



Volume 51 – Number 8
Wednesday – November 8, 2006

Silent plane designed

MIT, Cambridge conceive quiet, 'green' aircraft

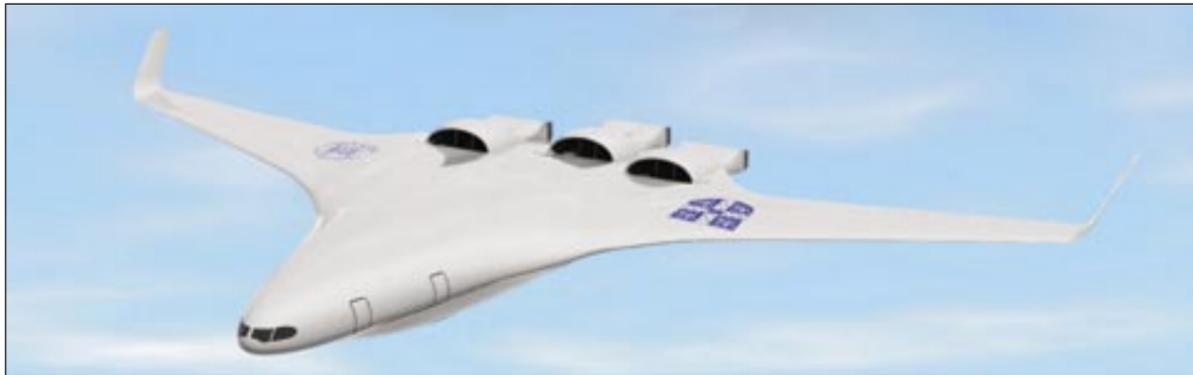


IMAGE COURTESY / SILENT AIRCRAFT INITIATIVE

Conceptual design for a silent, environmentally friendly passenger plane designed by researchers at the Cambridge-MIT Institute's Silent Aircraft Initiative. The engines are on top.

Elizabeth Thomson
News Office

MIT and Cambridge University researchers will unveil the conceptual design for a silent, environmentally friendly passenger plane at a press conference Monday, Nov. 6 at the Royal Aeronautical Society in London.

"Public concern about noise is a major constraint on expansion of aircraft operations. The 'silent aircraft' can help address this concern and thus aid in meeting the increasing passenger demand for air transport," said Edward M. Greitzer, the H.N. Slater Professor of Aeronautics and Astronautics at MIT.

Greitzer and Professor Ann P. Dowling of Cambridge University are the lead principal investigators on the Silent Aircraft Initiative. This collaboration of 40 researchers from MIT and Cambridge, plus many others from more than 30 companies, was launched three years ago "to develop a conceptual design for an aircraft whose noise was almost imperceptible outside the perimeter of an airfield in an urban environment."

While originally conceived to make a huge reduction in airplane noise, the team's ultimate design also has the potential to be more fuel-efficient. In a typical flight, the proposed plane, which is designed to carry 215 passen-

gers, is predicted to achieve 124 passenger-miles per gallon, almost 25 percent more than current aircraft, according to Greitzer. (For a down-to-earth comparison, the Toyota Prius hybrid car carrying two passengers achieves 120 passenger-miles per gallon.)

The project aims to develop aircraft by 2030.

The conceptual design addresses both the engines and the structure, or airframe, of a plane. Half of the noise from a landing plane comes from the airframe.

Other key features of the design include:

- An overall shape that integrates body and wings into a "single" flying wing. As a result, both the body and wings provide lift, allowing a slower approach and takeoff, which would reduce noise. The shape also improves fuel efficiency.
- The elimination of the flaps, or hinged rear sections on each wing. These are a major source of airframe noise when a plane is taking off and landing.
- Engines embedded in the aircraft with air intakes on top of the plane rather than underneath each wing. This screens much of the noise from the ground.
- A variable-size jet nozzle that allows slower jet propulsion during takeoff and landing but efficient cruising at higher speeds.

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Scientific American names Angela Belcher Researcher of the Year

Magazine ranks 4 from MIT in top 50

Elizabeth Thomson
News Office

Professor Angela Belcher has been named 2006 Research Leader of the Year and a member of the "Scientific American 50," the magazine's annual list of individuals, teams, companies and other organizations whose accomplishments demonstrate outstanding technological leadership.

Three other MIT researchers are also among the Scientific American 50. They are Elizabeth Goldring, a senior fellow at the Center for Advanced Visual Studies, and Professors Susan L. Lindquist and Richard A. Young of the Department of Biology and the Whitehead Institute for Biomedical Research. (Young shares the honor with Laurie A. Boyer, a postdoctoral scientist at Whitehead.)

The Scientific American 50 were named for their achievements in research, business or policymaking. A Leader of the Year was selected for each category. Belcher was named for research, putting her in the company of environmentalist and former Vice President Al Gore (policy leader) and the environmentally minded insurance firm Swiss Re (business leader).

A professor with appointments in the Department of Materials Science and Engineering and the Biological Engineering Division, Belcher was recognized for "the use of custom-evolved viruses to advance nanotechnology," according to the magazine.

"Using nature to create machinery, Belcher employs a living virus called M13 to construct metal nano-components that may be eventually incorporated into commer-



Angela Belcher

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MIT, University of Southampton launch World Wide Web research collaboration

Stephanie Schorow
News Office Correspondent

Someday, a newly graduated MIT student may proudly describe herself as a "web scientist," that is, someone who has studied the political, economic and engineering aspects of the World Wide Web, and, in the process, steered the web's development.

Such graduates could be among the results of the Web Science Research Initiative (WSRI), a new long-term collaboration between MIT and the University of Southampton that will generate research agendas to probe the scientific and social aspects of the web.

"Why are we doing this? We're doing it partly out of excitement and partly out of duty," said Tim Berners-Lee, inventor of the web, a senior MIT research scientist and one of the four founding directors of

the new initiative. While the web has created wonderful things, "it's created some horrible things," he said.

The web's explosive growth requires a wide-ranging response to fully understand its ever-changing, ever-expanding and often unpredictable nature, Berners-Lee said during a press conference on Nov. 2 with the initiative's three other founding directors: Nigel Shadbolt, professor of artificial intelligence



Tim Berners-Lee

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Theresa Stone is executive VP, treasurer

Theresa M. Stone, a member of the MIT Corporation since 1996 and the current chair of the MIT Investment Management Company, will serve as MIT's next executive vice president and treasurer, President Susan Hockfield announced today. Stone will assume her new role in February 2007.

Hockfield announced Stone's appointment in a letter e-mailed to the MIT community today. In her comments, Hockfield emphasized Stone's professional successes in investment banking and corporate management in the insurance and media industries, along with her ongoing engagement with MIT and its mission.

"Deeply knowledgeable about our academic enterprise," Stone brings to her new role a "unique combination of qualifications as both an executive and as a member of the Institute community,"



Theresa Stone

Hockfield noted.

Stone, who received the master's degree in management from MIT Sloan in 1976, said, "I am devoted to MIT and both honored and thrilled to have this opportunity to serve."

Since 1994, Stone's MIT service has included membership on the Executive and Development Committees of the Corporation. She chairs the Visiting Committee for the Humanities and serves on the MIT Sloan Dean's Advisory Council and the Visiting Committee for Music and Theater Arts.

Stone joined Morgan Stanley directly after graduation from MIT Sloan. In 1990, she moved into corporate management in the insurance industry, serving from 1990

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Panel probes new media, its friends and foes.

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Gray will serve as interim VP for human resources

Executive Vice President and Treasurer Sherwin Greenblatt announced on Nov. 7 that Margaret Ann Gray, currently director of organization and employee development, has agreed to serve as interim vice president for human resources, effective immediately.

Greenblatt made the announcement in an e-mail to the Institute community. In his letter, he emphasized the importance of leadership continuity and focused on Gray's length of service to MIT and her active and effective engagement with the Human Resources Leadership Team (HRLT), which has acted as the managing group for HR since the departure of former Vice President Laura Avakian.

"Given the extended period of search for the VP Human Resources, I feel that it is critical to maintain leadership continuity in this very important position. I am grateful to Margaret Ann for taking on these additional responsibilities," he wrote.

Gray joined MIT in 1991 as coordinator for training and development programs in human resources. Greenblatt noted that her role has "evolved significantly since then. She and her team have been involved in helping to implement change, providing professional development programs and building workforce and career planning initiatives at the Institute."

In her role as the "point person" for the HRL team, Gray has been meeting regularly with Greenblatt. "I would like to thank the HRLT members for their support and efforts during this time of transition," Greenblatt wrote.

He also noted that the search for the vice president continues. "We have not yet found a permanent candidate who can meet the high standards that MIT has for filling this critical position, but we are continuing the search in earnest," he wrote. Comments related to the search may be sent to vphr-search@mit.edu.

PLANE

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What will it take to turn the design into a plane by 2030?

"One major technical challenge is the integration of the propulsion system with the aircraft," Greitzer said. "The propulsion system, with engines embedded in the fuselage, is different than for traditional civil aircraft, in which the engines are located in nacelles below the wing. This presents a different set of issues to the designer."

Zoltan S. Spakovszky, C.S. Draper Associate Professor in MIT's Department of Aeronautics and Astronautics, also cited the integration of the propulsion system as a key challenge. Spakovszky and James I. Hileman, a research engineer in the department, are the chief engineers, or day-to-day managers, for the project.

He explained that in today's airplanes, with engines hanging below the wings, air flows unimpeded into the engine. In the new design, however, air traveling into the air intakes on top of the plane will behave differently. This is because the air particles flowing close to the plane's body experience friction. As a result, "the particles flow at a lower velocity near the surface of the plane than in the free (air) stream," Spakovszky said. The new engine must be designed to operate in these strongly nonuniform airflows.

A second important technical challenge involves the craft's unconventional airframe, Spakovszky said. "The structural integrity of a pressure vessel allowing this single wing-like shape needs to be ensured and poses a major challenge."

Greitzer emphasized that the collaboration between MIT, Cambridge University and their industrial partners was key to the end result.

"Collaboration and teaming occurred in essentially all aspects of the project. The Silent Aircraft Initiative has been very much an enterprise in which the whole is greater than the sum of the separate parts," he said.

Spakovszky referred to the overall team effort as the best part of the project. "Technical expectations were taken for granted, but working well across the Atlantic was not a given," he said. "It was a very, very neat experience."

The Silent Aircraft Initiative is funded by the Cambridge-MIT Institute. The Knowledge Integration Community included staff and students from both institutions and industrial collaborators, including Boeing and Rolls Royce.

NEWS YOU CAN USE

Benefits enrollment time

It's almost open enrollment time at MIT, when MIT employees have the opportunity to review and update their annual benefits for the coming year.

As they do each year, MIT employees will have the chance to learn about the benefits available to them at MIT's Benefits Fairs. The main campus fair will be held from 10 a.m. to 2 p.m. Tuesday, Nov. 14, in W20 Mezzanine Lounge. The Haystack Observatory fair will be held from 10 to 11 a.m. Thursday, Nov. 16, in Conference Room A. The Bates Linear Accelerator fair will be held from 2 to 3 p.m. Thursday, Nov. 16, in the library. The Lincoln Laboratory fair will be held from 11 a.m. to 4 p.m. Monday, Nov. 20, in the Lincoln Laboratory Auditorium.

The open enrollment period will take place from Nov. 15 at 8 a.m. to Dec. 1 at 6 p.m. This year there will be no changes to medical plan coverage levels and options. On Nov. 15, an enrollment guide will be sent to all active benefits-eligible employees, either through e-mail or mailed directly to their office or home. This will summarize the options available for 2007 and direct them to Employee Self Service to make any changes. If you are not making any changes you will not need to do anything, with the exception of Flexible Spending Accounts (FSA). You must actively enroll if you want to participate in a health-care or dependent-care FSA for 2007. To access information about the benefits offered at MIT and open enrollment, visit the Benefits Office web site at web.mit.edu/hr/benefits.

WEB

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in the School of Electronics and Computer Science at the University of Southampton; Daniel J. Weitzner, a principal research scientist at the MIT Computer Science and Artificial Intelligence Laboratory; and Wendy Hall, professor of computer science and head of the School of Electronics and Computer Science at the University of Southampton.

All four emphasized that WSRI will take a multidisciplinary approach. Its agenda will go beyond electronics and computer science to areas of economics and social networks in establishing the discipline of web science.

"The web as a structure is evolving and has now gotten so large we need new forms of analysis (and) new forms of methodology to understand some of its dynamic properties, how it evolves and what makes certain aspects of it stable," Shadbolt said.

Citing the growth of such entities as Google and the blogosphere, Shadbolt emphasized the web's transformative nature, particularly in areas such as transportation and health.

Yet, "We view the web as an inherently social phenomenon," said Weitzner. "It raises a set of social policies challenges," including such areas as intellectual property and privacy.

"I would suggest to you that in many cases, the problems here are not lack of rules or lack of laws, but lack of understanding of how to reflect those rules or have those rules be structured in the infrastructure we use on the web," Weitzner said.

WSRI intends to raise research funds and initiate programs to encourage doctoral students to focus on web issues; Hall even envisions the day when undergraduate-level web science courses are taught.

"It's all about capacity building. What we really want is for people around the world to start calling themselves 'web scientists,'" she said.

Because scientists want to continue to improve the web, the act of studying it may also lead to innovations or new protocols, said Berners-Lee, who is also director of the World Wide Web Consortium. "I don't think you can separate the analysis from the synthesis," he said. "The really important thing about the web is that it is a universal space."

The founders announced the web site of the new group, www.webscience.org, and noted that "like all good web sites," it was currently under development.

STONE

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to 1994 as vice president for strategy at the Chubb Corporation. From 1994 to 1997, she served as executive vice president (EVP) of Chubb and president and CEO of Chubb Life Insurance Company.

Following the acquisition of Chubb Life by North Carolina-based financial services firm Jefferson-Pilot Corporation in 1997, Stone became president of that company's radio, television and sports broadcasting business. In 2001, she was also named EVP and chief financial officer of Jefferson-Pilot. In that role, she helped lead the merger of Jefferson-Pilot with Lincoln Financial Group earlier this year. Stone retired from Jefferson-Pilot in May.

Stone currently serves on the boards of a number of institutions and businesses. She is deputy chair of the Federal Reserve Bank of Richmond. She and her husband, Rick, live with their son in Greensboro, N.C.

Stone received the B.A. degree from Wellesley College in 1966 and studied Romance languages at Cornell University before entering MIT Sloan.

In her letter, Hockfield offered "great thanks" to Sherwin Greenblatt, whose service as EVP since August 2005 allowed MIT to engage in "a rigorous search process" for a permanent successor while he "expertly managed our administrative and financial operations." She also thanked the search advisory committee of faculty and staff.

RESEARCHERS

Continued from Page 1

cial devices," the editors wrote.

How does it feel to be named Research Leader of the Year? "There are a few things that hit me as especially rewarding about receiving this honor, in addition to the recognition of my research contributions," Belcher said.

"The first is that Scientific American is so widely read, including by kids. Since the magazine's article earlier this year about my group's work on virus nanowires, I have had many inquiries and questions from kids [of all ages] who are excited about nanoscience and biology. To me that is very exciting."

She went on to note that "this honor coincides with the first birthday of my son. From the time I was an undergraduate I worried about whether I could be successful in science and engineering and also have a family, and I get this question a lot from young women.



Elizabeth Goldring

"I feel that this honor has given me the additional reassurance that I am doing both; that it can be challenging but it is also very rewarding and possible. It really helps to be at an institution like MIT that has excellent students and that is so supportive."

Goldring was honored for her development of a "seeing machine" that can allow people who are blind, or visually challenged like her, to access the Internet, view the face of a friend, "previsit" unfamiliar buildings and more.

John Rennie, editor in chief of Scientific American, cited Goldring's work as reflecting a trend among this year's winners. "We're seeing individuals, such as Elizabeth Goldring, whose medical conditions have inspired them to make dramatic scientific or fundraising contributions to medical research."

Lindquist was named to the Scientific American 50 for a discovery related to the prion protein that causes mad cow disease when malformed. In collaboration with Professor Harvey F. Lodish of MIT and Whitehead, she found that in its normal state, this protein "may also help nurture and maintain the body's supply of blood-cell-producing stem cells."

Young and Boyer "demonstrated how three proteins control the process by which an embryonic stem cell differentiates into a mature blood, brain or bone cell."

The Scientific American 50 list, selected by the board of editors of Scientific American, appears in the December issue of the magazine, on newsstands Nov. 21. It can also be accessed on Scientific American's web site at www.sciam.com starting Nov. 13.

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Printed on recycled paper

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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/news-office/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 mailsv@mit.edu.

Tech Talk 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, nonrefundable. 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.

Study: DUSP is nation's best

A recent national study of graduate programs in urban planning has ranked MIT's Department of Urban Studies and Planning the best in the nation.

Out of 94 departments assessed in North America, MIT's department was also ranked number one for international development, for housing, social and community development, for economic development and for technology; number two for real estate; and number three for environmental planning, for land use planning, for transportation planning and for urban design. In other words, the department as a whole and every program in it have been ranked among the top three in the country.

Planetizen, a public-interest information exchange for the urban planning, design and development community, announced the ranking.

During the fall of 2006—in association with the Oregon opinion research firm Davis, Hibbits and Midghall—

Planetizen surveyed hundreds of professionals, educators and students to gather information about what makes a good planning school and to find the schools that meet those criteria.

The results of their research have been published in the "Planetizen 2007 Guide to Graduate Urban Planning Programs," the first such independent ranking to be produced in North America. The 150-page guide features a comprehensive directory of 94 graduate urban planning programs in the United States and Canada and ranks the top 25 planning schools in the United States, as well as the top programs in 12 specialty areas.

After MIT, the top 10 programs in the ranking include Berkeley, the University of North Carolina at Chapel Hill, Harvard, Penn, UCLA, Cornell, Rutgers, USC and the University of Illinois at Urbana-Champaign.

Building technology expert describes studies of daylight

Marilyne Andersen speaks about utilizing natural light

Sasha Brown
News Office

Using as much natural light in buildings as possible has many advantages over using artificial lights, if its penetration is appropriately controlled, Assistant Professor Marilyne Andersen of the Department of Architecture told a small audience gathered in Room 7-431 for a Building Technology Lecture Series talk on Oct. 30. "Light is not only an amount of energy," Andersen said. "It also provides us with the means to reveal spaces and volumes and interact with our environment."

Andersen and others in the Building Technology Program have been working on how to better incorporate natural light into building design. Their research takes into consideration the many positive effects of natural light, including the considerable financial savings in energy bills and the overall effects natural light has on



Marilyne Andersen

well-being, as well as the challenges natural light presents.

Andersen cited studies in which natural light seemed to improve productivity in the workplace, with further study needed to isolate the effects of daylight. She also spoke of its significant health benefits in terms of regulating human circadian rhythms, for instance. Although the studies are still at an early stage, Andersen did say that researchers know that natural light is "part of our biological needs. Intuitively, we prefer daylight to electric light," she said.

Daylight savings

In a typical building, lighting accounts for 25-40 percent of energy consumption. By allowing more natural light to penetrate and controlling both its light and heat components, the financial savings could be considerable, Andersen said.

In addition to its health and financial benefits, natural light also provides an almost "perfect white light" that has a number of visual benefits. Best of all, natural light is "of course, plentiful," Andersen said during her hour-long talk.

Natural light is not without its issues. These include glare, overheating, variability and privacy issues, since transparent materials must be used. Andersen and her

students have been working on ways to increase the positive aspects of using natural light in buildings, while also decreasing the negative.

Addressing glare means keeping sunlight out of the field of view of building occupants while protecting them from disturbing reflections. Addressing overheating means adding appropriate exterior shading, filtering incoming solar radiation or even using passive control means such as thermal mass. Furthermore, addressing the variability and privacy issues requires creative ways to block or alter light patterns and compensate with other light sources.

There is a lot to consider and architects have to find new and innovative ways to simulate the effects of natural light on those who will occupy their buildings, Andersen said.

Building with light

At MIT, there are a number of ways designers may assess the lighting in their building designs. Among these methods are two types of heliodon—the motorized, automated type and the portable, manual type. The two heliodons simulate the course of the sun and use cameras to measure the effects of sunlight inside a building model during different times of both the day and year. With these results, designers and architects are better able to judge their model's adequacy to manage solar penetration and issues such as shadows and sunlight obstructions and high contrasts.

Other ongoing efforts at MIT include both the "LightSolve Project" and the "HelioDome Project."

The "LightSolve Project" attempts to fill the "gap between existing daylighting tools," Andersen said. Although not complete, Andersen hopes the project will "allow the architect to really explore" and synthesize information that would cover the entire year of light, so truly informed decisions can be made about the most appropriate design, also accounting for climate and the location of the building.

The "HelioDome Project" proposes a more time-efficient measurement procedure by relying on calibrated digital cameras as light- or heat-meters, thus addressing both visual and thermal concerns.

These projects, in combination with collaborations outside of MIT with Harvard Medical School and research institutes in California, Canada and Europe, will also lead to new ways of assessing daylight and promote a new generation of metrics including climate concerns and health issues, which will hopefully be integrated into codes standards and, hence, into new constructions or building renovations, Andersen said.

Astronomer develops youth apprenticeship program

Sasha Brown
News Office

An interdisciplinary field with room for creativity, astronomy is the perfect subject to spark a lifelong love of science, says Irene Porro, educational and public outreach scientist in the Kavli Institute for Astrophysics and Space Research. She has just secured a grant from the National Science Foundation to develop a youth astronomy apprenticeship program over the next three years.

"Astronomy is something anyone can do," Porro said. "All they really need to do is walk outside."

The grant is part of a collaborative effort between Porro, Professor of Physics John Belcher, Mary Dussault of the Smithsonian Astrophysical Observatory and Susan M. O'Connor of the Timothy Smith Network of urban community computer technology centers.

The Community Learning Through Youth Astronomy Apprenticeships (YAA) program will be funded by the grant. The program will be open to underserved and underrepresented high-school-age students. The grant will cover training of four YAA fellows who will run an after-school program for up to 120 students. From that program, 25 to 30 will be selected for summer apprenticeships, where they will earn a stipend of \$9 an hour.

The apprenticeships will be carried out with the collaboration of several organizations—in particular, those involved in informal science education—in the Boston area. "We are providing the incentive to have a great summer job and to do something fun and interesting," Porro said.

The apprentices will be selected from a pool of students involved in the current After School Astronomy Project (ASAP) run by the MIT Kavli Institute. ASAP is offered at eight after-school sites in Boston and Cambridge.

The students do their work using the MicroObservatory, a network of educational telescopes that are similar to professional instruments, designed and built by the Science Education Department of the Smithsonian Astrophysical Observatory. Students request images by submitting commands to the telescopes via a web interface. The robotic telescopes take the requested images, which are then e-mailed

to the students.

In the spring, students will present at the annual "Astronomy in the City" event, which started in May of this year. Students in grades 6 to 12 attended the program. Next year's event is May 12.

For Porro, the final event exemplifies much of what she hopes the students will gain from the apprenticeship program, as younger students watched older students

in awe and were inspired to learn even more. "It is far more powerful than just teaching them string theory," Porro said. "It is so critical to empower these kids."

"The idea is that, yes, we need to engage youth by having them practice science in a way that is fun, but most of all meaningful," Porro said. "Yes, we want to spark their interest, but then we need to continue working with them and develop their

capacity to do actual science."

The program uses a "project-based" approach to learning, said Porro. This means that students investigate their own questions. Porro told the story of a girl last year whose digital images of galaxies and nebulae were all returned in black and white.

"She asked, 'Is the universe all in black and white?'" Porro said. Rather than hand her the answer, Porro encouraged the girl to do a simple experiment to test her prediction that the universe would have no color.

The girl then took images with the MicroObservatory telescopes, this time using red, blue and green color filters. These filters let respectively only red, blue or green light to be recorded by the detector. Because she obtained images in all three cases, the girl answered her own question by discovering that the universe is, in fact,

full of color. "We just gave her the tools," Porro said.

Interested students must attend all of the after-school sessions and go through an application process to demonstrate their level of interest, Porro said. She expects it to be competitive.

As the apprenticeship program takes off, Porro said she hopes the idea will spread to communities and cities beyond Boston. "This is a way to introduce and develop critical skills in these students," Porro said. "It is exciting."

The MIT Kavli Institute was started in 2004 after a \$7.5 million gift from the Kavli Foundation dedicated to new studies of the cosmos.

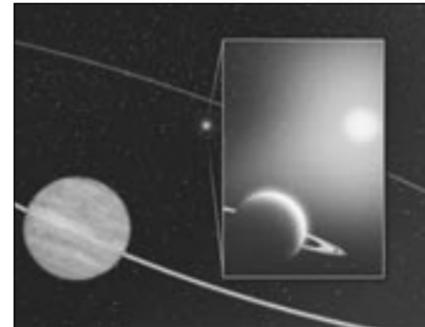


PHOTO / NASA / JPL-CALTECH / T. PYLE (SSC)

This is an artist's concept of the star HD 3651 as it is orbited by a close-in Saturn-mass planetary companion and the distant brown dwarf companion discovered by Spitzer infrared photographs.

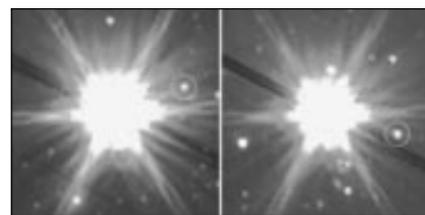


PHOTO / NASA / JPL-CALTECH
K. LUHMAN (PENN STATE UNIV.)
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Using infrared photographs obtained with NASA's Spitzer Space Telescope, astronomers have discovered two very cold brown dwarfs orbiting the stars HD 3651 (left) and HN Peg (right).

Robots headed for deepwater oil, gas operations

Andrea Cohen
MIT Sea Grant

MIT Sea Grant recently co-hosted a technology forum to discuss how autonomous underwater vehicles (AUVs) can offer low-cost solutions for deepwater oil and natural gas exploration and production.

Current methods for servicing deepwater wells (greater than 1,500 meters) involve deploying remotely operated vehicles—small subs connected to a surface ship with a tether. This can cost roughly \$100,000 per day.

An AUV, which does not rely on a tether, should be able to monitor and service a well at a fraction of that cost.

The technical challenges for operat-

ing AUVs in such environments include improving underwater acoustic communications and supplying sufficient power to the AUV, says MIT Sea Grant Director Chrys Chryssostomidis, professor of mechanical and ocean engineering. Other challenges include designing instruments to help the AUV carry out tasks 3 to 4 miles under water, and making sure that an AUV could dock and navigate properly at such depths.

Speaking at the forum, Frank van Mierlo, director of Cambridge-based Bluefin Robotics (the commercial spinoff of MIT Sea Grant's AUV Lab), offered a meaty incentive for carrying out the R&D needed to bring AUVs into deep water: the projection that 90 percent of undiscovered hydrocarbon resources will be found there.

Mitchell maps cities' new 'techno-sensual comfort zone'

Ruth Walker

News Office Correspondent

"Visions of the future from a particular moment always tell more about that moment than they ever tell about the future," William J. Mitchell, professor of architecture and of media arts and sciences, told his listeners at a lunchtime gallery talk on Nov. 1.

That observation didn't hold him back, however, from predicting a future in which GPS-equipped cars bid against one another, eBay style, but with no involvement from their human drivers, for scarce downtown parking spaces; or a future in which the entire outer skins of "intelligent buildings" naturally become "display spaces"—potentially works of public art, or maybe just a free-for-all

of Jumbotrons, as in New York's Times Square.

The audience gathered in an exhibition space that recalls the opening sequence of "2001: A Space Odyssey," Stanley Kubrick's 1968 film that had its own vision of the future, from the perspective of the year that included political assassinations, widespread civil disturbance and the "summer of love."

But Mitchell reminded his listeners that 1968 was also the year that ARPAnet began—the forerunner of the Internet, which has given rise to a "ubiquitously networked world."

The gallery talk was at the List Center for the Visual Arts, home through April 2007 to "Sensorium: Embodied Experience, Technology and Contemporary Art," an exhibition inquiring into "the relationship between the body and electronic technology," which has "reached

a new techno-sensual comfort zone in the early 21st century," according to the catalogue.

Mitchell is known for his work on how digital technology is creating not only "intelligent buildings" but intelligent cities—entities analogous to sensing human beings.

Both in his exhibition catalogue essay, "Networked Eyes," and in his gallery talk, he discussed the humble camera cell phone as the forward edge of this trend. Cameras have been connected to telephones for years—Mitchell's essay is illustrated with a photo of a demonstration of desktop videophones at the 1964 New York World's Fair. But such phones "put the eyes of the network in the wrong places," Mitchell wrote. "A representation of the visible world constructed from the viewpoints of desk accessories just wasn't that interesting."

It is the addition of mobility to the camera-plus-telephone combo that has turned out to be critical. "In the process of evolving a global digital sensorium, the camera-phone mutation—which shifted electronic eyes from desktops to the palms of our hand—has turned out to be a winner."

Whatever ubiquitous networking will do to cities, it will not make them disappear, Mitchell said. "There's no sign whatever that cities are going away," he observed. What he called "adjacency," or "spatial precedence," remains a scarce commodity in architecture and urban design, and digital technology is leading to changes in the way this commodity is allocated.

Considering the essential functions of a bookstore, and how Amazon carries them out differently from, say, the Harvard Book Store, he observed that digital technology has "mobilized" the advertising and browsing functions, has "concentrated" the book storage functions into large depots with good access to air connections, and has "decentralized" back-office functions, which telecommuting knowledge workers can now do from anywhere.

Digital technology also gives rise to an increasing phenomenon of "pre-experience"—before you see the painting on the museum wall, you've seen it on the museum's web site; before you visit the city, you've explored it virtually using online mapping technologies.

This sets up a new tension, Mitchell said, between expectations and reality. "This is transformative in your experience of a city," he said, comparing earlier eras when one would build a mental map of a place by experience, block by block. "What does your mental map mean in an era of Mapquest?"



PHOTO / DONNA COVENEY

Jane Farver, director of the MIT List Visual Arts Center, left, introduced William Mitchell, professor of architecture and media arts and sciences, when he spoke on digital interconnectivity last week.

A century of art crammed into a decade

Robin Ray

News Office Correspondent

New media art may be as subtle as a few digital white clouds floating across a sky-blue screen ("Super Mario Clouds," by Cory), or as audacious as the Yes Men, who famously posted an apology for the deaths at Bhopal, India, on a mock Dow Chemical web site. But in all its forms, it is not so much evolving as galloping in every direction.

What we're seeing is "essentially a hundred years of new media art crammed into 10 years," said Beth Coleman, assistant professor in Comparative Media Studies and in the Program in Writing and Humanistic Studies, who moderated a panel on "New Media and Art" on Oct. 26.

This rapid pace of change poses a challenge for museum curators, collectors and academics who find themselves dealing with mercurial change, a paucity of standards by which to assess the art, and artworks that resist traditional conservation and gallery display. An artwork of 1996, stored on a five-inch floppy disc, is today unreadable to the vast majority of operating systems.

"New Media and Art" focused on what new media and art are, how they're changing, and what their joint future might be.

In her opening remarks, Coleman noted, "Some of what we're looking at in Comparative Media Studies is a change from mass media to a network information economy." Artists, and many people who would not define themselves as such, are collectively pushing back against the commodification and corporate consolidation of information, sometimes using parody and subversion, sometimes exploring entirely new forms of expression for their own sake, she said. Some outstanding examples of new media art are currently on view at the MIT List Visual Arts Center exhibition, "Sensorium: Embodied Experience, Technology and Contemporary Art."

Panelist Lauren Cornell, executive director of Rhizome.org, an online platform for new media art, artists, cura-

tors, critics, gave the outlines of what Rhizome.org is doing. Rhizome was founded by Mark Tribe, assistant professor of modern culture and media studies at Brown University, in 1996 as an e-mail list for "people who were thinking about how the Internet could be a creative medium," whether practitioners, academics or curators.

Cornell said, "Rhizome was and still is a space to explore art practices that are outside of the museum or gallery culture," and questions, still relevant, of how Internet art practice rewrites acquisition practice. Rhizome, which is now affiliated with the New Museum in New York, is one of the very few organizations that commissions new media art; it also sponsors exhibitions, publishes two periodicals, and maintains a calendar of events and exhibitions worldwide.

Panelist Jon Ippolito, cofounder of the Still Water new media program at the University of Maine at Orono, and co-author of "At the Edge of Art" (Thames & Hudson, 2006), described his work in the Still Water new media program, which is intended to address what he calls the "three threats to the survival of new media." Ippolito's three threats are:

- "too many archivists and not enough animators" (the preservation problem);
- "too many attorneys and not enough amateurs" (the intellectual-property wars); and
- "too many academics and not enough artists."

(You can read his manifesto on this topic at newmedia.umaine.edu/interarchive/three_threats.html.)

Audience members were divided and impassioned in their responses to the topic. One person questioned whether much of what is put across as new media art is in fact art: "It looks just like stuff that was on everyone's LiveJournal."

Bill Arning, curator at the MIT List Visual Arts Center and one of the curators of the current "Sensorium" exhibition, said, "We're past the era of trying to squeeze the new media into the museum context ... The role of the curator is just to watch and see how we can be useful, until we get a new exhibition paradigm."



PHOTO COURTESY / AYMAN ABU SHIRBI

Palestinian light fantastic

El-Funoun, the Palestinian popular dance troupe, combines traditional and stylized dance and music to express the spirit of Arab-Palestinian folklore and contemporary culture. The troupe's repertoire comprises folkloric dance forms, called "dabke," in addition to more elaborate choreographed forms. The 50-person El-Funoun Troupe will perform in Kresge Auditorium on Sunday, Nov. 12 at 8 p.m. For information, contact Palestine@mit.edu or Ayman Abu Shirbi at 857-891-1814.

Everyman finds love in OCW

Lynn Heinemann
Office of the Arts

The eight-minute video, "Portal Excursion," is the latest in Michael Smith's film series, initiated in the late 1970s, about the hapless Mike Smith, a postmodern Everyman who believes everything and understands nothing. "Portal Excursion" will be screened at the Center for Advanced Visual Studies (CAVS) on Wednesday, Nov. 8 at 7 p.m. in Room N52-390. The artist will attend. Smith is a video and performance artist who was a visiting artist at the CAVS in March 2005 and has since been a fellow at the Center.

In "Portal Excursion," Mike's optimism is renewed after he discovers OpenCourseWare, MIT's free and open educational resource for self-learners around the world. "OCW offered Mike an incredible amount of information, not only to absorb his thoughts but also his energy," said Smith.

"The Infinite Corridor actually got me started on the idea for the project," said Smith. The space, he said, reminded him of "Powers of Ten," Charles and Ray Eames' landmark nine-minute 1977 film that takes viewers from a picnic scene to the edge of the Universe.

For more information, call x3-4415 or visit cavs.mit.edu.