricians and plumbers—need to develop these human capacities.

The "New Division" success story occurs at the Richard T. Murphy School, a public elementary school in Boston, at which teachers utilize results from standardized testing to tailor their programs.

"Many changes were basic. The school reorganized teaching schedules so teachers in the same grade level had the same free period to work together on curriculum. One faculty member used spreadsheets to organize many pages of state test score printouts so that teachers could identify the specific topics where students did badly. But making these basic changes took the leadership of an excellent principal and committed teachers," Levy said.

Levy noted that changing educational programs for young students is essential, but so is addressing our national and cultural notions about education, intelligence and social class. As resourcefulness and the capacity to handle non-routine work grow ever more important, old prejudices about what an educated person looks like must fade.

"This society associates education with clean hands. But there are very educated people with dirty hands," Levy said. The best way to support a resilient economy and democracy is through education that nourishes skills and capacities that may be complemented but not replaced by computers, the book concludes.



Frank Levy

## ▶ NEWS YOU CAN USE

### Flu shots available to all of MIT

The Massachusetts Department of Public Health has lifted restrictions on influenza vaccines and is now recommending that remaining flu shots be made available to all those seeking protection from the flu. MIT Medical can now vaccinate all MIT-affiliated persons, as supply permits.

MIT Medical patients who want a flu shot should call the office of their primary care clinician to make an appointment. Members of the MIT community who are not patients of MIT Medical should call 253-4481 to schedule a flu vaccine. They may be billed up to \$25 for the vaccination, depending on their MIT affiliation and insurance coverage.

### Origami deadline

Submissions for the third annual Student Origami Competition are due in the Office of the Arts (Room E15-205) by 5 p.m. Monday, Feb. 7. Creative paper choices and original designs are encouraged, but glue and tape are not allowed. The competition is sponsored by the MIT Office of the Arts Special Programs, MIT Japan Program and the office of Professor Erik Demaine. Guidelines and an online application are available at the Office of the Arts web site.

### Nominations open for teaching prizes

The School of Science is seeking nominations for its two annual teaching prizes. The deadline is Friday, Feb. 18.

The Undergraduate Prize recognizes excellence in teaching undergraduate subjects. Nominations are welcome for outstanding teaching not only in the subjects with large enrollments—such as those that satisfy the General Institute Requirements in science—but also in upper-level science subjects with smaller enrollments.

For the Graduate Prize, preference will be given to nominees who teach mainstream subjects in which fundamental principles of the relevant fields are presented. Such courses typically provide the basis for advanced education and research and prepare students for professional careers.

Nominations for both awards may be made by faculty and students to any member of the selection committee. Each nomination should be accompanied by a letter in support of the nomination. Additional letters are welcome. Members of the committee are professors Hazel Sive, chair, (sive@wi.mit.edu); Kip Hodges (kvhodges@mit.edu); and Barton Zwiebach (zwiebach@mitlns.mit.edu).

### Monosson Prize established by Sloan School

To honor the memory of MIT graduate Adolf F. Monosson, an annual prize has been established at the Sloan School of Management by Monosson's friends, fellow alumni and business associates.

The prize recognizes the advice and counsel Adolf "Sonny" Monosson provided to classmates, clients, competitors, friends and students on entrepreneurial enterprises. Monosson was recognized as a "voice of reason" by his peers and the press.

In a business career that spanned 55 years after his graduation in 1948, Sonny Monosson created more than 10 businesses in the finance, publishing, computer and leasing industries. He invested his time and capital in many other startup enterprises and counseled hundreds of entrepreneurs and would-be entrepreneurs on the personal skills necessary for success.

The Monosson Prize for Entrepreneurship Mentoring will honor those who support and guide business pioneers who are blazing new pathways to entrepreneurship. Professor Edward B. Roberts, the David Sarnoff Professor of the Management of Technology at Sloan, founder and chair of the MIT Entrepreneurship Center, will head the committee that will administer the annual prize. Nominations should be sent to Roberts in Room E52-535 or at eroberts@mit.edu by March 1.

### Sloan plans leadership conference

Why do some leaders shine by managing crises while others guide gradual evolution? Is change a force you control or a wave you ride? These questions will be addressed at "Changing Leaders, Leading Change," the sixth MIT Sloan Leadership Conference on Feb. 12, presented by the Sloan Leadership Club and the Leadership Center. Keynote speakers will include Ron Williams, president of Aetna, Inc.; Dan Carp, CEO of Eastman Kodak; and Ricardo Semler, president of Semco. The conference will be held at the Tang Center and the Marriott Hotel. Cost is free for Leadership Club members (Sloan students only; membership fee is \$30), \$25 for MIT and other college students, \$70 for MIT alumni, and \$95 for others. Pre registration is required. For more information, visit the Sloan Leadership Club web site.

## Brain changes with macular degeneration

The McGovern Institute for Brain Research at MIT, a leading research and teaching institute committed to advancing understanding of the human mind and communications, announced today that scientists have discovered the first evidence that brain reorganization occurs in people suffering from the progressive visual disorder macular degeneration.

The study, "Reorganization of Visual Processing in Macular Degeneration," was published in the Jan. 19 issue of *The Journal of Neuroscience* by MIT postdoctoral associate Chris Baker and Professor Nancy Kanwisher, in collaboration with Professor Eli Peli of the Schepens Eye Research Institute at Harvard Medical School.

Macular degeneration is the leading cause of blindness in the developed world, affecting more than 1.7 million people in the United States, and many millions of people worldwide. In macular degeneration, the center of the retina is damaged and sight is limited to peripheral vision. People suffering from this disease have blurry vision, which often causes severe difficulties with everyday tasks such as reading, driving and recognizing people.

"Our major finding is that the part of the brain that processes only central retinal visual information in people with normal sight reorganizes itself in people with macular degeneration to help process peripheral visual information," said Baker.

Using advanced brain imaging techniques and state-of-the-art retinal mapping techniques, the researchers monitored which parts of the brain process visual signals in people with macular degeneration compared to people with normal vision.

"While our findings do not have immediate clinical application, the fact that a larger region of the cortex is recruited for peripheral vision in people with macular degeneration is encouraging, and suggests that it may be possible to develop new rehabilitation strategies that exploit this increased cortical involvement to partially compensate for loss of retinal function," said Kanwisher.

The researchers plan to explore whether the brain reorganization enables people with the disease to see better with peripheral vision than other people, and to identify the conditions that lead to these changes in the brain.

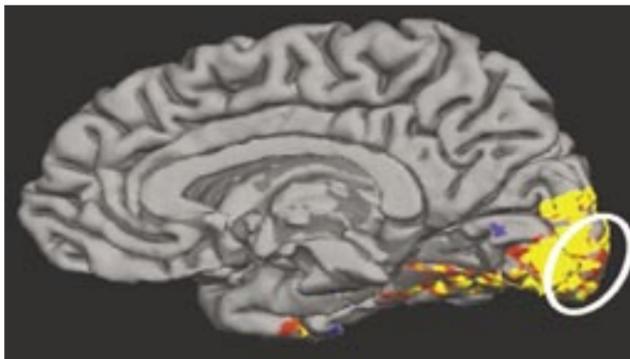
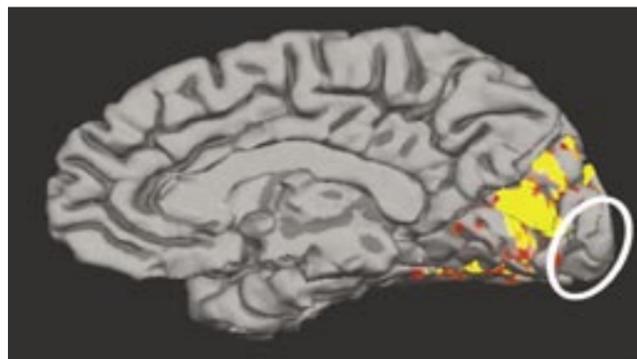


IMAGE COURTESY / CHRIS BAKER

These images of human brains, based directly on data from an MRI machine, show the regions of the brain that are activated by peripheral visual stimuli in a person with normal vision (left image) and in a person with macular degeneration (right image). People with macular degeneration lack central vision and must use peripheral vision only. The area at the back of the brain

(marked by the white ovals) that normally responds only to stimuli in central vision, was strongly activated in the person with macular degeneration but not in the subject with normal vision. This shows that there has been reorganization of visual processing in the brain with macular degeneration.

## Irrigation key to China's food production

Nancy Stauffer

Laboratory for Energy and the Environment

An MIT team has systematically evaluated how water and land limitations affect the production of food in China. Initial findings suggest that China should be able to produce enough food to meet its growing population if it expands irrigation to permit more intensive farming, especially in the northern regions.

The analysis, led by Professor Dennis McLaughlin of the Department of Civil and Environmental Engineering, is a response to growing concern about feeding the world's expanding population.

"Many water-scarcity studies extrapo-

late recent trends in developing countries and say there is going to be a disaster," said McLaughlin, the H.M. King Bhumipol Professor. "My opinion is that these studies rely more on anecdotal evidence rather than a rigorous hydrologic analysis."

To fill that gap, he and recent graduates Amy Watson (S.M. 2004) and Marine Hermann (S.M. 2004), and graduate student Piyatida Hoisungwan have developed an approach that uses classical hydrologic methods and available data to determine how water scarcity affects a region's ability to produce food.

As a case study, they have been examining China, a country that depends almost entirely on domestically grown food. The study does not consider economic or

political factors or food-distribution issues, but simply addresses the question of how many people China can feed with locally available land and water resources.

The researchers formulated a model that divides China into 2000 pixels. Each pixel is several hundred kilometers on a side and has its own distinctive rainfall, climate and land use. Six crop categories can be planted, with seasonal crop rotations allowed.

The team then performed two analyses—a "nominal" case and a "sustainable" case. The nominal case assumes current conditions: the total land available for crops is equal to the land now being cultivated, and irrigation occurs at today's level. It also allows people to pump ground water wherever the extra water can be used. Based on those assumptions and available data, the model predicts that China can produce enough food to feed between 1.1 and 1.7 billion people.

The sustainable case also assumes current cropland area, but assumes that all of the land is irrigated, permitting farmers to grow crops more extensively and more frequently. To achieve sustainability, this case excludes groundwater pumping, which depletes underground reservoirs over time. Under those assumptions, the model concludes that China would be able to feed between 1.3 and 2.0 billion people.

The wide ranges of food production estimates produced by the model reflect uncertainty about China's current cropland area, which the team is working to clarify. Until such uncertainties can be reduced, the team is using a mid-range cropland estimate. With that estimate and the sustainable-case assumptions, they found that food production is enough to feed about 1.6 billion people—roughly the population of China predicted by the United Nations for 2030.

Thus, China should have enough water and land to feed its people for the foreseeable future if it builds the irrigation infrastructure assumed in the sustainable case.

"This is not an economic analysis. We're not saying that it's cost effective for China to feed all these people with domestic production," said McLaughlin. "It might be more cost effective for them to invest in new semiconductor plants and use the income to buy food from Canada." This study simply examines one option where-by China can feed its growing population.

## Quieter, cleaner airplane landings may be ahead

An experimental procedure that substantially reduces the noise of descending aircraft is one step closer to availability for commercial air carriers, thanks to the continuing efforts of a research team led by Professor John-Paul Clarke of the Department of Aeronautics and Astronautics.

In addition to improving the lives of people living and working along airport approach routes, the new procedure reduces aircraft engine emissions and fuel consumption.

Initial tests in 2002 using two United Parcel Service-provided Boeing 767 aircraft proved that the noise of landing airplanes could be greatly reduced by modifying descent paths and procedures. The researchers have now completed a significantly more complex test, applying their protocol to multiple aircraft in scheduled service. In a two-week trial last September at Louisville Regional Airport involving 126 UPS evening flights, Clarke's team demonstrated that air traffic controllers could handle 12 to 14 flights per night using the procedure. The tests also confirmed the procedure's environmental and economic benefits.

In traditional approaches, aircraft begin descending many miles from the runway, spending substantial time at relatively low altitudes. These paths are analogous to a staircase: planes descend in steps requiring noisy engine thrusts every time they level out.

The new procedure, called a continuous descent approach or CDA, keeps aircraft at cruise altitude until they are relatively close to an airport. At this point, the aircraft make an even, continuous descent to the runway. The result is an average noise reduction of four to six decibels. A three-decibel difference is appreciably noticeable to the human ear while a 10-decibel reduction equates to 50 percent less noise. Side benefits include reduced fuel burn and emissions, and slightly shorter flights, as aircraft operate at lower power settings, stay at higher altitudes, maintain higher speeds, and take more direct—and thus shorter—paths to the runway.

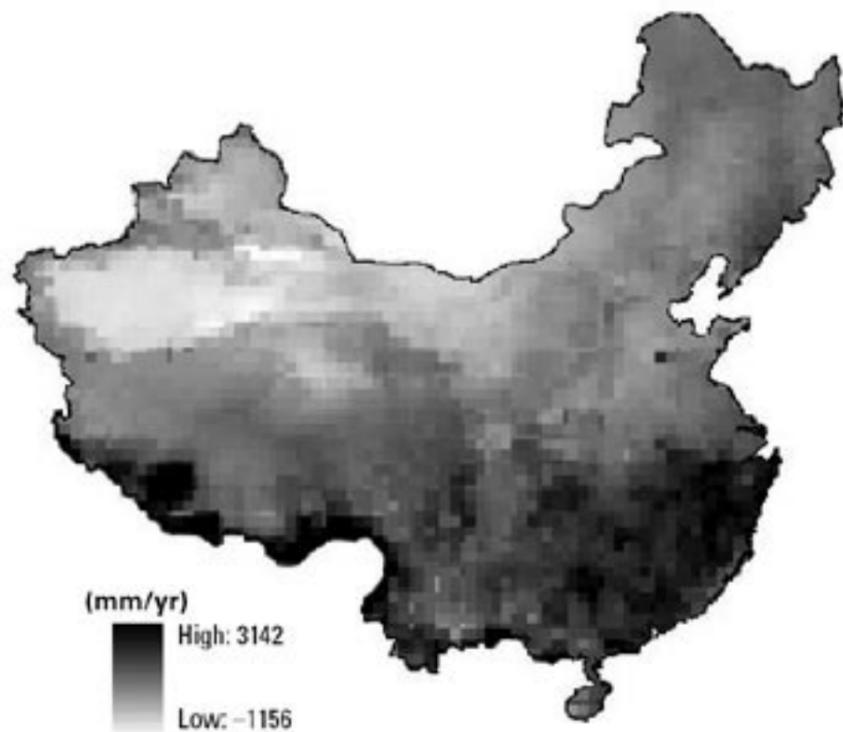
Clarke's team includes other MIT researchers as well as representatives of Boeing, the FAA, the Louisville Regional Airport Authority, NASA and UPS. More work remains before CDA approaches are officially implemented at Louisville, and then elsewhere. They must refine the operational procedures for conditions beyond the two-week test environment. Additional research and testing is required for airports with heavier traffic volume and greater diversity of airlines and aircraft types. Other airports, airlines and the FAA are evaluating CDA for applicability to nighttime operations.

Design and approval of new flight and landing procedures is an extremely complex undertaking. Researchers and authorities must be assured that airborne and ground-based computers, flight crews, air traffic controllers and aircraft are adaptable to the new protocol, both individually and in unison.

"Safety is always everyone's paramount concern," said Clarke. "Now that the process is validated, the same tools can be used to customize similar procedures for other airports."

The Louisville project was funded by Congress. It is one of 10 projects being conducted under the auspices of the Partnership for Air Transportation Noise and Emissions Reduction.

### Calculated Water Availability Index in China



MAP COURTESY / PIYATIDA HOISUNGWAN

This map shows the spatial variability in China of one key input to farming—water. Water is generally abundant in the south and scarce in the north and west.

# Up-cycling from trash to treasure

Sarah H. Wright  
News Office

"Junkyard Art," a two-week adventure in "up-cycling," gave participants a new perspective on trash along with a chance to transform discarded objects into flights of artful fancy. Thus, a recycling bin's worth of glass-bottle bottoms became a lamp shade, an old clock became a tasteful mobile a la Joseph Cornell, and a collapsed doll carriage, circuit boards and some papier mache became Cinderella's sedan.

Erik Demaine, assistant professor of electrical engineering and computer science; artist Jeff Smith; Justin Adams, assistant officer of Environment, Health and Safety; and Martin Demaine, visiting scientist in the Computer Science and Artificial Intelligence Lab organized the course.

Martin Demaine described the group's work with discarded objects as "beyond recycling."

"We wanted the work to have some kind of environmental impact. Things we found were not only recycled; they were up-cycled into art," Demaine said.

The Plaster Studio itself had an up-cycled look, with "found supplies" stashed in piles and works in progress on every surface. The course goal—to see "junk" differently—feels like a change of eyeglasses. Once your vision adjusts, every bit of wire, every computer fragment, has

potential.

"This was a course to discover how to be creative with re-use of materials," said Adams, whose day job at MIT focuses on recycling and sustainability. Last year, the Demaines and Adams collaborated on an installation titled "Building with Books," in which they and others created an entire bedroom with books and discarded telephone directories.

Adam's up-cycled work yielded a waist-high wooden pedestal that displays a motorized three-speed classroom globe. All three ON-switches, taken from an electric fan, make the globe spin giddily and the pedestal shimmy. (Another artist used the fan's safety grill as a lamp shade.)

"Junkyard Art" launched with a talk by Smith, a Boston-based artist working in three dimensions with recycled materials and in two dimensions with video. He produces furniture-scale sculptural forms, many with engines, and mordant "safety videos" titled "Safety and You," "Food Safety and You," etc. He is founder of the Take an Artist to Lunch Foundation.

"Recycling means inventing new processes, and I enjoyed helping people to be inventive. There's a big difference between art and craft. I told them, 'don't worry so much about the craft,' and they took off," Smith said.

Smith will officially conclude "Junkyard Art" with a lecture at which the up-cycled art will be exhibited—Feb. 15 at 5:30 p.m. in the Stata Center.



PHOTO / DONNA COVENY

Rene Chen, a sophomore in materials science and engineering, makes an intriguing lamp out of jagged jar bottoms as she "up-cycles" trash into art.

# Alumnus finds solutions for 'CSI,' 'The Real World'

Lauren Clark  
School of Engineering

The TV crime drama "CSI," the U.S. Air Force, and the Florida Department of Children and Families have at least one thing in common—they've all enlisted the services of alumnus Ed Markowitz (S.M. 1971).

The process-analysis skills Markowitz developed as an engineering and management student at MIT are the basis of a career in optimizing complex systems—whether those systems are military logistics chains or TV productions.

Markowitz returned to campus earlier this month as one of several alumni volunteer teaching assistants at a week-long, corporate-style training seminar for sophomores in the Undergraduate Practice Opportunities Program. UPOP is a men-

toring and internship program that helps students develop engineering, business and interpersonal skills to put them a step ahead in their careers.

Now CEO of e-strategylabs, inc., Markowitz epitomizes a UPOP lesson—that careers can take unexpected twists and turns, so trying to map out your life when you're 20 is probably unrealistic and limiting. "An MIT grad can do anything. I don't have formal credentials in 90 percent of what I do. MIT's education in thought processes—thinking like an engineer—is what allowed me to do all this stuff," said Markowitz.

Perhaps the most intriguing of his clients are those in the entertainment industry. Working with the producers of several television shows, including "The Practice" and "CSI" and its spinoffs, "CSI: Miami" and "CSI: New York," he optimized production processes, from script to locations

to intellectual property issues.

He is called upon at times to review scripts for technical accuracy. "Can a PDA [personal digital assistant] that's been shot with a .38 caliber bullet have information recovered from it?" was one question Markowitz had to resolve for an episode of "Threat Matrix," a homeland security drama. The crime-solving plots of "CSI" hinge on a trail of obscure clues uncovered by a team of forensic experts. Markowitz helps make sure that the technical details underlying these plots are feasible.

He has also helped reality shows, such as "The Real World," solve production problems. Unlike dramas or sitcoms, reality shows involve several cameras in multiple locations shooting nearly 24 hours a day. Thousands of hours of video must then be pared down to one hour of programming per week. Markowitz tackled the problem of "how you deal with

all this data" to create a show that meets tight airing deadlines and makes a profit, he said.

Markowitz said he gets a kick out of working in Hollywood but the most rewarding thing he has done recently is working to improve child protective services in his home state of Florida. Tapped by concerned legislators after some well-publicized failures of the Department of Children and Families, Markowitz devised a plan that would improve the process of identifying children at risk and save the state millions of dollars. Stymied by politics, however, the plan has yet to be implemented, Markowitz said.

That experience is another example of a key UPOP lesson: problem-solving in the real world can be messy. "You might have the greatest solution in the world, but it's meaningless if it's not put to use," he said.

## Spotlighting the brain

Neurologist Thomas Byrne offered a two-hour IAP class in neuroscience as an introduction to 9.91, "A Clinical Approach to the Human Brain," which he will teach through the Department of Brain and Cognitive Sciences this spring (M-W 9:30-11:00 a.m. in Room 2-136). The course, which attracted 160 students for 18 spots when Byrne offered it at Yale University last year, focuses on how the human brain works in health and disease, with an emphasis on clinical cases.

"We will study how new tools such as imaging illustrate normal brain functioning as well as approaches to clinical problems," Byrne said. He plans the course, for which there are no prerequisites, for both BCS and non-BCS majors.

Byrne, an M.D. who also is on the staff of the Massachusetts General Hospital, moved to the Boston area last fall when his wife, Susan Hockfield, became MIT's 16th president.

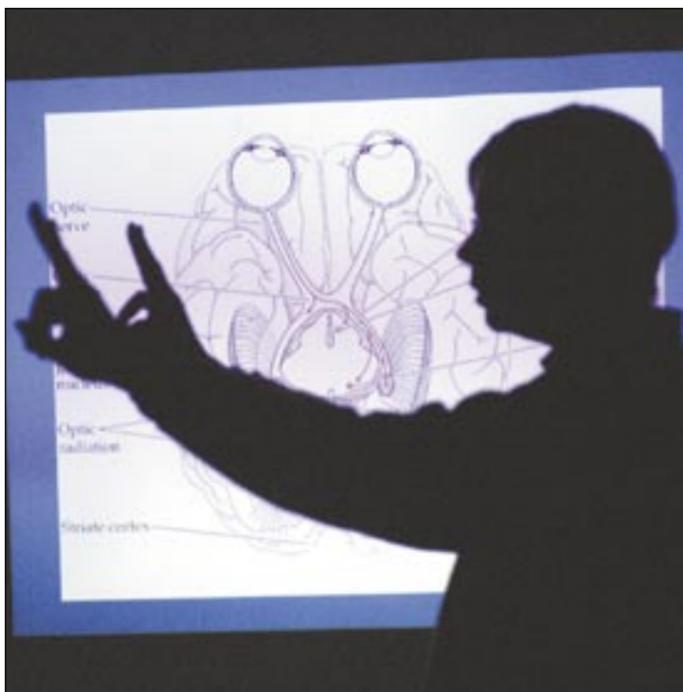


PHOTO / DONNA COVENY

## Illuminating the Corridor is an annual solar event

Sasha Brown  
News Office

Though it may not garner the same level of tourism, MIT's own version of Stonehenge still manages to draw a crowd.

The view from the third floor of Building 8 is said to be best when, for a moment each year, the Infinite Corridor captures the light from the setting sun to create a phenomenon called "MIThenge." Named after prehistoric Stonehenge in England, the effect happens on just a few afternoons each year.

Barring a cloudy day, the effect will be visible this week, on Jan. 27 at approximately 4:50 p.m. and again the next day at 4:49 p.m. It will be visible one final time this winter, on Jan. 29 at 4:48 p.m. The next

appearance will be in November.

MIThenge occurs when the path of the sun crosses the axis of the Infinite Corridor in late January and mid-November every year. As the sun aligns, the marble floor is illuminated and the reflection can be seen far down the hall.

"The orange light reflected off the ceiling is often striking," according to the website dedicated to the marvel.

For the past 30 years, people have gathered to witness the event, but those who do are cautioned not to stare directly at the sun. Additional spots for viewing are just beneath the stairwell in Building 8 at the end of the Infinite Corridor and looking out the windows of Building 18 and in through the window of Building 8 at the end of the corridor.



# BLIZZARD

Continued from Page 1

here nine days straight," he said.

For busy workers, sleep was scarce, but some were able to grab a few winks in Building NW62 where beds were set up. Meal tickets were also provided for on-campus dining. Laverde's Market in the Student Center opened at 7 a.m. rather than the usual 8 a.m. on Sunday morning to accommodate the appetites of the hard workers.

"People were very grateful," said Laverde's manager, Marc Semon. "We wanted to be here early for them."

As the weekend wore on, students found a variety of ways to avoid cabin fever. Scheduled activities like the weekend-long third annual Bad Ideas Competition on East Campus sponsored by the Large Event Fund (LEF), Weekends@MIT, DormCon, and the MIT Fund as well as the Lecture Series Committee (LSC) sponsored annual Science Fiction Marathon, went on as planned.

Schuyler Senft-Grupp helped construct a sauna on the East Campus courtyard during the Bad Ideas competition, which draws entries like last year's toaster that shot flaming toast six feet into the air.

"During the storm we had a barbecue, went sledding down the Building 32 [Stata Center] amphitheater, built a sauna in the EC courtyard, set up a hot tub in the EC courtyard, and had a group of people sleep out in a shelter they built out of old folding tables and some plastic," said Senft-Grupp. "We didn't let the snow stop us."

Senft-Grupp and others constructed a wading pool hot tub that seated 15 in the courtyard. The crew piped in hot water and many students used it as the snow began to fall. "We set it up in the courtyard now and then," said Senft-Grupp. "It easily fits 15 people, but I think even more than that went in over the course of the night."

Just as the snow began to fall in earnest, the six-movie science-fiction marathon got underway. Around 9 p.m., just before the second movie—2004's British zombie spoof, "Shaun of the Dead"—the group ordered pizza and spent the rest of the night watching another four movies. Those who emerged 10 hours later were greeted by more than two feet of snow.

"There was a big difference between when I went in and when I came out," said Katherine Lai, a sophomore in electrical engineering and computer science and chair of the LSC. "The event seemed to do okay despite the blizzard, but some people may have decided to go home a little earlier than they would have."

Many of those who did stay for the whole marathon were in it for the long haul, said Rob Radez of LSC. A few attendees showed up with sleeping bags and pillows. "It seemed like a bunch of people were concerned about getting home after," Radez said. "Most of the people who came did stay the whole night."

Some other students organized an impromptu midnight snowball fight for the East Campus courtyard on Sunday. "I just kind of wanted to have a big snowball fight, campus-wide," said freshman Amrita Masurkar who sent e-mails across campus, urging participation. "Only a couple of people showed up, but people were having fun."

As for the winter storm watch in effect for today, Grounds Services is ready, though slightly weary. "They like the work and feel like they're really providing an important service to the Institute, which they are," said Magnanson. "But it does get old after a while."



PHOTO / DONNA COVENEY

This snowy scene represents the campus before the weekend blizzard hit.

## Predicting the next blizzard

It was the advance warning by meteorologists of last weekend's blizzard that allowed most people in Massachusetts to stock up on necessities, cancel plans and get ready to hunker down for a few days.

Many of those same meteorologists then spent the weekend talking to the public from TV newsrooms. One of them, Mish Michaels of WHDH-TV (Channel 7), will be on campus Friday, Jan. 28 speaking to students in the IAP course on Weather Forecasting (12.310) taught by

Lodovica Illari, lecturer in synoptic meteorology in the Department of Earth, Atmospheric and Planetary Sciences.

Members of the MIT community who want to learn more about how meteorologists predict the weather are welcome to come by Room 54-915 at 1:30 p.m. to hear Michaels' talk. Undergraduate students who want to know even more can take Illari's spring course 12.307 Climate and Weather Laboratory.

## WOMEN

Continued from Page 1

the president, the vice president for research and associate provost, the dean of the School of Architecture and Planning, the director of the Libraries, the vice president for human resources, the vice president for resource development, the vice president and secretary of the Corporation, and the co-chair of the Council on Faculty Diversity.

Women now lead the Department of Earth, Atmospheric and Planetary Sciences; the Technology and Policy Program; the Center for Environmental Health Sciences; the Laboratory for Nuclear Science; and the Center for Space Research. The MIT co-directors of the Harvard-MIT Division of Health Sciences and Technology and of the MIT-

WHOI Joint Program in Oceanography/Applied Ocean Science and Engineering are both women. Across MIT, a growing number of women are serving in leadership roles within their units, particularly as associate department heads.

Each school at MIT now has a committee to monitor issues of gender equity, and there is an Institute-wide Council on Faculty Diversity to design programs and policies to increase the number of women and minority faculty and to create programs and policies that are sensitive to the need to balance an academic career with family life.

"These and other programs will help us to sustain the excellence of the MIT faculty while strengthening a diverse and supportive learning environment," Hockfield said.

# Media Lab Europe will close its doors February 1

The Board of directors of Media Lab Europe announced on Friday, Jan. 14 that the Dublin lab will close Feb. 1 due to a shortfall in financing.

Launched in 2000 by the Irish government and MIT, Media Lab Europe (MLE) was a groundbreaking research and innovation laboratory in the fields of digital technologies. The lab grew to a community of close to 100 people, many of whom came to Ireland from across Europe and the U.S. The lab launched a substantial array of projects in association with corporate sponsors such as Ericsson, Intel and Orange, and development agencies including Highlands and Islands Enterprise in Scotland. Fourteen patent applications were filed by the lab's researchers. The lab also participated in a number of European Union-funded research collaborations.

"The closing of Media Lab Europe is a great disappoint-

ment to those of us who have put so much effort into it," said Walter Bender, executive director of the MIT Media Lab. "From the beginning, it was a high-risk, but worthwhile venture."

Initial funding for the lab came from the Irish government; it was expected to gradually become self-financing through securing corporate funding for its research activities. However, the economic climate of the past four years proved extremely difficult for the lab.

"Europe has always been a challenge for private universities seeking corporate support, even though the late 1990s looked otherwise," said Nicholas Negroponte, co-founder and chairman of the MIT Media Lab, and the Wiesner Professor of Media Technology at MIT. "The bursting bubble and downturn in the digital and telecommunications industries made a difficult task impos-

sible. MLE fell short of its corporate projections and could not transition to an EU-or publicly funded entity rapidly enough."

When asked how the closing of the lab would affect the Media Lab's future outreach efforts, Bender noted that international programs will continue to be developed, but with a de-emphasis on managing overseas operations. He cited a recently formed collaboration with Taiwan's Industrial Technology Research Institute as an example.

"These types of collaborations are primarily focused on building rich venues for people to develop joint projects and to exchange ideas and research methods," said Bender. "We have learned that we don't need to be in the off-campus management business, and that having a local organization run the show is a better model."

## CLASSIFIED ADS

Members of the MIT community may submit one classified ad each issue. Ads can be resubmitted, but not two weeks in a row. Ads should be 30 words maximum; they will be edited. Submit by e-mail to [ttads@mit.edu](mailto:ttads@mit.edu) or mail to Classifieds, Rm 11-400. Deadline is noon Wednesday the week before publication.

### FOR SALE

Heriz Oriental Rug: 13'8" x 9'10". Handwoven work of art. Flawless cond. Reds, creams, blues, beautiful patterns. Appraised by Gregorian's at \$6,000. Will sell for \$5,000/bst. 253-8777 or 617-733-9045.

Moving end of February. Queen sleep sofa & loveseat, beige camelback, good cond. Make offer and take away. Watertown. 617-939-4351 or 253-0406 until January 31.

Yardman snow blower. 2 yrs. old, 10 horsepower, recently had a complete tune up. \$350 (firm). Cash or cashier's check. Anne at 258-8780.

Butcher block table. 54" dia. x 2" thick. Lime yellow metal pedestal, 4 white wire Bertioia chairs w/3 pads. Pick up in Cambridge. \$700. 617-547-5357.

### VEHICLES

2002 Volkswagen Passat. 4 dr, silver, 20.5K, GLS 4 cyl 1.8L Turbo, auto tiptronic trans, FWD. 1.5 yrs left on warr.; \$16,000. Joan at 253-7900 or [jcyr@mit.edu](mailto:jcyr@mit.edu).

1998 Ford Windstar Minivan, 72K+. 2002 Rascal Scooter, Model 245, never used. As a set for \$12,000/bst. Barb or Dave at 781-893-8083 or [balkwil@mit.edu](mailto:balkwil@mit.edu) (weekend appt).

### HOUSING

Arlington Heights: share 2 BR apt., 1st floor of house, LR, DR, spare room, storage, near public trans., off-street parking, W/D, dishwasher. No pets/smoking. Avail 4/1. \$625/mo. + utils. 781-316-2346 or [dheggstad@ll.mit.edu](mailto:dheggstad@ll.mit.edu).

Furnished room available in large Arlington house; near public transportation; parking available; kitchen privileges; washer & dryer on premise; own refrigerator & TV. 781-648-7425 (24 hrs/day).

Timeshare for Sale/Rent. \$350/week 4/9/05-4/16/05. Yarmouth Condominium, 759 Main Street, South Yarmouth, MA. Karla Stryker at 253-2203 or [kstryker@mit.edu](mailto:kstryker@mit.edu).

Ocean front summer cabin, Mount Desert Island, ME: 2BD/1BA w/living/kitchen area; picture windows, deck overlooking water; stairway to beach.

Mins from Acadia National Park, Bar Harbor. \$1,000/week June-Sept. Steve at 253-5757 or [chorover@mit.edu](mailto:chorover@mit.edu).

### STUDENT POSITIONS

Positions for students with work-study eligibility.

ReachOut seeks MIT students as reading partners for children in school and after school programs. Training provided. New tutors must attend orientation on Feb. 4 from 3:30-5pm. Application: <http://web.mit.edu/mitpsc/programs/reachout/>

One-on-one tutor for reading and writing (10th grade level). Payment: four hours of tutoring and two hours of reflection, planning, and professional development. Requirements: professional conduct, dress, timeliness. [mdd@massed.net](mailto:mdd@massed.net).



### Deveau performs in Beijing and Qingdao

Pianist and Senior Lecturer David Deveau has just returned from a debut tour of mainland China, during which he performed the Tchaikovsky Piano Concerto No. 1 in Qingdao on Dec. 30, and a solo recital on Jan. 3 in the Forbidden City Concert Hall in Zhong Shan Park, in Tianenmen Square, Beijing. He also gave a master class for the Piano Teachers' Association in Qingdao.

The Qingdao performance was broadcast live on China Cable TV. The Beijing recital, part of an international concert series featuring soloists and ensembles from around the world, was taped for delayed broadcast. Deveau was also the subject of a profile in China Daily, a major Beijing publication. Deveau's Beijing performance was enthusiastically received by audiences and media; it was highlighted on morning news TV programs and acclaimed in print media reviews. He has been invited to perform in Shanghai later in 2005.

## MTG goes rock-and-roll campy

The Musical Theater Guild will present the rock opera, "Tommy," created by The Who in 1969, over two consecutive weekends at MIT.

"Tommy" offers many rock anthems including "Pinball Wizard," "I'm Free" and "Sensation"—all etched in the Woodstock generation's mental juke box—along with an absurd story line. Tommy, a traumatized boy who becomes psychosomatically deaf, mute and blind, finds himself the object of a religious cult, thanks to his talents with pinball machines.

The music long outlasted the story. Who could forget, "That deaf, dumb and blind kid/Sure played a mean pinball"? "Tommy" was produced as a feature film in 1975 and as a Broadway show in 1993.

"'Tommy' is at long last the authentic rock musical that has eluded Broadway for two generations—an entertainment juggernaut that lifts the audience right out of its seats," wrote the New York Times when the show debuted.

Musical Theatre Guild's production of "The Who's Tommy," with its cast of colorful characters including the weirdly wacky Uncle Ernie and the soul-destroying Acid Queen, goes on stage Jan. 28-30 and Feb. 3-5 in the Sala de Puerto Rico. Curtain is at 8 p.m. except for a 2 p.m. matinee on Sunday, Jan. 30.

Tickets are \$10, \$8 MIT community, \$6 MIT/Wellesley students. For information or reservations, call 253-6294 or e-mail mtg-tickets@mit.edu.

### OORI PERFORMANCES

Oori will perform at the Cambridge Multicultural Arts Center (41 Second St., Cambridge) as part of "Still Present Pasts," an art and oral history exhibition that explores the legacies of the Korean War for Korean Americans. The performance is on Saturday, Jan. 29 at 6:30 p.m.

Oori will also perform at the Peabody Essex Museum's (PEM) Lunar New Year celebration on Saturday, Feb. 12,

at 2 p.m., leading "Jishin Balggi" ("stepping on the spirit of the Earth"), a traditional Korean street festival parade. The pungmul percussionists will join the parade and chase away evil spirits with loud drums and gongs. This community ritual is believed to purify a village in preparation for the New Year. The PEM is located at East India Square in Salem, Mass.

# The lure of Oori: ancient Korean art

Lynn Heinemann  
Office of the Arts

According to Grace Lim (S.B. 2002), in a traditional form of Korean musical culture known as "pungmul," the "soul of the play and the beats of the drums drive the singing and dancing."

Pungmul is practiced by Oori, MIT's traditional Korean folk art ensemble, and that's where Lim, who majored in electrical engineering and computer science, first learned the form, comprised of rituals, drumming, dance and acrobatics.

When Lim initially encountered the Korean group, her concern was more about "learning drums to prove that I could really play an instrument," she said. But she soon discovered that Oori offered much more. "I found a truly sincere and caring family within the group and wanted to practice so that I could become more active," she recalled.

Oori, which will make two public appearances over the next few weeks (see sidebar), is an offshoot of Hansori, MIT's Korean culture group. Members began practicing pungmul in 1993 and in 1994, when Hansori received initial funding for pungmul from the Council for the Arts at MIT to purchase their first set of drums from Korea. Oori formally became a separate group in 1999.

According to group member Minjoon Kouh, a graduate student in physics, Oori means "us" in Korean and follows pungmul's spirit of bringing everyone together into one harmonious community. But, admitted Kouh, it's not an easy name. "When we're at conferences and someone refers to Oori, we're never sure if they mean just our group or everyone there."

#### About pungmul

Pungmul dates back hundreds of years, originating in Korea's historic agricultural society when music and dance were performed to alleviate the repetitive nature of farming routines, to repel evil spirits and to celebrate the planting of crops and harvesting. The powerful emotional events in a pungmul performance traditionally take place in open space rather than on stage.

Pungmul has four basic percussive instruments—jang-go (an hour-glass

shaped drum), kwaeng-ga-ri, (a small gong), jing (a larger gong) and puk (a barrel drum)—in addition to dance, song and acrobatic elements. Beginners generally choose one of the instruments as their starting point. The group leaders usually know all the instruments.

Lim, who now works in information technology at a New York City investment bank, moved quickly from beginner status to leading practices and teaching pungmul as an Oori member.

How is movement and song incorporated into the drumming? "Sometimes, you're consumed with so much energy that you feel the need to stand up and dance with the instruments or sing what's on your mind," explained Lim.

#### Oori open to all

Lim emphasized that participation in Oori is open to people of all ethnic backgrounds and both Koreans and non-Koreans alike are enlightened through their education in the traditional art form. For many non-Koreans, says Lim, learning this traditional folk art helps them better understand Korean culture and dissolves stereotypes they may have. For Koreans themselves, pungmul is a medium through which they can discover their cultural identities, said Lim. "We learn about Korea's history and the importance that was traditionally placed on community building and strength," she noted.

Pungmul's strong tradition of building and bringing the community together is one reason that Oori expanded its base to include anyone in the Boston area, said Lim. They also broadened membership for more practical reasons: because of busy school and study schedules, students found they couldn't maintain the group's practices and teaching needs.

The size of the group varies from year to year (five-20) and this year there are about 10 active members—students from MIT, Harvard and Wellesley as well as non-students from the area. Some know pungmul before joining the group and some have no experience.

Oori practices weekly, on Saturday afternoons in Kresge Auditorium. Anyone who wants to learn pungmul is welcome. For more information, e-mail oori@mit.edu.



PHOTO / OMARI STEPHENS

Sung-Hee Do plays a traditional Korean instrument called a "Jang-go" at Oori practice.

MIT EVENT HIGHLIGHTS JANUARY 26 - 30

-  Science/Technology
-  Performance
-  Architecture/Planning
-  Humanities
-  Music
-  Exhibit
-  Reading
-  Special Interest
-  Business/Money
-  Film
-  Sports
-  Featured Event



Travelers

Above is a screenshot from "The Travels of Mariko Horo," a work in progress by Tamiko Thiel. Thiel gives a lecture today about her research in Japan. She also will present "The Travels of Mariko Horo." Thiel's research focuses on Japan from the mid-1600s to the mid-1800s. The lecture is in Room N52-390 at 6:30 p.m.

**WEDNESDAY**  
January 26

 **Artists by Night... Administrators by Day**  
More than 20 artists who also work at MIT. 9am-8pm. Room 7-238.

 **Coaches Teach the Teachers**  
MIT coaches teach skills teachers can use too. Noon. Room 4-153.

 **Aluminum Alloy Products**  
Dr. Hasso Weiland discusses the aluminum industry. 3-4pm. Room 33-206. 253-2279.

 **CAVS Fellow Tamiko Thiel: Work in Progress**  
Lecture on Thiel's research and "The Travels of Mariko Horo." 6:30pm. Room N52-390. 452-2484.

 **Israeli Folk Dancing (participatory)**  
8pm. Lobby 13. 484-3267.

**THURSDAY**  
January 27

 **Vertical City: The Life and Design of Pruitt-Igoe**  
Close look at the history of the Pruitt-Igoe complex in St. Louis. 9am-5pm. Room 7-338. 253-2825.

 **Fenway Rush: Lords of the Rings Marathon**  
All three extended edition Lord of the Rings movies back-to-back. 10am-11pm. FEN - 34. 437-1043.

 **What's Wrong With U.S. Airlines?**  
Dr. Peter P. Belobaba discusses recent trends in the industry. 2-3:30pm. Room 33-206. 253-2279.

 **Israel: Looking at the Facts through the Media**  
Miri Eisen, a retired Colonel from the IDF Intelligence Corps talks about media interpretation. 7pm. Room 4-145. 253-2982.

**FRIDAY**  
January 28

 **Arts Grant Deadline**  
Second deadline for 2004-2005 Council for the Arts funding. 9am-5pm. Room E15-205. 253-4005.

 **The Traveling Magazine Table**  
Assortment of rarely circulated local and international magazines. Noon-6pm. Room N52-390. 452-2484.

 **Charm School**  
Etiquette-related subjects will be taught in an informal, fun atmosphere. Noon-5pm. Student Center W20. 253-0194.

 **International Alumni Panel**  
Discussion on the international student experience from 5 MIT alumni. Noon. Room 56-114. 253-4733.

**SATURDAY**  
January 29

 **The Late Night Triad (2003)**  
Video work featuring The Tonight Show with Jay Leno, Late Night with Conan O'Brien, Late Show with David Letterman. 24 hours a day. Media Test Wall, Whitaker Bldg 56.

 **Varsity Rifle Collegiate Sectional**  
9am. MIT  
Pistol and Rifle Range in du Pont Athletic Center. 258-5265.

 **Varsity Men's and Women's Swimming vs. Amherst and Conn. College**  
1pm. Zesiger Sports and Fitness Center Pool. 258-5265.

**SUNDAY**  
January 30

 **F.A.S.T. Program - Our Genes and our Environment**  
Family adventures in science and technology. 2-4pm. MIT Museum. 253-5927.

 **Beyond Blue and Red**  
James Wallace, Founder of Sojourner Magazine, talks about mainline churches in 2005, moral values and the reconciliation of political divisions. 4-5:30pm. Trinity Church, Copley Square. 253-0108.

 **International Folk Dancing (participatory)**  
8-11pm. Lobby 13. 253-FOLK.

Go Online! For complete events listings, see the MIT Events Calendar at: <http://events.mit.edu>.  
Go Online! Office of the Arts website at: <http://web.mit.edu/arts/office>.

EDITOR'S CHOICE

THE WHO'S "TOMMY"

Musical Theatre Guild production. Jan. 28-30 and Feb. 3-5. (Jan. 30, 2 p.m.). \$10, \$8 non-MIT students, \$6 MIT/Wellesley. 253-6294.

*Jan. 28*

Sala de Puerto Rico  
8 p.m.

MIT CHAPEL CONCERT

Matt Ara, trumpet; Christine Fawson, trumpet; David Lindsey, trombone; Robin Milinazzo, horn; Leslie Havens, bass trombone and tuba.

*Feb. 3*

MIT Chapel  
Noon

TSUNAMI BENEFIT CONCERT

MIT students play music from jazz, to rock, to klezmer. 253-2982.

*Feb. 5*

MIT Chapel  
8 to 9:30 p.m.

MIT EVENT HIGHLIGHTS JANUARY 31 - FEBRUARY 6

**MONDAY**  
January 31

 **Rare and Special Books at MIT**  
Exhibit about De re metallica libri XII, by Georgius Agricola. 10am-4pm. Room 14N-118. 253-5136.

 **Technology Fair**  
Expo showcasing the most innovative and interesting technology here and across the nation. Noon-5pm. Walker Memorial.

 **The Perilous Earth: Understanding Natural Disasters**  
Dr. Ed Fratto, Director, Northeast States Emergency Consortium talks on natural hazards in the Northeast. Noon. Room 54-915. 253-3382.

**TUESDAY**  
February 1

 **Visualizing Physics: Transforming Science Learning at MIT**  
Get an insider's view of how MIT is redesigning the way it teaches physics. 10am-5pm. MIT Museum. 253-4444.

 **Planning and Running Recitations**  
Dr. Lori Breslow talks on creating a classroom environment that encourages student questioning, discussion, and real-time experimentation. Noon. Room 4-153. 253-2850.

 **Iraq War Veterans Tour @MIT**  
Two Iraq vets are visiting Massachusetts, talking about their experiences and speaking out about their concerns. 4:45-6pm. Room 6-120.

 **Contra Dance**  
Live music by Apple Crisp. 8-10:30pm. Lobdell Dining Hall. 354-0864.

**WEDNESDAY**  
February 2

 **Groundhog Day**  
Punxsutawney Phil makes his winter weather prediction.

 **Where Do We Go From Here?**  
Professor Naomi Chazan talks on prospects for an Israeli-Palestinian rapprochement. Noon. E38, 6th Floor Conference Room. 253-8092.

 **EAPS Department Lecture Series**  
Dr. Linda Elkins-Tanton of Brown University talks on early planetary crusts, magnetic fields, mantle heterogeneity, and the fate of water. 4-5pm. Room 54-915. 253-3382.

 **Start-up Clinic**  
Discover how to present a plan to potential investors. 6-9pm. MIT Faculty Club. 253-8240.

**THURSDAY**  
February 3

 **31st Annual MLK, Jr. Breakfast Celebration**  
Speaker: journalist Gwen Ifill. 7:30am. Morss Hall - Walker Memorial. 253-7940.

 **Great Works for the 21st Century**  
Richard Newton of UC Berkeley talk on research universities and collaboration for a global research agenda. 4:15-5:45pm. Room 32-123. 253-0145.

 **First Rehearsal for MIT Women's Chorus**  
All women in the MIT community are welcome to join. 7:45-10pm. Room 10-340. 643-0771.

 **The Internationalist**  
Play by Anne Washburn directed by Janet Sonenberg. Feb. 3-5 and 10-12. \$8, \$6 students. 8pm. Kresge Little Theater. 253-2908.

**FRIDAY**  
February 4

 **A Needle Woman**  
Videos created between 1999 and 2001, document Kimsooja, dressed in simple gray clothing, standing rigidly in the busy streets of Tokyo, Shanghai, Delhi, New York, Mexico City, Cairo, Lagos, and London. Media Test Wall, Whitaker Bldg 56. On view 24 hours. 253-4400.

 **Young Inventors at MIT**  
Objects displayed chronicle the past decade of Student Prize winners. MIT Museum, 10am-5pm. 253-4444.

 **Modern Times, Rural Places Seminar**  
Helen Tilley of Princeton speaks on "Tropical Infertility: Scientific Research on Soils and People in Equatorial Africa, 1880-1940." 2:30-4:30pm. Room E51-095. 253-4965.

**SATURDAY**  
February 5

 **Gaijin**  
Photographs by Bahadir and Melissa Kavlaki, administrative assistant II, Office of Environment, Health and Safety. Feb. 1-28. 1-6pm. Room 7-238.

 **Gallery Talk: Clipper Ships & Gold**  
In conjunction with the current exhibition "The Clipper Ship Era." 2pm. MIT Museum. 253-4444.

 **Chinese New Year Celebration**  
7-10pm. Student Center.

 **Chinese New Year Performance**  
7:30-11:30pm. Lobdell Dining Hall.

**SUNDAY**  
February 6

 **Student Origami Competition**  
Submit pieces to the Office of the Arts. Creative paper choices and original designs encouraged. No glue or tape allowed. Deadline: Monday, Feb. 7. 5pm. Room E15-205.

 **Mardi Gras Carnival**  
Celebrate Mardi Gras and enjoy food, music, and games and learn how different cultures celebrate this event. 6-9:30pm. Walker Memorial.

 **International Folk Dancing (participatory)**  
8-11pm. Lobdell Dining Hall. 253-FOLK.