

WEATHER, p. 2

TUE: 52°F | 30°F Sunny and clear

WED: 50°F | 32°F Mostly clear

THU: 48°F | 37°F Clouds building

Volume 130, Number 11 tech.mit.edu Tuesday, March 9, 2010

### Pres. candidate loses Senate seat

Three P/VP tickets debated on Sunday evening



The candidates for UA president and vice president participate in a debate in the student center on Sunday. Electronic voting will begin next Tuesday and end next Thursday; paper balloting will occur next Friday. For a video of the full debate, see http:// tech.mit.edu/V130/N11/uadebate/video.html

By Maggie Lloyd and Natasha Plotkin STAFF REPORTERS

At 9 p.m. last night, UA presidential candidate Ian P. Tracy '11 was officially removed from his seat in the UA Senate for lack of attendance at Senate meetings, according to Senate speaker Tim Stumbaugh '12.

Tracy said that he is continuing his campaign for the

UA presidency, but that he "hasn't had the chance to sit down with [running mate Pall M. Kornmayer '11] yet to discuss our final plans and final decisions."

"We'll have our plan more fleshed out within the next few days," he said.

Tracy explained that he knew last term that he would not be able to devote much time to his Simmons Senate position because of other commitments. He said he decided to run for the position regardless because there was limited interest in the seat among other Simmons residents, and he still "wanted to maintain some level of contact with the UA."

He acknowledged that his current situation "shows a lack of commitment."

Tracy also said that he would also probably be moving to a different dorm, most likely Burton-Conner, over the

next few weeks, and that "being a Simmons senator while in a different dorm would be inappropriate."

He said of his removal from senate, "I know this is a controversial event, but if [Kornmayer and I] were to win [the election], our time commitments would change radically next year."

Daniel D. Hawkins '12 was

**UA Elections, Page 11** 

# Lerman to leave MIT for **GWU** in July

Spent 42 yrs. at MIT

By Jiyeon Baek

Vice Chancellor and Dean of Graduate Education Steven R. Lerman '72 has announced that he will be leaving MIT to serve as provost of George Washington University, starting July 1.

In his decades as a faculty member and an administrator at MIT, Lerman spearheaded the creation of Project Athena, MIT's campus computing system, and contributed instrumentally to the development of OpenCourseWare, among other ini-

Lerman has been a member of the MIT community for over 40 years. Having first entered as an undergraduate in Course 1, he went on to earn an PhD in transportation systems in 1975 and then become a professor in the Department of Civil and Environmental Engineering.

He served as the MIT faculty chair from 2000 to 2002 and then again from 2006 to 2007, and became the dean of graduate education in 2007 and vice chancellor in 2008.

He has lived with his wife in the Warehouse, a graduate dorm, as housemasters for nine years.

According to the GWU's online news service, Lerman will oversee all student life related programs and offices as a chief academic officer and, as provost, will

Lerman, Page 12

### MIT alum and employee charged with son's murder



Geoffrey V. Wilson '02, current Media Lab employee, has been charged with the first-degree murder of his six-month-old son. Wilson, 31, is an MIT alumnus and an administrator at the Media Lab.

MIT alumnus and Media Lab intellectual property rights manager Geoffrey V. Wilson '02 was arrested and charged with the murder of his 6-month-old son, Nathan, on Sunday night.

was left in his father's care in the fam-Nathan Wilson ily's home in Malden, Mass., while his mother attended church, the Boston Globe reported. The baby's mother returned home on Sunday night to find him unresponsive. After attempting and failing to contact Nathan's pediatrician, Geoffrey Wilson took the baby to Children's Hospital, where Nathan was later pronounced dead. His brain injuries and the bruises on his forehead, neck, and chin suggest that he had died from shaken baby syndrome, prosecutor Marcy Jackson said. Wilson, 31, admitted to shaking his son but claimed that he was doing so only gently to simulate the motion of a car going over a speed bump.

Wilson was arraigned Monday afternoon by Malden District Court Judge Lee G. Johnson and is being held without bail at the Malden District Court. He has pleaded not guilty and will next appear in court for a pre-trial hearing on March 29.

— Jessica Liu

### How the human genome folds in 3-D

Lieberman-Aiden wins 2010 Lemelson-MIT Student Prize

By Ana Lyons

NEWS EDITOR

Until recently, the process of how genomic DNA neatly folds itself into the nucleus of a cell - twisting and contorting into a work of astonishingly compact molecular origami - had perplexed biologists.

When unstretched onto its two-dimensional, double-helix form, the human genome spans nearly two meters in length, yet it must fit inside the cell nucleus, which is only a hundredth of a millimeter in diameter. How exactly the genome can compress into an unknown

three-dimensional structure and retain some sort of underlying order, all while persisting tangle-free, remained a fundamental mystery in structural biology.

**INSIDE** How is the human genome like

ramen?

But last fall, Erez Lieberman-Aiden — a seventh year graduate student at the Harvard-MIT Division of Health Sciences and Technology - de-

Lieberman, Page 9

veloped a new technique for creating 3-D genomic maps called "Hi-C." His results led him to theorize that the



Erez Lieberman-Aiden G invented a way to find out how the genome folds.

### **Student-cadets attend ROTC** annual formal Military Ball

By Meghan Nelson

ASSOCIATE NEWS EDITOR

Cadets came dressed in their military best, in pressed uniforms emblazoned with stripes and ribbons, at last Friday's Military Ball, the MIT Reserve Officers' Training Corps annual formal social

Like any ROTC event, attendance at the evening's festivities was mandatory. Still..

Guest speaker three-star Lieutenant General Glenn Webster proffered advice and encouragement to the cadets, praising them for their hard work while alerting them to future sources of world

The ball, one of ROTC's rare joint-service social events and long-standing traditions, gathered together all the ROTC military services: Air Force, Army, Navy, and Marine. Meant to celebrate ROTC, increase inter-service bonding, and act as a forum to practice etiquette, ROTC cadets from the whole MIT division, which includes students from schools without their own ROTC programs such as Harvard, Tufts, Wellesley, filled the halls of the Kendall Square Marriott.

The ROTC cadets' uniforms were embellished with intricate details told

Military Ball, Page 6

### **IN SHORT**

Registration for fourth-quarter physical education classes begins this Wednesday at 10 a.m. for undergraduates at mitpe.com.

A screen that will display information on Saferide arrival times has been procured and should be installed outside W20 by next week, according to MIT Facilities.

British Foreign Secretary David Miliband SM '90 will be speaking about the Afghanistan war in Kresge Auditorium at 3:30 p.m. on Wednesday.

E-mail us: news@tech.mit.edu.

### **SEEING GREEN**

SimCity taught me how to build cities, but something was missing. Here's what the game left out. OPN, p. 5

### **GIVE FRESHMEN MORE FREEDOM**

MIT should let responsible freshmen stay off campus. OPN, p. 4

### **YOST: HOW WE CAN FIX BANKS**

The government has to regulate them, but how? And why?. OPN, p. 4



### **CLEAN ENERGY FOCUS OF CONFERENCE**

At the fifth annual MIT Energy Conference, Senator Jeff Bingaman (D-NM) outlined a clean-energy future. NEWS, p. 8

### **SLOAN SPORTS ANALYTICS CONF.**

Giants of sports management gathered to talk numbers on Saturday in Boston.

SPO, p. 16

### **SECTIONS**

World & Nation	2
Opinion	4
Fun Pages	
Cnarta	16

### Gates and Karzai plan for a Kandahar offensive

Defense Secretary Robert M. Gates met here on Monday with President Hamid Karzai and Gen. Stanley A. McChrystal to review plans for a major U.S.-led offensive in the city of Kandahar, the spiritual heart and birthplace of the Taliban, an operation McChrystal indicated could get under way this sum-

McChrystal, the top NATO and U.S. commander in Afghanistan, declined to be more specific, but told reporters at a briefing in Kabul that it would be several more months before U.S., coalition and Afghan forces were at full strength around Kandahar, a city of 900,000 and the capital of Kandahar prov-

The general said that while "Kandahar has not been under Taliban control, it's been under a menacing Taliban presence, particularly in the districts around it." He said he had already sent more troops to those districts, and more would be on the

By early summer, he said, "I think we'll have enough Afghan forces," adding that "our forces will be significantly increased around there." At this point, only 6,000 of the 30,000 extra U.S. troops ordered by President Barack Obama have

-Elisabeth Bumiller, The New York Times

### Obama picks ex-intelligence officer to lead security agency

President Barack Obama has chosen a retired Army intelligence officer, Maj. Gen. Robert A. Harding, to lead the Transportation Security Administration, a job officials call the most important unfilled position in the administration.

The powerful position has been vacant for months. Obama's first choice was Erroll G. Southers, a former FBI agent and counterterrorism supervisor for the Los Angeles airport police, who withdrew his name in January after it became clear that he faced a difficult confirmation battle.

In a statement about the new nominee, who rose in a 33year Army career to become a top Pentagon intelligence officer, Obama said, "I am confident that Bob's talent and expertise will make him a tremendous asset in our ongoing efforts to bolster security and screening measures at our airports." Harding retired from the military in 2001.

The appointment comes at a time of heightened attention to the quality of government intelligence and transportation security after the attempted bombing on Dec. 25 of a Northwest Airlines flight to Detroit from Amsterdam.

—Brian Knowlton, The New York Times

### Experts urge keeping civilian and military options in terror

Leading congressional Republicans are arguing that getting tough on terrorism means trying all foreign terrorism suspects before military commissions. But national security officials who served in the Bush administration say that taking away the criminal justice option would weaken the government's

Former counterterrorism officials are warning that the political debate has lost touch with the pragmatic advantages of keeping both the civilian and military systems available.

This rush to military commissions is based on premises that are not true," said John B. Bellinger III, a top legal adviser to the National Security Council and the State Department under President George W. Bush. "I think it is neither appropriate nor necessary to limit terrorism cases to either military commissions alone or federal trials alone."

—Charlie Savage and Scott Shane, The New York Times

# States increase risk by seeking higher returns on pensions

By Mary Williams Walsh

THE NEW YORK TIMES

States and companies have started investing very differently when it comes to the billions of dollars they are safeguarding for workers' retire-

Companies are quietly and gradually moving their pension funds out of stocks. They want to reduce their investment risk and are buying more long-term bonds.

But states and other bodies of government are seeking higher returns for their pension funds, to make up for ground lost in the last couple of years and to pay all the benefits promised to present and future retirees. Higher returns come with more risk.

"In effect, they're going to Las Vegas," said Frederick E. Rowe, a Dallas investor and the former chairman of the Texas Pension Review Board, which oversees public plans in that state. "Double up to catch up."

Though they generally say that their strategies are aimed at diversification and are not riskier, public pension funds are trying a wide range of investments: commodity futures, junk bonds, foreign stocks, deeply discounted mortgagebacked securities and margin investing. And some states that previously shunned hedge funds are trying them now.

The Texas teachers' pension fund recently paid Chicago to receive a stream of payments from the money going into the city's parking meters in the coming years. The deal gave Chicago an upfront payment that it could use to help balance its budget. Alas, Chicago did not have enough money to contribute to its own pension fund, which has been stung by real estate deals that fizzled when the city lost out in the bidding for the 2016 Olympics.

A spokeswoman for the Texas teachers' fund said plan administrators believed that such alternative investments were the likeliest way to earn 8 percent average annual returns over time.

Pension funds rarely trumpet their intentions, partly to keep other big investors from trading against them. But some big corporations

are unloading the stocks that have dominated pension portfolios for decades. General Motors, Hewlett-Packard, J.C. Penney, Boeing, Federal Express and Ashland are among those that have been shifting significant amounts of pension money out of stocks.

Other companies say they plan to follow suit, though more slowly. A poll of pension funds conducted by Pyramis Global Advisors last November found that more than half of corporate funds were reducing the portion they invested in U.S. equities.

Laggards tend to be companies with big shortfalls in their pension funds. Those moving the fastest are often mature companies with large pension funds, and who fear a big bear market could decimate the funds and the companies' own finances.

The larger the pension plan, the lower-risk strategy you would like to employ," said Andrew T. Ward, the chief investment officer of Boeing, which shifted a big block of pension money out of stocks in 2007. That helped cushion Boeing's pension fund against the big losses of 2008.

### Nigerians raise death toll from ethnic violence to 500

By Adam Nossiter

THE NEW YORK TIMES

DAKAR, SENEGAL — Officials and human rights groups in Nigeria sharply increased the count of the dead after a weekend of vicious ethnic violence, saying Monday that as many as 500 people - many of them women and children — may have been killed near the central city of Jos, long a flashpoint for tensions between Christians and Mus-

The dead were Christians and members of an ethnic group that has been feuding with the Hausa Fulani, Muslim herders who witnesses and police officials identified as the attackers. Officials said the attack was a reprisal for violence in January, when dozens of Muslims were slaughtered in and around Jos, including more than 150 in a single

Early Sunday, the attackers set

upon the villagers with machetes, killing women and children in their homes and ensnaring the men who tried to flee in fishnets and animal traps, then massacring them, according to a Nigerian rights group whose investigators went to the area. Some homes were set on fire.

The latest attacks were "a sort of vengeance from the Hausa Fulani," said the Rev. Emmanuel Joel, of the Christian Association of Nigeria in

After the January attacks, "the military watched over the city, and neglected the villages," he said. The attackers, said Joel, "began to massacre as early as 4 a.m. They began to slaughter the people like ani-

The police said Monday that they had made 95 arrests, including a number of Hausa Fulani. The clothes of many of the suspects were blood-stained, said Mohammed Larema, a police spokesman

in Plateau state.

The mood in Jos was tense Mondav. as troops were deployed in the streets, shops closed early, and residents remained indoors. A few miles south of the city nearly 400 of the victims were buried in a mass grave in Dogon Na Hauwa, the village that was the site of the worst violence. Some of the bodies had been mutilated.

There, women cried unconsolably amid crowds of mourners, and the thick smell of burnt and decomposing flesh hung in the air. Officials meanwhile combed a large area around the village, continuing to find bodies of victims during the day.

Shehu Sani of the Nigerian Civil Rights Congress said in a telephone interview on Monday that members of his organization had counted 492 bodies, mainly in Dogon Na Hauwa. He said that security forces had not been much in evidence in the "vulnerable areas" south of Jos.

### **WEATHER**

### Blue skies smiling at me

By Elizabeth Maroon

The past few days have given us a taste of the spring weather to come with sunny skies and comfortable highs approaching 60°F (16°C). A cold front that moved through New England last night will keep highs a little cooler than the past few days, although still well above the normal high for this time of year. High pressure in the region will allow us to keep these dry conditions and mostly clear skies for today and tomorrow. Tonight's clear skies and light winds will

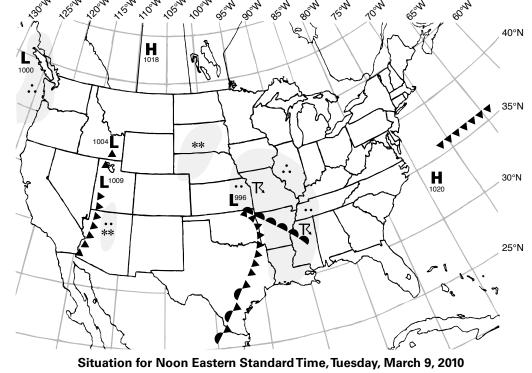
also be ideal for radiational tonight to dip into the low 30s on campus, and into the 20s further inland. Clouds will begin to build in our region throughout Thursday, as the next storm system further strengthens over the mid-Atlantic and begins to move our way on Friday. Ample moisture means that we could see plenty of rain (potentially a few inches) for the whole weekend starting sometime Friday afternoon or evening. But for today and tomorrow, enjoy the sun — nothing but blue skies do I see.

### **Extended Forecast**

Today: Clear skies with a high near 52°F (11°C) and light wind around 8 mph from the northwest.

Tonight: Calm, mostly clear with a low near 30°F(-1°C). Tomorrow: Sunny, calm to light wind from the west then south, high near 50°F (10°C) and a low near 32°F (0°C).

Thursday: Clouds building through the day with a high of 48°F (9°C) and a low of 37°F (3°C).



	Weather Systems	Weather Fronts	Precipitation Symbols			Other Symbols		
- 1				Snow	Rain		Fog	
	High Pressure	Trough	Showers	*	$  \div  $	7	Ü	
	.	Warm Front		V .		12	Thunderstorm	
	Low Pressure	<b></b>	Light	*	•	$ \infty $	Haze	
	e	▲▲▲▲ Cold Front	Moderate	**	••	Comp	oiled by MIT	
	§ Hurricane	Stationary Front	Heavy	**	••		orology Staff	

# After boom and bust, solar power finds a place in Spain

By Elisabeth Rosenthal

THE NEW YORK TIMES

PUERTOLLANO, SPAIN — Two years ago, this gritty mining city underwent a brief, 21st-century gold rush. Long famous for coal, Puertollano discovered another energy source it had overlooked: the relentless, scorching sun.

With generous incentives from the Spanish government to jumpstart a national solar energy industry, the city aggressively set out to replace its failing coal economy by attracting solar companies, with a campaign slogan: "The Sun Moves Us"

Soon, Puertollano, home to the Museum of the Mining Industry, became a hub of alternative energy, with two enormous solar power plants, factories making solar panels and silicon wafers, and clean energy research institutes. Half the solar power installed globally in 2008 was installed in Spain.

Farmers sold land for solar plants. Boutiques opened. And people from all over the world, seeing business opportunities, moved to the city, which had suffered 20 percent unemployment and a population exodus.

But as low-quality, poorly designed solar plants sprang up like weeds on Spain's plateaus, Spanish officials came to realize that they would have to subsidize many of them indefinitely, and that the industry they had created might never produce efficient green energy on its own.

In September, the government abruptly changed course, cutting payments and capping solar construction. Puertollano's brief boom went bust. Factories and stores shut, thousands of workers lost their jobs, foreign companies and banks abandoned contracts that had already been negotiated.

"We lost the opportunity to be at the vanguard of renewables — we were not only generating electricity, but also a strong economy," said Joaquin Carlos Hermoso Murillo, Puertollano's mayor since 2004. "Why are they limiting solar power, when the sun is unlimited?"

Puertollano's wrenching fall points to the delicate policy cal-

culations needed to stimulate nascent solar industries and create green jobs, and might serve as a cautionary tale for the United States, where a similar exercise is

For now, electricity generation from the sun's rays needs to be subsidized because it requires the purchase of new equipment and investment in evolving technologies. But costs are rapidly dropping. And regulators are still learning how to structure stimulus payments so that they yield a stable green industry that supports itself, rather than just costly energy and an economic flash in the pan like Spain's.

"The industry as a whole learned a lot from what happened in Spain," said Cassidy DeLine, who analyzes the European solar market for Emerging Energy Research, a firm based in Cambridge, Mass. She noted that other countries had since set subsidies lower and issued stricter standards for solar plants.

The most robust Spanish solar companies survived the downturn, have restructured and are reemerging as global players.

# Obama says passing health bill is more important than politics

By Helene Cooper and David M. Herszenhorn

THE NEW YORK TIMES

PHILADELPHIA—President Barack Obama challenged wavering members of his party on Monday not to give in to political fears about supporting health care legislation, asserting that the urgency of getting a bill through Congress should trump any concern about the consequences for Democrats in November.

In a high-octane appearance that harkened back to his "yes we can" campaign days, Obama jettisoned the professorial demeanor that has cloaked many of his public pronouncements on the issue, instead making an emotional pitch for public support as he tries to push the legislation through a final series of votes in Congress in the next several weeks.

With the fate of his signature initiative on the line, and Republicans

eager to portray Democrats as out of step with the country and incapable of governing, Obama seemed to relish the opportunity to cut loose and make his case on his terms, as he often has at pivotal moments. And, with his back to the wall, he appeared intent on reassuring his party that he is as confident as ever in his powers to explain, persuade and capture the politics of the moment.

Appearing before 1,800 students and other members of the public at Arcadia University, just outside of Philadelphia, Obama cast himself almost as an outsider in Washington, expressing disdain for "the sport of politics" and saying the time for endless debates is over.

"They've warned us we may not win," Obama said of his doubters and critics. "They've argued now is not the time for reform. It's going to hurt your poll numbers. How is it going to affect Democrats in November? Don't do it now.

"My question to them is: When is the right time? If not now, when. If not us, who?"

Obama asked, "How many people would like a proposal that holds insurance companies more accountable? How many people would like to give Americans the same insurance choices that members of Congress get? And how many would like a proposal that brings down costs for everyone? That's our proposal."

Obama also took aim at those who have warned that the health push could cost the Democrats their majority in the November elections. He alluded to letters he has received from cancer survivors and others who have been priced out of the health care market.

"What should I tell these Americans?" Obama said, to raucous cheering. "That Washington's not sure how it will play in November? That we should walk away from this fight?"

# In earthquake's aftermath, invisible cracks threaten Chile's capital

By Ginger Thompson

THE NEW YORK TIMES

SANTIAGO, CHILE — From outside, there is no sign that the century-old building where Cecilia Painaqueo lived with her four children was damaged by one of the strongest earthquakes ever recorded.

But inside her second-floor apartment, the bedroom walls collapsed and the wooden ceiling buckled. Painaqueo said there were a lot of so-called "casas de mentira," or houses that lie, in her central city neighborhood.

"You don't see the damage by standing on the street," she said. "You have to go inside."

In many ways, her words sum up the state of Chile's elegant, orderly capital 10 days after it was shaken by the 8.8-magnitude earthquake. While so much of the southern parts of this country lie in ruins, this city of high-rises and tree-lined boulevards appears mostly unscathed, a tribute, many say, to its strict building codes.

But many people in this city of 3.3 million still do not know if their lives will ever be the same. The worse off tend to be those left out of this country's economic growth.

Unsightly and unsafe camps, primarily occupied by Peruvian immigrants, have sprouted across the city's historic center. In poor neighborhoods, thousands of people are still waiting for schools to reopen and basic services to be restored.

The poor are not the only ones living in limbo. Thousands of middle-class families, without insurance or savings, have been forced to move in with friends and relatives after the quake left their shoddily built condominiums uninhabit

For decades, Chile's economy has been marked by two things: dynamic growth and a gaping disparity between the rich and the poor. The first attribute goes a long way in explaining how so much of Santiago withstood a temblor that was hundreds of times stronger than the one that flattened Haiti's capital in January.

The second attribute explains why the earthquake hit some families so much harder than others.

Less than 5 miles away from the old adobe neighborhood where Painaqueo lives, the buildings in a section of the city known as "Sanhattan" are made from reinforced concrete and steel. It was hard to find anyone in the neighborhood who had been severely affected by the earthquake.

Across town at the Central Park condominium building, a sign hanging over the entrance to the building read, "Ground Zero." And camped out on the couches in the lobby were Jorge Ibarra and his wife, Elena Celis, who have spent every night there since the earthquake caused the tower to list to one side.

# After cancer, more women are having healthy breasts removed

For decades, advocates have fought to protect women from disfiguring breast cancer surgery, arguing that it was just as effective to remove only the cancerous tissue rather than the whole

But today, a growing number of women with breast cancer are pushing surgeons in a startling new direction. Not only do they want the cancerous breast removed, but they want the healthy breast cut off, too.

"I just didn't want to worry about it," said Liliana Holtzman, 50, of Ann Arbor, Mich., who had both breasts removed after a cancer diagnosis five years ago. "It was for my own peace of mind."

The percentage of women asking to remove both breasts after a cancer diagnosis has more than doubled in recent years. Overall, about 6 percent of women undergoing surgery for breast cancer in 2006 opted for the procedure, formally known as contralateral prophylactic mastectomy. Among women in their 40s who underwent breast cancer surgery, one in 10 opted to have both breasts removed, according to a University of Minnesota study presented last week at the annual meeting of the Society of Surgical Oncology.

Surprisingly, the practice is also growing more popular among women with the most curable cancers. Among women in the earliest stage, the rate of double mastectomy rose to 5.2 percent in 2005, from 2.1 percent in 1998, according to a 2009 study.

—Tara Parker-Pope, The New York Times

# Three drugmakers compete to buy Ratiopharm

A three-way bidding war has broken out for Ratiopharm, a leading generic drugmaker with headquarters in Ulm, Germany, analysts said

The auction is riveting drugmakers and analysts because it pits the world's biggest maker of brand-name drugs, the American company Pfizer, against the global leader in generics, Teva Pharmaceutical Industries, with headquarters in Israel. Pfizer is said to have bid as much as three billion euros — or about \$4.1 billion — for Ratiopharm, Bloomberg reported last week, citing two people with knowledge of the talks. Besides Teva, analysts say, the other bidder is Actavis, a generic maker based in Iceland.

Actavis has 10,000 employees worldwide and operations in 40 countries. But with global sales of roughly the same level as Ratiopharm and a heavy debt load, Actavis may have the biggest challenge convincing Ratiopharm, which is family-owned, that it would not seek to shrink the company, analysts said.

—Natasha Singer, The New York Times

# Using computing might, Google improves its translation tool

The free Google Translate service handles 52 languages, more than any similar system, and people use it hundreds of millions of times a week to translate Web pages and other text.

Google's efforts to expand beyond searching the Web have met with mixed success. Its digital books project has been hung up in court, and the introduction of its social network, Buzz, raised privacy fears. The pattern suggests that it can sometimes misstep when it tries to challenge business traditions and cultural conventions.

But Google's quick rise to the top echelons of the translation business is a reminder of what can happen when Google unleashes its brute-force computing power on complex problems.

The network of data centers that it built for Web searches may now be, when lashed together, the world's largest computer. Google is using that machine to push the limits on translation technology. Last month, for example, it said it was working to combine its translation tool with image analysis, allowing a person to, say, take a cell phone photo of a menu in German and get an instant English translation.

Creating a translation machine has long been seen as one of the toughest challenges in artificial intelligence. For decades, computer scientists tried using a rules-based approach — teaching the computer the linguistic rules of two languages and giving it the necessary dictionaries.

But in the mid-1990s, researchers began favoring a so-called statistical approach. They found that if they fed the computer thousands or millions of passages and their human-generated translations, it could learn to make accurate guesses about how to translate new texts.

—Miguel Helft, The New York Times

# Next for 'Cove' Oscar winners: keeping whale off sushi plates

It is sport among black belt sushi eaters here to see just how daring one's palate can be. But even among the squid-chomping, roe-eating and uni-nibbling fans, whale is almost unheard of on the plate. It also happens to be illegal.

Yet with video cameras and tiny microphones, the team behind Sunday's Oscar-winning documentary film "The Cove" has orchestrated a Hollywood-meets-Greenpeace-style covert operation to ferret out what the authorities say is illegal whale meat at one of this town's most highly regarded sushi destinations.

Their work was coordinated with law enforcement officials, who said on Monday that they were likely to bring charges against the restaurant, the Hump, for violating federal laws against selling marine mammals.

A spokesman for the U.S. attorney for the Central District of California declined to say what charges could be brought against the restaurant, but said they could come as early as this week.

In the clash of two Southern California cultures — sushi aficionados and hard-core animal lovers — the animal lovers have thrown a hard punch.

— Jennifer Steinhauer, The New York Times



Chairman Steve Howland '11 Editor in Chief Jeff Guo '11

Business Manager Greg Steinbrecher '12 Managing Editor David M. Templeton '08

Executive Editor Natasha Plotkin '11

NEWS STAFF

Editors: John A. Hawkinson '98, Pearle Lipinski '12, Ana Lyons '12, Robert McQueen '12; Associate Editors: Maggie Lloyd '12, Meghan Nelson '13, Jessica J. Pourian '13, Staff: Vinayak Ranade G, Daniela Cako '09, Elijah Jordan Turner '11, Jingyun Fan '12, Danielle Gorman '12, Ziwei Hao '12, Camille Z. McAvoy '12, Sandhya Rawal '12, Zeina Siam '12, Jiyeon Baek '13, Margaret Cunniff '13, Joy E. Lee '13, Yuliya Preger '13, Divya Srinivasan '13; Meteorologists: Brian H. Tang G, Allison A. Wing G, Angela Zalucha G, Elizabeth Maroon '10, Vince Agard '11.

PRODUCTION STAFF

Editors: Connor Kirschbaum '13, Aislyn Schalck '13; Associate Editors: Divya Chhabra '13, Joanna Kao '13; Illustrator: Alison Malouf '12.

OPINION STAF

Editors: Joseph Maurer '12, Ethan Solomon '12; Staff: Florence Gallez G, Alejandro Rogers B. G, Gary Shu G, David Weinberg G, Keith A. Yost G, Josh Levinger '07, Daniel Yelin '10, Nina Sinatra '12, Ryan Normandin '13, Erasmus K.H.J. zu Ermgassen CME.

SPORTS STAFI

Editors: David Zhu '12, Russell Spivak '13; Staff: Aaron Sampson '10, Michael Gerhardt '12, Nydia Ruleman '12.

ARTS STAF

Editor: Maggie Liu '12; Associate Editor: Samuel Markson '12; Staff: Sudeep Agarwala G, Bogdan Fedeles G, Matt Fisher '10, Joyce Kwan '10, Praveen Rathinavelu '10, Joanne Y. Shih '10, Kevin Wang '10, Tracy Kambara '11, Sun K. Kim '11, Yü Linlin Huang '13, Emily Nardoni '13, Jenny Xie '13.

PHOTOGRAPHY STAFF

Editors: Vibin Kundukulam '11, Jessica Liu '13; Associate Editors: Sunny X. Long '13, Sam Range '13; Staff: Vincent Auyeung G, David Da He G, Perry Hung G, Aviv Ovadya G, Sheng-Ying Aithne Pao G, Arthur Petron G, Melissa Renée Schumacher G, Martin Segado G, Noah Spies G, John Z. Sun G, Scott Johnston '03, Martha Angela Wilcox '08, Eric D. Schmiedl '09, Biyeun Buczyk '10, David Chen '10, Helen Hou '10, Monica Kahn '10, Corey Kubber '10, Alice Li '10, Diane Rak '10, Jongu Shin '10, Christian J. Ternus '10, William Yee '10, Michael Yu '10, Dhaval Adjodah '11, Jasmine Florentine '11, Dan Kubaczyk '11, Michael Y. McCanna '11, Michael Meyer '11, Aaron Thom '11, Allison M. Alwan '12, Yuanyu Chen '12, Nicholas Chornay '12, Rachel Fong '12, Jessica Lin '12, Rui Luo '12, Andrew Shum '12, Meng Heng Touch '12, Jennifer L. Wong '12, Feng Wu '12, Melaine Adams '13, Arfa Aijazi '13, Elizabeth D'Arienzo '13, Cole Houston '13, Elijah Mena '13, Sean Tang '13, Oscar A. Viquez Rojas '13.

CAMPUS LIFE STAFF

Editor: Michael T. Lin '11; Staff: Roberto Perez-Franco G, Christine Yu'11; Cartoonists: Michael Ciuffo '11, Ben Peters '11, Michael Benitez '12.

BUSINESS STAFF

Advertising Managers: Mark Thompson '11, Moya Chin '13; Operations Manager: Sherry Yan '11; Staff: Wendy Cheng '13, Jennifer Fong '13.

TECHNOLOGY STAF

**Director:** Quentin Smith '10; **Staff:** Greg

EDITORS AT LARGE

Contributing Editors: Austin Chu G, Michael McGraw-Herdeg G, Nick Bushak '10, Caroline Huang '10, Monica Gallegos '11, Robin L. Dahan '12; Senior Editors: Brian Hemond G, Charles Lin G, Satwiksai Seshasai G, S. Balaji Mani '10, Andrea Robles '10, Jessica Witchley '10, Arkajit Dey '11.

ADVISORY BOARD

Paul E. Schindler, Jr. '74, V. Michael Bove '83, Barry S. Surman '84, Robert E. Malchman '85, Deborah A. Levinson '91, Jonathan E. D. Richmond PhD '91, Karen Kaplan '93, Saul Blumenthal '98, Frank Dabek '00, Daniel Ryan Bersak '02, Eric J. Cholankeril '02, Jordan Rubin '02, Nathan Collins SM '03, Keith J. Winstein '03, Akshay R. Patil '04, Tiffany Dohzen '06, Beckett W. Sterner '06, Marissa Vogt '06, Andrew T. Lukmann '07, Zachary Ozer '07, Omari Stephens '08, Marie Y. Thibault '08, Ricardo Ramirez '09, Nick Semenkovich '09, Angeline Wang '09, B. D. Colen.

PRODUCTION STAFF FOR THIS ISSUE

Editors: David M. Templeton '08, Divya Chhabra '13, Connor Kirschbaum '13, Joanna Kao '13

The Tech [ISSN 0148-9607] is published on Tuesdays and Fridays during the academic year (except during MIT vacations), Wednesdays during January, and monthly during the summer by The Tech, Room W20-483, 84 Massachusetts Avenue, Cambridge, Mass. 02139. Subscriptions are \$50.00 per year (third class). POSTMASTER: Please send all address changes to our mailing address: The Tech, P.O. Box 397029, Cambridge, Mass. 02139-7029. TELEPHONE: Editorial: (617) 253-1541. Business: (617) 258-8224. Facsimile: (617) 258-8226. Advertising. subscription, and typesetting rates available. Entire contents © 2010 The Tech. Printed on recycled paper by Mass Web Printing Company.

### **CORRECTIONS**

Sudeep Agarwala's article "Two Minds in One Work" from Feb. 19 was edited for clarity, but omitted and distorted some of the author's discussion and introduced errors. Biss and Goode's performance was very well executed, given that pianists often perform as soloists (due to the timbre, history and range of the instrument). However, some works did not translate well into an arrangement for piano for two hands. The article as it appeared in *The Tech* was published without the author's final approval.

**GUEST COLUMN** 

# Let's reevaluate keeping freshmen on campus

### Eliminate an ineffective policy and improve student life

By Diana Hsieh

The recent proposal to change the freshmen-on-campus policy has caused much debate within the MIT community. The administration first made on-campus housing mandatory for first-years after the death of a freshman from heavy drinking at a pledge party for two main reasons. First, the Institute claimed that the change would expose freshmen to a community outside of their immediate living group. Second, the major public backlash after the death surely played a role in the policy change. But while keeping freshmen on campus does help them integrate within the broader campus community, that more campus-oriented community often isolates freshmen from an independent living group in which they may feel more comfortable.

Looking back, freshmen-on-campus seems to appease the general public's outrage more than solving the problem of dangerous drinking at parties. According to a November 2002 article in The Tech, "Some Frosh Live in Fraternities," fraternities have since the start of the policy encouraged freshmen to unofficially move into their houses, designating some rooms specifically for freshmen. Many fraternities even keep empty beds for freshmen. Today, freshmen continue to visit fraternities to party, and MIT has conveniently turned a blind eye towards those who choose to unofficially live in their fraternities. The freshmen-on-campus policy has become a formality. It is unsuccessful in regulating freshmen drinking and has only a limited ability to keep freshmen on campus during their second semester. MIT has not solved the problem of freshmen and fraternities, but has rather hidden it under the blanket of an ineffective policy.

I do not deny that forcing freshmen to live on campus is effective in helping students adjust to the college environment. However, is a year-long period of integration truly necessary? It is difficult to determine whether one semester is enough to experience the MIT campus life. But the popular practice of unofficially staying in fraternities indicates that many freshmen already feel comfortable with choosing a living environment. Although some MIT freshmen may still be adjusting to their newfound independence in the second semester, these freshmen can choose to stay on campus. MIT should give freshmen the freedom to choose where they would like the live during the second semester, especially since the second semester marks the first time freshmen are exposed to classes on a grading basis. A fraternity or sorority could become an important academic and social support network for freshmen.

Of course, the social networking involved in living with a fraternity or sorority could also negatively impact freshmen grades. In response to this possibility, MIT should limit moving to fraternities to freshmen who have passed all of their classes during the first semester. In other words, moving to a fraternity should involve the approval of freshmen academic advisors, and be a privilege given only to those who successfully adapted to MIT academically.

It is inappropriate to continue a freshmen-on-campus policy that is ineffective in regulating drinking and providing a fitting environment for freshmen. Freshmen should be able to experience "on-campus" life during the first semester and then be free to choose which community they prefer. A great source of fear MIT may have in allowing first-years to return to fraternities or other living groups is a sense of losing control over freshmen - many seem to believe that having freshman off-campus weakens MIT's authority over them. This is not true. Rather, allowing freshmen to continue unofficially leaving their dormitories is a much more serious security lapse. To cover liability issues under a new policy, MIT should document all freshmen living in fraternities during the second semester. MIT could ask fraternities to follow a stricter alcohol policy, and severely reprimand non-compliance.

Although the new proposal to allow freshmen to move into FSILGs is promising, MIT needs to reconsider why such a new proposal is necessary. Supporters of the proposal believe that the policy could fix dormitory overcrowding and allow MIT to admit more students in the upcoming years. However, MIT should not push freshmen off campus to make room for more potential students. Instead, they should look for a more responsible pathway to find room for more students rather than degrading the quality of life of students already on campus. Of course, the opening of Ashdown to undergraduates would also alleviate dormitory overcrowding. However, as MIT's faces a budget crunch, the date of Ashdown's completion is uncertain. So in order for an FSILG first-year policy change to be effective in relieving overcrowding, MIT should not increase the class size until Ashdown

MIT needs to encourage an active cooperation between independent living groups and the Institute. It should not ignore those freshmen who leave their rooms every night to "unofficially" live in fraternities. Instead, it should give freshmen a chance to "officially" live in fraternities. MIT has failed in its responsibility towards freshmen, claiming that a weak policy actually protects freshmen from the very communities that could provide the support and companionship that many freshmen cannot find on campus. It is time for MIT to cast away a useless policy and give freshmen a chance to experience the college life, not the life of a student living in an overcrowded dormitory.

Diana Hsieh is a member of the Class of 2013.

### Lessons from the crisis

### What to look for in the upcoming bank reform bill

By Keith Yost

STAFF COLUMNIST

Before discussing banking reform, it is necessary to first understand why and how financial markets operate.

For sensible reasons, people do not typically set their consumption equal to their immediate production. Not only do they like to smooth out their consumption profile over time, but they would also like to borrow against their future labor to cre-

ate tools, machines, and skills (capital) that will enhance their productivity.

For the sake of expediency, I will lump a broad range of financial institutions, including insurance companies, under the umbrella term of "bank." A bank is a sort of mediator who matches creditors and borrowers, taking in deposits on one end, and investing them in the most promising opportunities on the other. A well-performing bank finds the best investment opportunities for their creditors, while a poorly

performing bank will invest in less optimal activities, and perhaps even destroy value.

Because of the intertemporal nature of bank activities, special considerations must be given to financial markets that are not given to typical goods markets. Creditors must be given guarantees that their contracts with the bank will be honored, and that their funds will not simply be stolen or blundered away. Also, because a

Banking reform, Page 5

### OPINION POLICY

**Editorials** are the official opinion of *The Tech*. They are written by the editorial board, which consists of Chairman Steve Howland, Editor in Chief Jeff Guo, Managing Editor David M. Templeton, Executive Editor Natasha Plotkin, Opinion Editors Joseph Maurer and Ethan Solomon, Contributing Editor Michael McGraw-Herdeg, and Advisory Board member Andrew T. Lukmann.

**Dissents** are the signed opinions of editorial board members choosing to publish their disagreement with the editorial.

Letters to the editor, columns, and editorial cartoons are written by individuals and represent the opinion of the author, not necessarily that of the newspaper. Electronic submissions are encouraged and should be sent to *letters@tech.mit.edu*. Hard copy submissions should be addressed to The Tech, P.O. Box 397029, Cambridge, Mass. 02139-7029, or sent by interdepartmental mail to Room W20-483. All submissions are due by 4:30 p.m. two days before the date of publication.

Letters, columns, and cartoons must bear the authors' signatures, addresses, and phone numbers. Unsigned letters will

not be accepted. *The Tech* reserves the right to edit or condense letters; shorter letters will be given higher priority. Once submitted, all letters become property of *The Tech*, and will not be returned. Letters, columns, and cartoons may also be posted on *The Tech*'s Web site and/or printed or published in any other format or medium now known or later that becomes known. *The Tech* makes no commitment to publish all the letters received.

**Guest columns** are opinion articles submitted by members of the MIT or local community.

### **TO REACH US**

The Tech's telephone number is (617) 253-1541. E-mail is the easiest way to reach any member of our staff. If you are unsure whom to contact, send mail to <code>general@tech.mit.edu</code>, and it will be directed to the appropriate person. You can reach the editor in chief by e-mailing <code>eic@tech.mit.edu</code>. Please send press releases, requests for coverage, and information about errors that call for correction to <code>news@tech.mit.edu</code>. Letters to the editor should be sent to <code>letters@tech.mit.edu</code>. The Tech can be found on the World Wide Web at <code>http://tech.mit.edu</code>.

# Rules of the game

### SimCity, urban planning, and the sustainability ideal

By Holly Moeller

I think my favorite childhood computer game — after the MS-DOS days of dinosaur building and Tetris — was SimCity. I spent hours staring down at my two-dimensional landscape, laying out residential, commercial, and industrial zones, and power lines and roadways to connect it all. I battled crime with police stations and natural disasters with exorbitant reconstruction. And while I never did scrape up the allowance money to upgrade to the three-dimensional version of the game, SimCity Classic (which you can now play for free online) kept me blissfully entertained through my middleschool years.

In the tradition of educational games, SimCity also taught me some basic lessons about city planning. Through trial and error, I picked up three critical facts: One, no one wants to live near commercial or industrial zones. Two, residential lots sell fastest when located far from the city and along bodies of water. Three, people actually hate traffic more than taxes, so make sure roads are everywhere!

I sorted through potential landscapes for island locales or plots with multiple of rivers, located my power plants far to the interior, and peppered my coastlines with residential areas. Well back from the desirable waterfront, I arrayed grids of industrial zones, clumping commerce together at the edges. Highways spanned the miles between citizens' homes and work, and my residents constructed high-rise towers and orderly shopping malls to their hearts' content.

At my computer screen in the late 1990s, I readily absorbed the 1960s urban planning dream: a car-happy city with futuristic towers soaring over green lawns bordered by

highways. Crime was down, approval ratings were up, and all my suburban homes were full. And, because I'd spent a happy childhood in suburbia myself, rarely venturing into the city and using a car for even the most mundane of errands, it never occurred to me that another layout might be more ideal.

Yet decades earlier — in fact, almost 30 years before SimCity transformed computer gaming — a New York City woman named Jane Jacobs had already transformed the fundamental design concepts that SimCity and my suburban upbringing trained me to espouse.

Ever heard of Jane Jacobs? If you have, you probably know she revolutionized urban planning through grass-roots citizens' initiatives and her writing (see "The Death and life of Great American Cities," for example). If you haven't, then you're just about where I was four years ago, on an urban ecology field trip in college, walking down an eerily still suburban street on a Monday afternoon.

Jane Jacobs was, first, a keen observer. She watched the city streets around her and noted what made the most vibrant communities function: mixture. Imagine a busy city street. Along the sidewalk, coffee shops and delicatessens serve as meeting places for neighbors and passersby while also bringing commerce into the area. Families populate upstairs apartments, and children play in nearby local parks. Short blocks and narrow streets promote walking, not cars. People exchange smiles and greetings on the streets when walking to work or running errands. The community is self-policing: Heads always poke out windows at the sound of a commotion because people know and care about their neighbors. And, with diverse uses — commercial and residential — someone is always "home".

Contrast that with SimCity suburbia. If not for the meticulous landscaping, walking through a modern-day suburb would be like walking through a ghost town. These are the bedrooms of America: stately Mc-Mansions occupied by power couples and a child or two, miles from multi-story office buildings, day-care centers, and retirement homes. The fabric of society is fragmented into scraps of far-flung infrastructure, and our sense of community is fractured with it. In our marriage to cars and, ostensibly, freedom, we've fled our cities and built huge highways where our homes once were.

Yet thanks to the efforts of Jacobs (who forty years ago battled to stop New York from turning into a Los Angeles-esque maze of traffic and exit ramps) and others, we still have cities like our own Boston, where your legs and public transportation can get you everywhere you want to go.

Of course, city living isn't for everyone. Personally, I need to escape to the outdoors every few months or risk my sanity in the concrete jungle. But when I come back to within walking distance of a grocery store and live music, I gladly hang up my car keys and revel in the press of humanity around me.

Fortuitously, it turns out that thriving city communities are also good for the environment. Short blocks and short walks mean less vehicular temptation and less  $\mathrm{CO}_2$  (and other pollutant) emissions from burning fossil fuels. (Plus, city dwellers lead more active lifestyles, and thus tend to be slimmer and healthier.) And, while there is an energy cost to transporting goods into cities, it isn't followed by intensive sub-distribution in suburbia.

Cities generally promote high-density living, which means each person requires less infrastructure and less energy to maintain it (imagine the electric bill for cooling a five-bedroom colossus compared to a small but elegant city apartment). Additionally, because the same number of people live on less land, more open space is left over for agriculture, recreation, and conservation.

To top it off, the mixed-use approach Jane Jacobs espoused to promote strong community ties parallels the multi-use "green" buildings that city planners now advocate. Different users take advantage of the space at different times, smoothing a building's energy draw over the course of a day and making efficient use of available infrastructure. It's a level of elegant heterogeneity impossible in SimCity.

Of course, in spite of its shortcomings, SimCity remains a compelling and sometimes useful game. Many of the city management issues it addresses — crime, pollution, tax rates — are reasonable simulations and useful teaching tools. Newer editions, I'm told, also allow for green approaches and incorporate the subtlety of Jane Jacobs' commentary on healthy city communities.

Still, it's worth keeping tabs on what our upbringing teaches us — both the direct and obvious things, and the subtle, underlying assumptions about life in the suburbs and winning strategies. It's the basic, unexamined details that we must re-evaluate if we intend to make societal progress towards sustainability. Because that goal is no game.

Holly Moeller is a graduate student in the MIT/WHOI Joint Program in Biological Oceanography. She welcomes reader feedback at hollyvm@mit.edu. "Seeing Green" runs on alternate Tuesdays.

### How the government should regulate banks

Banking reform, from Page 4

bank is in the business of loaning out funds to borrowers, it cannot maintain the ability to return 100 percent of its deposits back to its creditors at any given time. Should the bank encounter a period of unexpectedly high deposit demand (the most extreme of which is typically called a "bank run"), it may be unable to fully and immediately pay back its creditors, even if it would be able to do so in the long run.

Theoretically, such problems could be resolved by the free market through private third parties — one bank agrees to cover the deposits of another, or lends funds to a bank waiting on a longer-term repayment stream, but these approaches have practical limits, and it rightly falls to the government to guarantee deposits and act as a lender of last resort (typically with a penalty rate) to illiquid banks.

The government's proper role in financial markets is fairly straightforward. As a guarantor of deposits, the government must oversee bank activities and ensure that the bank is not placing guaranteed deposits at risk. As a lender, the government must ensure that it is not lending funds to banks that are unable to pay the government back, i.e.

To accomplish these goals, the government typically does three things:

First, it has a regulator that can oversee and evaluate bank holdings. This allows the government to determine when deposits are at risk, and recognize illiquidity from insolvency when lending.

Second, it has a formal mechanism for ending a bank that is unable to cover its depositors due to insolvency — rather than allow a poorly performing bank to double down on its positions and shift more risk onto depositors, the government will freeze it and broker a sale of its assets to private parties, or assume control of the bank and liquidate its holdings over time.

Third, it requires banks to maintain reserve, capital-adequacy, and leverage ratios. The simplest are reserve ratios — requirements that for every dollar loaned, the bank must maintain some fraction of that dollar on riskless reserve, ready to meet deposit demand. A reserve ratio gives the government regulator a greater margin of error to work within. At the extreme, if reserve requirements are set equal to a bank's guaranteed deposits as a fraction of total funds

(some "deposits" such as a bank's equity, are not guaranteed by the government and can have their value fall to zero), the regulator's job is reduced to merely detecting fraudulent accounting.

Similar in concept, but more nuanced, are capital adequacy and leverage ratios, which require banks to maintain asset profiles and debt-to-equity ratios that limit risk to guaranteed deposits. One can imagine them as intelligent reserve ratios — rather than having to hold on to some fixed ratio of riskless currency or treasury bonds, the bank can be credited for the risk of its holdings and the availability of non-guaranteed creditors to buffer against losses. For the same reserve ratio, a bank with zero equity and entirely high-risk holdings is a much greater threat to guaranteed deposits than a bank with lower risk assets (which are less likely to deviate from their expected value), and equity holders (who will eat losses in the event of asset underperformance). Some financial systems do not even use reserve ratios, preferring instead to rely entirely on capital and leverage requirements for their greater sophistication.

In the aftermath of the crisis, it is clear that the government failed, to varying extents, on all three counts.

On the first count, regulation and oversight, the government's performance may be described as mostly satisfactory, punctuated by a few impressive failures. The majority of financial institutions that have received funds through the bailout are paying back their obligations on time (and even earning the government money, to the extent that the bailout funds were offered with penalty rates), and many insolvent banks (most notably Washington Mutual) were caught in a timely manner and liquidated with little or no adverse impact on depositors or tax payers. That said, it is clear that in some instances, the government recognized insolvency far too late and accepted significant losses, perhaps as large as \$40 billion in the case of the American International

Group (AIG).

On the second count, it has become apparent that some banks are "too big to fail." This phrase is somewhat misleading — the government would have just as difficult a time dealing with the default of four smaller banks each with \$250 billion in assets as it would with a single bank of \$1 trillion. The trouble that arises is that we lack formalized legal mechanisms by

which to take over banks and manage them until such time as they can be liquidated. A small bank can be dealt with quickly, but it is impractical to attempt to liquidate \$1 trillion in assets simultaneously — such an action would lower asset prices and exacerbate the challenge of recovering depositor funds. Instead, the bank would be placed into receivership or nationalized, and bank operations would be performed by the government or a contracted entity until such time as they could be unwound or sold off. Where formal mechanisms exist, as with savings and loan associations such as Washington Mutual, the government has been successful. Where they don't, as with insurance corporations such as AIG, the government suffered losses.

On the third count, the government's performance has been the most disastrous of all, and perhaps can even be blamed as the ultimate cause of the crisis. A credit rating agency (CRA) evaluates the risk of different debt-based assets and assigns them ratings. These ratings then factor into the formulas used by government regulators to determine capital adequacy. For a given level of capital, reserves, and equity, a bank could meet its capital adequacy requirements (ie. demonstrate that it is properly safeguarding guaranteed deposits) by holding on to a mixture of AAA and C- debt, or it could hold mostly BB debt.

The problem is when a CRA misjudges the risk of an asset. If CRAs grade a risky asset (say, subprime mortgages) as AAA when the true underlying risk would make it closer to BBB, banks, even if they do not agree with the CRA's judgment, have an incentive to hold more of the misrated asset - that is to say, even if they properly understood the asset's true risk-adjusted rate of return, they would still prioritize holding it over other assets because it would allow them greater leeway to acquire riskier, higher return assets with the remainder of its portfolio. Thus, in their role as pseudo-regulatory bodies, CRAs create correlated biases within the financial system (not just within the U.S, but across all financial markets that tie capital ratios to the CRA's risk assessment), and one convincing interpretation of the financial crisis is that the misjudgments of a few select players created a system-wide bias in favor of complex, and inaccurately rated mortgage-backed securities that misallocated real investment and created a sudden credit crunch when the securities were re-evaluated.

The House and Senate are now in the process of wrangling over measures (such as the strength of a new consumer protection agency) that are tangential to true financial reform. Instead, they should shift their attention to delivering on three core points:

First, we must strengthen our regulation and oversight so as to catch and liquidate future AIGs before they socialize losses. This will likely mean the creation of a "super-regulator" under which our current patchwork of regulatory bodies will be unified. This regulator can either be placed within the Federal Reserve (thus leveraging the Fed's unique capabilities and related duties), or outside (better insuring the regulator's independence and strength).

Second, we must create formal mechanisms by which insolvent bodies can be taken over and sold off. Weeks or months of inaction can mean billions in further losses to the taxpayer, and it is unacceptable that we lack means of dealing with the default of some of our largest financial institutions, such as insurers. At a minimum, analogues of the Federal Deposit Insurance Corporation's process of receivership should exist for all classes of financial organizations, and it is advisable that these responsibilities should be centralized within a single organization trained to manage and liquidate assets over long time periods.

Last, as important as capital ratios are to modern banking, we must reform the role that private CRAs play in determining those requirements. The least we can do is bring CRAs under a system of oversight to ensure honesty and accuracy in their assessments — it is worthwhile to also consider the creation of an independent government institution, either as a replacement to, or a complement of, the existing private agencies. But even an independent and accurate rating agency can make mistakes, and so besides strengthening the ratings, we should also take steps to reformulate our capital reserve requirements so as to compensate for the potential of correlated, system-wide

It is easy, given the punitive attitude being taken towards bankers, to ignore systemic reform in favor of satisfying populist pet-peeves. But while curbing executive pay may be more rewarding to legislators next November, in the long run, we need to tackle the systemic issues if we are to put our house in order.

6 THE TECH
TUESDAY, MARCH 9, 2010

# Lt. Gen. encourages teamwork in ROTC ball speech

Cadets gathered to listen to Lt. Gen. Webster's speech and participate in festivities

Military Ball, from Page 1

each cadet's history, such as their class, rank, and achievements. Multicolored ribbons pinned to jackets indicated certain achievements, such as membership in the "Warrior Squad." The Air Force cadets wore blue with small airplane pins, leading some cadets to joke about the similarities of the women's Air Force uniforms and flight attendants'.

The event provided a seldom opportunity for cadets to freely socialize with each other. Before doors opened, groups of mostly same-service cadets mixed together, chatting casually about school and ROTC life. Cadets from different services and their dates sat ten at a table during dinner, distinctly separated from the officials sitting at other tables.

The night began with a nondenominational prayer for the entire audience, later on capped with another nondenominational benediction led by a chaplain. After the invocation, certain leading cadets lead toasts honoring officials such as the commander-in-chief and chiefs of each military service, and the crowd echoed back requisite responses such as "to the chief!"

Traditions and symbolism indicating honor and respect for their fellow servicemen infused the ball's spirit. Two honorary tables were arranged at front: One, draped in a red tablecloth, was meant for honorary guests such as the General Glenn Webster. A second, separate table remained empty, symbolizing those who could not be with the cadets that night: Prisoners of war and those missing in action. It was draped in a white tablecloth to indicate the purity of their actions, surrounded with four chairs for each service, and and sprinkled with salt to signify the tears shed for them.



**Members of ROTC are pictured at the Joint Forces ROTC Ball on Friday.** The event brought together MIT students from all four of the ROTC military services as well as other students from schools without ROTC programs.

The night ended with each service enthusiastically singing their branch's own songs: the Navy sang their "Anchors Aweigh," the Marines sang the Marines' Hymn, the Army sang "The Army Goes Rolling Along," and the Air Force sang "Wild Blue Yonder."

Webster, who is also commander of the Third Army and the US Army Central, shared accounts and lessons learned from his life in the military. He discussed his philosophy of success, telling the cadets to focus on three areas: mission, people, and teamwork.

Webster emphasized the importance of services working together. He recalled his own experiences on September 11, when he was working at the Pentagon, thirty yards away from the plane wreck. Helping mov-

ing casualties and conducting triage, he helped in the relief effort with members of all services, regardless of their class or rank. Webster said of the experience, "I understood what jointness meant... [We were] all in it together, on the same team."

Webster also spoke of the upcoming threats to safety and stability across the globe. He listed possible sources of future conflict in the world, citing risks such as religious tension: "Religious, ethnic, tribal breakdowns often lead to war," and environmental catastrophes, he said. "The world is dirty, and it is getting dirtier."

Even though the world is in "an era of cynicalism and mistrust," cadets could still "earn the trust of the American people," Webster said. Reminding them to always continue learning, he emphasized that

they must "ensure everyone takes care of each other." Webster ended by thanking the cadets for their service, "what [your] civilians and counterparts either would not do or could not do."

### **Cadets discuss ROTC life**

Cadets cite different reasons for joining ROTC, but most were inspired by relatives in the military.

Sarah Gontarek, an Air Force cadet and a freshman Wellesley, said that "all my family members did it." Brittany Trimble, an Air Force cadet and freshman at Tufts said her father was part of the Air Force and considered joining the military but decided against attending a military academy because "I wanted more of a normal college experience," she said.

Others knew from childhood they

wanted to join the military. Air force cadet Claire G. Nieman '13 "always wanted to be part of the military since I was twelve," she said. Her parents, while not part of the military, knew about her ambitions. "I told them before about it, they were like 'have fun with that!" but supported her in joining ROTC, she said.

ROTC cadets receive scholarships ranging from partial to full for committing to serve on average at least four years of active duty in the military plus four years of reserve duty after college.

Life at MIT as part of ROTC is hectic, the cadets said. Having to wake up at 6:30 a.m. might be unusual to the regular MIT student, but Army cadet Brandon D. Briscoe '11 said that, for him, being a student at MIT and a part of ROTC "curiously complement each other... having both is good for each other."

As students, ROTC cadets train mentally and physically for joining the military after graduation. For example, Air Force ROTC cadets must take military classes, ranging in topics from military history to the more advanced "leadership lab" and must also participate in two-time weekly physical training. Course load varies, but, on average, underclassmen spend three hours on ROTC subjects in the classroom each week, while upperclassmen spend six to seven hours, plus whatever is required of them in leadership positions.

At least once a week, cadets must dress in full uniform, setting them noticeably apart from the regular MIT student. Sometimes while in uniform, the cadets said, they receive comments from friends and strangers. Trimble said she has only received positive comments and general inquiries from others though. "I've been asked, 'oh, what's that! What's that for?" she said.

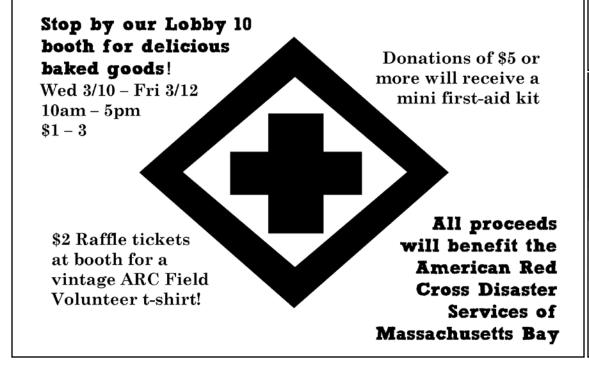
MIT American Red Cross Team and Network presents:



# A Discussion on LOCAL & INTERNATIONAL DISASTER RELIEF EFFORTS

with DAN WIELAND American Red Cross Disaster Response Specialist Friday, 3/12/10 7pm 66-110

Followed by Q&A and Finale's Dessert Reception \$5 Suggested Donation to benefit Disaster Services





everyday. ASK, beyond, harmony, difference connect, journey, embody. PURSUE, envisitioning, presense, imagine, realization, organies, discover. LIVE, possibilities, unfold.

a simple,
conversational,
Christian community

www.mit.sojourncollegiate.com

Monday's @ 8pm

Religious Life Center small dining room



\$1200

Invest minimal time

Make a real difference in the lives of families

Receive free health and genetic screenings

**APPLY ONLINE:** 

**SPERMBANK**.com

- convenient Cambridge location

### Solution to Sudoku (Easy) from page 11

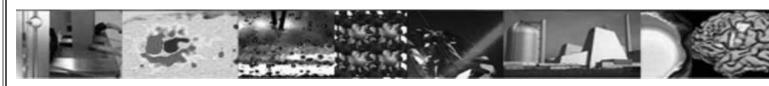
2	1	6	3	4	8	9	5	7
5	4	8	7	9	6	2	1	3
3	7	9	5	2	1	6	4	8
7	9	5	2	6	4	8	3	1
6	8	1	9	3	7	5	2	4
4	2	3	8	1	5	7	9	6
			4	8	9	3	7	5
9	5	4	6	7	3	1		2
8	3	7	1	5	2	4	6	9

### Solution to Sudoku (Hard)

				i pay				
2	9	4	7	3	1	6	8	5
7	8	3	5			9	4	1
6	5	1	4	8	9	2	3	7
3	4	8	9	7	2	5	1	6
9	6	5	8		4		2	3
1	2	7	6	5	3	8	9	4
5	7	2	3	4	8	1	6	9
8	3	6	1	9	5	4	7	2
4	1	9	2	6	7	3	5	8

### SUMMER RENTAL CAPE COD:

Brewster, cute cottage on freshwater pond. Sleeps 6. Separate studio, piano, screen-porch, fireplace, private beach. \$1,200/week. Andy 617 876 6257.



### MIT DEPARTMENT OF

### **NUCLEAR SCIENCE AND ENGINEERING**

# DOCTORAL RESEARCH EXPO

### Featuring presentations by:

Yang Zhang – "A Tale of Two Waters – a New Kind of Supercritical Water"

Antoine Cerfon – "Are Fusion Plasmas Compressible? (and why we care about it)"

David Carpenter – "Staying Power: Silicon Carbide for Light Water Reactors"

Wednesday, March 10, 2010

Poster Session from 11:00am to 2:00pm

Stata Building, Student Street

Presentations from 12:30 to 2:00pm

Stata Building, Room 144



# Hope for a cleaner future at MIT Energy Conference

### Fifth annual conference brings Bingaman, Rowe and Tanaka to talk clean power

By Vinayak Ranade

The fifth annual MIT Energy Conference took place at the Boston Sheraton Hotel last weekend. The two-day event brought 800 professionals from areas of energy technology, policy, finance, and industry to Boston, up from the 650 last year. The Saturday conference featured John Rowe, CEO of Exelon Corporation; Executive Director Nobuo Tanaka of the International Energy Agency; and Senator Jeff Bingaman of New Mexico, who is also the chairman of the Senate Energy and Natural Resources Com-

On Friday, MIT hosted energyrelated workshops on campus, as the Boston Sheraton hosted the Energy Showcase, which featured the University of Warwick's Formula 3 racing car, the first to be made entirely from renewable materials (including chocolate, carrots, and potatoes). Also on display was the MIT Electric Vehicle Team's Battery Electric Vehicle "BEV," a retrofitted Porsche 914. A group from Northeastern University presented a method for using plastic as fuel via vaporization. About 2,000 people attended the showcase, which was open to the public.

Professor Richard K. Lester PhD '80, head of the Department of Nuclear Science and Engineering, introduced Rowe, whose energy company operates the most nuclear plants in the U.S. Rowe spoke about the importance of low cost electricity, and articulated the link between reducing the price of electricity and ramping up the "renewables market and generation," as he called for innovation in the

Bingaman delivered the closing keynote address about clean energy. President Susan J. Hockfield, in her introduction for Bingaman, stressed the importance of student

leadership as a key factor in facing the challenges of energy. Bingaman highlighted the steps that the United States needs to take in order to create a long lasting clean energy solution, which would take America one step closer to being energy independent:

- Further support excellence in R&D in clean energy
- Aggressively increase the manu-

cent \$2.3 billion in tax credits given to 183 "green" manufacturing projects is a great start to this approach; the Obama administration is pushing for an additional \$5 billion in funding, he said. Bingaman's last visit to MIT was to deliver the 2008 Karl Taylor Compton lecture on "Forging a Clean Energy Future," when he also visited many of the labs at MIT.

Energy Conference has become a brand," he said.

The topics, panels, and speakers were all researched and chosen by the organizing committee of students.

Some of the new topics covered in this year's conference included the water constraints in energy generation. "Water availability and use is a very constraining factor in

appointed Expert for Strategic Research of China's 12th "Five-Year Plan" were among the invited speakers.

When asked what could be improved next year, Kar said, "We can work to increase the scope of the content to be more global and to have more speakers from around the world."

Paul J. Murphy G, managing director of the conference, said he thought the best part of the day was "[d]efinitely the community. There are so many different professionals who come here to form breakthrough relationships and have conversations across fields. The community formed around the challenges of energy at this conference is invaluable."

Topics of discussion at the conference ranged from the efforts of Tampa Electric to create a joint public-private sector partnership to use reclaimed water to the role of large corporations like GE Capital in clean-energy investment. The vice president of sustainability at Recology, a waste disposal and resource recovery firm, Chris Choate, said he was pleasantly surprised to find so many people who were interested in alternative uses for waste: "I found researchers who were dedicated to new concepts embedded carbon and energy that I wasn't aware of. We will definitely follow that research

Overall, the MIT Energy Conference received positive reviews. Steve Taub of GE Capital, who has been attending the conference for the last five years, said "It has definitely gotten better over time." David Lukcic, Tampa Electric Manager of Environmental Capital Projects commented at the reception "There was lots of good information, it was very enjoyable... I was impressed with the selection of the topics as well as the panels."

MIT-TALK@MIT.EDU Discuss the campus issues of the day.

. Get the latest news.

• Get the latest news.
• Avoid spamming scores of discuss and talk

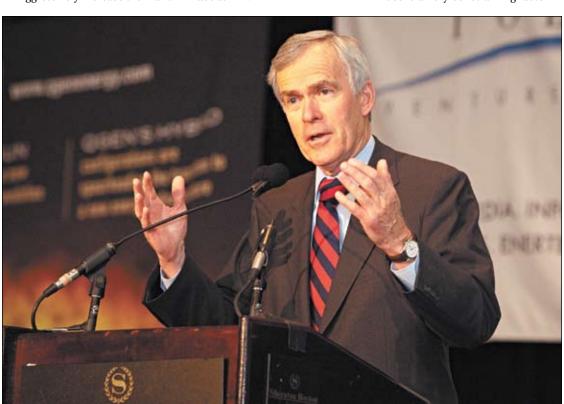
http://mailman.mit.edu/mailman/listinfo/mit-talk

athena% blanche mit-talk -a SUSER

LEGAL COUNSEL MIT students, family, employers and

start-ups seeking U.S. legal counsel, campus or office consultation. Call: James Dennis Leary, Esq. 321-544-0012

This space donated by *The Tech* 



At the MIT Energy Conference on Saturday, United States Senator Jeff Bingaman (D-NM) speaks about the steps that the U.S. must take to achieve energy independence. The annual student-run conference focuses on technology- and policy-based solutions to global energy problems.

facturing capacity for clean en-

- Create a better domestic market
- for clean energy Use increased tax credits as a method to accomplish these

According to Bingaman, the re-

The conference was organized by the ten-month-long efforts of about 90 MIT students. An estimated total of 150 MIT students attended the conference. Marketing director Rahul Kar G said he thought this was the most successful conference yet. "Over the last 5 years, the MIT

especially renewable energy like biofuel, but it rarely gets talked about," said Kar. Another new topic was the "energy race between the U.S. and China": Ning Li, the Dean of the School of Energy Research at Xiamen University in China, as well as Hongmei Zhang She, the

# **Arista - Company Presentation**

### Trends in Data Center Networking

How these trends create opportunities for new players in the data-center-Ethernet market?

Kenneth Duda (MIT'93) Founder & VP. Software Engineering

Join us for an in-depth technical discussion:

Tuesday, March 9, 2010 6:30PM to 8:30PM - Room: 56-114





**ARISTA** 

**CUSTOM PRINTED & EMBROIDERED** 

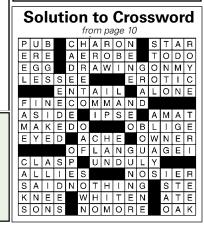
SWEATSHIRTS - POLOS - HATS & MORE!

www.aristanetworks.com



ph - 617-625-3335 email - info@qrsts.com www.qrsts.com Somerville, MA





Tuesday, March 9, 2010 THE TECH 9

# Award-winning work shows genome has fractal form in 3-D

Lieberman, from Page 1

structure of the human genome follows a fractal-like pattern, forming super-dense, knot-free "globules of globules of globules" in order to overcome their troublesome spatial and entanglement problems.

For leading this groundbreaking research, Lieberman-Aiden was awarded this year's \$30,000 Lemelson-MIT 2010 Student Prize last Wednesday at a ceremony held in the Bartos Theater at the MIT Me-

In contrast to previous "equilibrium globule" model of the human genome - where related regions often occur far apart in three dimensions and various components are highly entangled — Lieberman-Aiden's "fractal globule" model suggests that the genome separates into two clear compartments: one where stretches of DNA are known to be active, and another where DNA is inactive and stowed away for future use.

Whether or not this organizational model will hold for other cell types, however, is currently unclear.

Lieberman-Aiden was also recognized by the Prize committee for his linguistics research (which appeared on the cover of Nature in 2007), for founding a new field of mathematical biology known as "evolutionary graph theory" (published in Nature in 2005), and for developing an electronic insole for diagnosing poor balance in the elderly (called the "iShoe").

Other finalists were Barry M. Kudrowitz and Amos G. Winter, both current Ph.D. students in Mechanical Engineering.

According to the Lemelson Foundation, the \$30,000 Lemelson-MIT Student Prize is awarded annually to "an MIT senior or graduate student who has created or improved a product or process, applied a technology in a new way, redesigned a system, or demonstrated remarkable inventiveness in other ways."

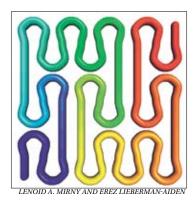
Students apply to the competition in an intensive process that requires essays and letters of recommendation. A panel of ten MIT judges who are "alumni including scientists, technologists, engineers and entrepreneurs" then choose the winner.

"I was very, very excited," said Lieberman-Aiden.

Applications are now being accepted for the 2011 Lemelson-MIT Student Prize. Full details on the application process can be found here: http://web.mit.edu/invent/astudent.html

### **How Hi-C Works**

To develop the "Hi-C" method which constructs three-dimensional maps of entire genomes — Lieberman-Aiden worked with postdocoral student Nynke van B UMass Medical School, and their ad-



### Peano curves

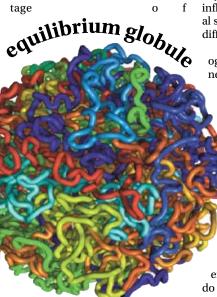
Discovered by Giuseppe Peano in 1890, Peano curves are a class of one-dimensional spacefilling curves that densely fill higher dimensional space. Liberman-Aiden, winner of the Lemelson-MIT Student Prize, recently published a 3-D map of the genome that suggests long stretches of DNA fold into Peano-curve-like structures.

visors Eric S. Lander and Job Dekker. The team also collaborated with Leonid Mirny's group (in the MIT Department of Physics and Harvard-MIT Division of Health Sciences and Technology) as well as graduate student Maksim V. Imakaev to simulate of the dynamic behavior of the fractal globule.

"I've thought about [the idea] for quite some time," Lieberman-Aiden

"Earlier in 2007, I saw a talk where I heard it took six months to figure out that two pieces in the genome were touching," he said. "I remember thinking 'gosh, that's a really long time."

After seeing this talk, "I thought we could do better and take advan-



### Equilibrium globule model

The "equilibrium globule" is an older model that describes how the genome might exist in three-dimensions. Unlike in the "fractal globule" model, here individual strands are highly entangled and regions nearby along the chain are far apart in 3-D. In this image, nearby regions on a chain of DNA are indicated using simi-

modern sequencing technology,"

Based on these initial ideas, Lieberman-Aiden and his colleagues developed their "Hi-C" method, which uses formaldehyde to freeze linkages of DNA that are far apart in the linear genome, but adjacent to each other in 3-D.

The linked pieces of DNA are then marked with biotin, extracted, and mapped onto the reference copy of the human genome to determine which loci neighbor each

To complete the process, a computer cross-references neighboring gene pairs and assemble the genome's 3-D portrait.

In Lieberman-Aiden's words, Hi-C is like "figuring out who is friends with who."

"Imagine one d curity breach on Facebook, and all the pictures were now leaked to the public," he said. From the leaked data, you can see if there are patterns where people show up in the same pictures.

"If people keep showing up in the same pictures over and over again, you can concluded that they're probably friends," he said.

"It's the same idea is behind the 3-D technique, but instead of determining friends, we're determining who's nearby in 3-D space," he said. "We know the 1-D sequence of the human genome, so we can use this as a reference when we reconstruct what the 3-D architecture must be

Lieberman-Aiden also posted an interpretive dance of how the technique works, which can be found on YouTube at: http://www.youtube. com/watch?v=06UouUmuEbw

### Local biochemical vs. global spatial modifications

"A very interesting idea at the core [of this research] is that all

cells have the same genome, but perform very different functions," Lieberman-Aiden said. "There's an incredible variety of functions among cells, despite them all having the same information."

In the past, differing function "has all been associated with local biochemical modifications: biochemical changes at certain sites in the genome, making certain [information] get turned on and off," he said.

For example, "by adding or subtracting methyl groups, you can introduce instructions saying things like 'you should express this more,' but these biochemical changes are all occurring locally."

But "here we find that it's actually spatial modifications that can influence expression," on the "global scale," he explained. "It's a totally different type of modification."

Lieberman-Aiden used an analogy, likening the genome to a newspaper.

When thinking of the genome, "imagine a paper with writing on it, maybe even a

newspaper....maybe *The Tech,*" he said.

If everything on the page you were reading were the same dull font, you'd start reading somewhere at random, with no idea of what was most important that day, he said.

Suppose you'd like to change how various things are emphasized. "One thing you can do [to emphasize what's most important] is underline things, make boxes around words - make various local modifications."

These modifications would tell you 'Ahh...I should pay attention to this," he said.

In a newspaper, these modifications might be the style of a headline or a box of color, and in the case of the genome, these would all be biochemical modifications.

But then say you realize there's also another way to emphasize different things, which would affect the organization of the contents more globally: "Let me fold the paper in little ways and actually change what appears on the front page."

Just as the different types of cells fold their genomes differently depending on their function. "Depending who you are and what you want to read about, you might fold the newspaper in different ways," he said.

For example, "if you're trying to sell the paper at a newstand, you might fold the paper in one way. But if you're the president of the MIT origami club, you might decide to fold it into a crane instead."

Similarly, if you put different sections in the front, you'll get different newspapers, explains Lieber-

For example "If you put business front, you'll have the

And in the case of the cell, "in doing these reconfigurations [of the genome], you can control what's on and off and thereby change the function of the cell as a whole."

"It's another type of way to modify a sort of universal substrate, and the genome is basically doing the same thing....different ways you configure the genome could give you different functions or identities," he said.

### Human genome is organized like a library...made of ramen

Lieberman-Aiden's and his team also zoomed in further, examining how the genome folds at the scale of a megabase, or one million of the genome's biochemical 'letters'. The question was: "How does this megabase fold up?"

To help think this question, Lieberman-Aiden recalled an analogy that had been suggested to him by Leonid Mirny, Professor of Physics

and Health Science and Technology. "A genome contains information, a library of information."

In this case, "you can imagine that [the human genome] should therefore be organized like a library," he said.

"How should you organize a library? Well, you want it to be compact: everything is in one place. You want it to be organized: books on similar topics should be physically near each other. And you want it to be accessible: when you find the book you want, it shouldn't be behind glass; you should be able to pull it off the shelf, read through it, and then put it back the same way you found it."

Knowing this, the next question he said one might ask is: "how might one design such a library?"

'It turns out the standard way that a polymer might fold is totally incoherent with that [ideal library]; it'd be dense, but it would be totally disorganized and completely knotted," he explained.

And "because it's highly knotted, the information isn't at all accessible," he said.

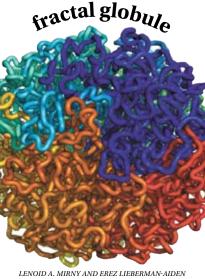
But his Hi-C data, suggests that the genome forms an unknotted macroglobule or what the team calls a "fractal globule" - which interestingly, Lieberman-Aiden says in many ways is like a package of ramen noodles.

"It turns out actually that the fractal globule pretty deeply resembles the model of uncooked ramen noodles," he said. "You can contrast this with the classic polymer structure, which is the arrangement that the noodles take once you've cooked them."

If you "turn up the heat, and the noodles are going to oscillate and wiggle...and in the process they'll get deeply, deeply entangled," he said.

According to Lieberman-Aiden, "this is similar to the classic polymer conformation," called the equilibrium globule model."

men analog



### Fractal globule model

Lieberman-Aiden's new technique for creating 3-D genomic maps (Hi-C), gave him evidence him to theorize that the structure of the human genome forms a "fractal globule." Here the genome forms super-dense, knot-free "globules of globules of globules," which allows for regions in 1-D to also occur nearby in 3-D. Nearby regions are indicated using similar colors.

of the equilibrium globule model of the genome, "the most salient property was that if you stick a fork in them, you can't pull apart one or two noodles: you end up pulling out a whole clump because they are so entangled."

"The fractal globule module is more like the uncooked ramen. whereas the classic equilibrium model of condensed polymers is more like the cooked noodles," he

'Space-filling fractal curves pack space very, very densely, but can do this without knotting," he said.

If you want to access something

from a fractal globule structure, "you can just pull out a little piece and stretch it out to examine it. When you're finished, you can just crumple it back up, and put it back where it came from," making their use especially advantageous in the

As one additional property of the "fractal globular" model — like in the case of ramen — is "if something is nearby in 1-D, it will be nearby in physical space," he said.

"This may be why genes that are related in function tend to cluster in 1-D; by doing so, they are actually forming a spatial cluster when they fold up in 3-D."

### Peano curves appear in genome

Lieberman-Aiden's showed that the human genome likely forms fractal-like structures, but that's only the half of it.

These fractals can then be reduced down even further to "Peano curves" in order to store less oftenused genes and pack them more densely - a type of curve which Lieberman-Aiden says has a particularly interesting history.

As the first person who discovered such a curve, back in 1890, Giuseppe Peano was motivated by mathematics of the time to construct what Lieberman-Aiden calls "an extremely, extremely peculiar

Lieberman-Aiden said the Peano curve is what's known is mathematics as a "space-filling curve."

"Even though it is one dimensional, it can fill space so densely that it resembles higher dimensional objects," he said. The discovery of this type of curve "blew mathematicians minds, and it really messed with their ideas of dimension."

But after "Peano constructed this thing, and it led to a lot of rethinking of basic questions in math, eventually the mathematical agenda moved on."

"It never really occurred to anyone that any actual existing contour in the world would resemble this structure," he said, "until a team of physicists, nearly 100 years later, suggested that the initial state of a

condensing polymer might resemble a Peano curve. But the observational evidence was limited until now."

So for Lieberman-Aiden, a trained mathematician, to discover than the human genome may actually incorporate these curves is especially exciting.

### Influence of crosstraining in math and physics

Before coming to MIT as a graduate student, Lieberman-Aiden studied mathematics, physics, and philosophy at Princeton as an

When asked about the influce of this training on plinary work in biology, he said that it doubtlessly contributed to his current views on research.

"I think that the analytic techniques you learn by doing math and physics are very powerful and really can help you," he said.

"It really helps me usually when I'm analyzing data; sometimes I'm not really straining myself because I got really comfortable with thinking quantitatively as an under-

"Because of background, that actually means that I have an extra gear or two," he said. "If I find a problem where I think that there might be a good opportunity, I'll use that extra gear. It also means that the extra exposure to mathematical and physical techniques and literature exposes me to ideas like the fractal globule," he said.

After completing graduate school, likely within the next year, Lieberman-Aiden said that he will continue his research on Hi-C on a Harvard Junior Fellowship at the Harvard Society of Fellows.

# GE is looking for more top talent





GE is a proud member of the Invest in America Alliance, a coalition of American businesses dedicated to investing in the future of our country. In support of this initiative, GE is committed to doubling its U.S. university hires in 2010.

If you're just starting your career, now is a great time to join GE. Whether your interests lie in engineering, finance, manufacturing, marketing and sales, human resources or information technology, we have an opportunity for you in leadership programs and entry-level positions. If you are graduating in May 2010 and have unrestricted authorization to work in the U.S., submit your résumé to the Career Center before Wednesday, March 17.

The American Renewal is happening.

Right now.

Innovation Today for America's Tomorrow



imagination at work

ge.com/careers

### MAKE THE LEAP



### **From Graduate School to Consulting**

**Application Process** 

Interviews

Join a discussion with panelist who recently embarked with top consulting firms

March 11th, Thursday 7-8:30 pm @ 66 - 110 Dinner provided

**Sponsored By** 



**Organized By** 

Consulting Club at MIT

http://sites.google.com/site/ccmatmit/home

Tuesday, March 9, 2010 THE TECH 11

# Presidential candidates talk transparency, dining at debate

**UA Elections,** from Page 1

appointed to fill Tracy's seat by Simmons Hall president Christina R. Johnson '11. Hawkins will represent Simmons for the rest of the Senate

According to UA Senate bylaws, a senator who misses more than two consecutive senate meetings will be assumed to have resigned.

In such cases, the president of the represented constituency will be notified and must appoint a new

The presidents of the constituencies of five absent senators, including Tracy, were notified of their senators' assumed resignations on Sunday evening.

By last night at 9 p.m. only the Simmons president had responded to this notification with a new Senate appointment.

Tracy, Kornmayer, and two other pairs of candidates debated their opinions on budget cuts, campus dining, and communication between administrators and students at the Undergraduate Association Presidential and Vice Presidential Debate on Sunday

The other candidates for UA President are Vrajesh Y. Modi '11 and Ariel A. Torres '11; their running mates are Samantha G. Wyman '11 and Jarrett R. Remsberg '11, respectively.

### Three tickets debated on Sunday

On Sunday night, candidates sparred at the UA Presidential/Vice Presidential debate.

In his opening statement, Modi described intentions to digitize add/drop forms, improve Saferide and freshman advising, create a UA blog, and run UA meetings in dorms instead of at the student center, and hold weekly meetings with leaders of other student government group such as the Interfraternity Council, Panhellenic Association, Dormitory Council, and Living Group

Tracy and Cornmayer said they would work to run UA meetings more efficiently, digitize problem set submissions to reduce paper use, and investigate new dining options for the student center.

Torres said he would work on "dealing effectively" and "meeting proactively" with the administration at all levels — "Susan Hockfield if I can," he added. He said he would help students become better informed of campus proceedings, since looming budget cuts make this a "very critical time for undergrads."

Candidates responded to questions about the student body's apparent lack of interest in the UA, an issue brought into focus last week as only one president/vice president ticket — Modi and Wy had filed for candidacy by the initial March 1 deadline set by the UA.

Tracy and Kornmayer joined the race as official candidates by the extended March 4 deadline, whereas Torres and Kornmayer are running as write-in candidates on the ballot.

At the debate, Kornmayer explained a need for increased transparency to let students know what the UA is doing, while Torres said that the there is already enough transparency, but that available information must be better publicized.

The UA posts meeting minutes online, but "no one really goes to the UA website," Ariel said.

Wyman listed writing a UA blog and running UA meetings at dorms as two ways she and Modi would work to keep students in touch with

Candidates differed on which issue they thought was the most important facing the student body. Tracy cited a lack of a "strong link between the UA government and living group governments." Runnning mate Kornmayer said that link could strengthened by visiting FSILG's across the river.

Torres and Remsberg said that the administration is "out of touch with students" and that a "well-informed student body" mixed with "increased communication" will put pressure on the administration. "Apathy makes it that much easier for administration to ignore us,"

Torres, later in the debate, expressed a need to work with The Tech on a regular column about the UA, to which members of the audience responded, "it already exists!" The Tech publishes a brief from the UA in the Opinion section on Fri-

Wyman said upcoming budget cuts will most affect undergrads, and called for "a fair, transparent and open process" with a "datadriven approach" as MIT makes these decisions.

On the issue of dining, all candidates stressed that any changes to the current system should accommodate students who get their food in different ways.

Remsberg classified MIT students into three categories based on their dining preferences: Those who opt out and rely on meals from FSILGs, those who have Preferred Dining, and those that cook for themselves.

Torres said he was "disappointed with how the administration dealt with the Blue Ribbon Dining Committee" and thought that the UA recommendations were "more supportive and in touch with needs of students." The Blue Ribbon Dining Committee called for a \$600 declining balance dining plan, while the UA suggested the elimination of mandatory dining membership and the installation of a centralized dining hall.

Wyman also complemented UA's work on analyzing students' dining preferences.

Modi said that he and Wyman 'support creating system that meets the needs of each individual living

Tracy said he supported of the Institute-wide Planning Task Force report's recommendation to reduce the financial aid allocation for food, a proposal which received a net 84 "thumbs up" vote on the UA website.

Tracy and Kornmayer said they were concerned that increasing the mandatory dining fee would cause freshmen to choose their dorm based on dining costs, not their fit with the dorm's culture.

When asked what they thought were the most important recommendations from the Planning Task Force report, candidates agreed that proposed changes to add and drop dates would restrict undergraduates' flexibility and freedom with choosing classes.

Tracy said that the proposal to install gas and electricity usage meters in dorms was important because it would help students take responsibility for their energy use.

One question from the audience asked the candidates what the UA would do to reach out to students who "don't live in or care about the dorms." Wyman explained that she and Modi have talked to IFC leaders about engaging such students, while Kornmayer said dinners and house meetings are good opportunities for direct communication.

The debate was jointly organized by The Tech's editorial board and the Undergraduate Association, and moderated by Tech opinion editors Ethan A. Solomon '12 and Joseph R. Maurer '12.

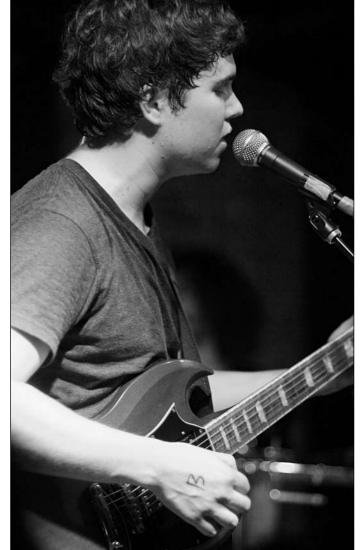
After the debate, Eric A. Del Castillo '13 said he thought the discussion "was pretty insightful." "It seems like all the candidates have a clear plan as to where they're headed," he said.

Kevin A. Rustagi '11 said, "I liked the fact that they talked about dining, but I wish that was more flushed out," since to him dining is a "more pressing issue" than some of the other topics of the debate.

Tom M. Cervantes '11 said he was impressed by the focus on student involvement throughout the debate. "I was happy that they had a lot of the student questions, both right in here and online. Been more aware of what the UA does through the year, curious what the candidates would have to say, especially since there was only one pair running originally."

The debate was broadcast live online at http://tech.mit.edu/live and the recording is available on the Tech website at http://tech.mit.edu/ V130/N11/uadebate/video.html.

Electronic voting runs from Tuesday, March 16, 12:00:01 a.m. to Thursday, March 18, 11:59:59 p.m. Paper ballots will be available in Lobby 10 on Friday, March 19, 9 a to 4 p.m. The candidates' platforms are available at http://vote.mit.edu.



John Paul Pitts, vocalist and guitarist for Surfer Blood, performs in Rhode Island on Wednesday. Surfer Blood is a indie and pop band from West Palm Beach, Florida.

### The fun with us never ends! Join us this week for:



7:10<sup>PM</sup> Tegami Bachi 1-3 In the magical of world Amberground, a young boy sets out to carry mail through the dangerous wastelands between the towns of his world.

### 8:55<sup>™</sup> Mobile Suit Gundam: The o8th MS Team 9-13

It is time for the o8th MS Team's final battle. Will Shiro and his comrades find Zeon's secret base and destroy the top-secret mobile armor in time or will Shiro have to spend the rest of his days known as a traitor to the Federation. Come and watch with us to find out!





11PM Astro Fighter Sunred 1-4 Astro Fighter Sunred, a fierce and merciless super hero, is the only one that can protect us from the Evil Florsheim Army, a group of considerate and cheerful villains!

March 12th, room 4-237 Pizza sales at 7:35, serving at 8:35

### **Eating Disorder Treatment**

Treatment of Adults Suffering from Anorexia and Bulimia Nervosa



Informed clinicians refer their clients to Laurel Hill Inn. LHI provides the most effective treatment and deploys the highest staff-to-client ratio in New England. We provide extensive programming in a highly structured and supervised non-institutional

therapeutic setting. Evening, day, and residential treatment as well as weekly support groups in West Medford and West Somerville. Call Linda at 781 396-1116 or visit www.laurelhillinn.com.

### **Royal Bengal**

Boston's only authentic Bengali Cuisine restaurant

**Open Daily Except Monday** T: Red Line, Bus #1 – Central Square 11:30 am - 11:30 pm Lunch Buffet \$7.95 **Reasonably Priced Dinners** 

10% Discount on \$15 (or more) order with MIT ID.

313 Mass. Ave., Cambridge

(617) 491-1988

Free delivery for orders over \$10. Take-out, platters, and catering available. http://www.royalbengalrestaurant.com/



AndyTsao '13 competes in the final round of the 3x3 Rubik's Cube competition in the student center on Saturday. Patricia Li '13 averaged the second fastest time ever by a female competitor in the 3x3 competition.

**12** The Tech TUESDAY, MARCH 9, 2010

### Dean Lerman reflects on decades of life, work at MIT

### Heading Project Athena, OCW, and teaching students among his fondest memories

Lerman, from Page 1

function as "second-in-command" to the president of the university.

MIT President Susan J. Hockfield said in an MIT News Office article on Lerman's departure, "With integrity, thoughtfulness, enthusiasm and unfailing good cheer, Steve Lerman has lived the life of MIT in every dimension... We are very sorry to lose this remarkable friend and servant of MIT."

In an interview with The Tech on Sunday, Lerman reflected on his long MIT career and discussed of his some most memorable experiences at the Institute.

The Tech: What are you most proud of having accomplished at

Steven Lerman: Well, maybe two or three different things. I think first

project Athena, which is high on my list. I was the first director of it when it was a research program from 1983 to 1998. It really created the first computing system for integrated campus. I think the second thing would be my involvement with OpenCourseWare... The early stages of it were run in my lab, though the idea didn't come from my lab. I have been the chair of [OCW's] Faculty Advisory Committee since

it existed.

TT: Any personal anecdotes or anything you'll remember the most from your experience at MIT?

SL: The most of course is people — all the people that I worked with: faculty, staff, administrators, students... During the time since I moved on campus [as a housemaster], there were probably over 900 students in my dorm that I got to know to various degrees... And then I must know half the faculty, many of them over a lot of years. There is also a fantastic staff here that I will miss. So, I suspect the biggest memories are going to be about the people, not about an event or a thing.

TT: How do you think MIT has changed over the years that you've worked here?

SL: Well, I've been here for over forty years: six as a student and now this is my 35th year as a faculty. So of course it's changed a lot. I think the core values of the place haven't changed much. It's still very much about excellence, doing things well, doing things right, and a culture that doesn't care much about hierarchy. Once you're in the lab, whether the idea comes from a faculty member or a post doc or a student, it doesn't matter as much as it would in a lot

But in another sense, of course, it is quite different; the student body is... much more diverse, which I think is a great thing. In terms of gender diversity, when I was here, there were probably 3 to 6 percent women undergraduates, and now there are 45 percent. Racial diversity has improved tremendously: a quarter of the freshmen class last year were underrepresented minority students. I think that's fantastic... The student body is [alse] more diverse in their range of interests. So we have more musicians, more athletes as well as people who are so extraordinary in science and engineering. That's been a great change for MIT.

TT: You've been able to experience a lot different roles [at MIT...] Were any of these positions your

SL: I've always enjoyed teaching, so certainly teaching undergraduate courses and graduate courses. I've spent a lot of time teaching large undergraduate courses... and that was always fun. And in fact, part of the hard thing about becoming a dean and vice chancellor is not having the time to do that...

I think the Athena experience, because it was so unique in my career, was incredibly enjoyable. It was also exciting and enjoyable and at times a little daunting. But I was a very young faculty member at the time... I was about 31 when I had to do that, which for faculty is on the young side to be leading a major

TT: Now that you're leaving, who do you envision will watch over these programs and keep them

SL: Well, the OCW has a faculty advisory committee which I have chaired since it started and many people share the passion for the program who are on the committee. And I expect that one of them will be appointed chair as I leave... and that that group will continue to sustain and advocate for Open-CourseWare. The Athena system I think will similarly be supported; there's something called the MIT Council of Education and Technology... which I have been part of since it started, though I don't chair it, and I think they will continue to be the faculty and the students who are involved in this and will continue to support Athena. All these committees will I think continue to advocate for and provide advice to both the OCW and Athena staff. So I am confident that both these things are so deeply rooted into MIT's culture that they'll be sus-

TT: What made you decide to become housemaster [of Ware-

SL: [My wife and I] decided to do it when our third, our last child went off to college. And MIT was just about to open... the building that we're in now, the Warehouse. We had talked about it and the whole idea of starting a whole new chapter in our lives. We were living in a suburban house, but that no longer made a great deal of sense, considering we didn't have children in schools anymore. We were really excited about the idea of doing something different, to be really deeply engaged with our students. It was just an incredibly exciting opportunity. We loved it.

TT: Do you have any especially memorable times?

SL: We almost always celebrate Thanksgiving with the students that were here... but our favorite event started right when the dorm opened, called the pancake breakfast. So once a month, my wife and I cook breakfast for the dorm in our apartment. Anybody who wants to can come as they are — even pajamas if you want. Every month is a themed month. We would have herry pancakes and chocolate chir pancakes for Valentine's Day and Halloween... For December it was usually something like ginger bread pancakes... We must have had one for almost every month in the academic year for nine years.

TT: What was the incentive for going someplace new?

SL: It was a hard choice, to be honest. Leaving was a very difficult decision. It wasn't that I felt pushed from MIT; it was more a pull. The application from George Washington University came about rather suddenly for me. I hadn't even expected to be asked to apply. And then I made a trip down there and I was incredibly impressed and excited by the opportunity to move into a very different world there. To be honest, it is a very different university than MIT, and that's part of what interested me. I think another component, frankly, is that I am now of an age where if I am going to move to a position of leadership like this one, now is the time; the door doesn't stay open forever...



# STAR WARS

# The Bible

Are there any spiritual concepts in Star Wars? Join us for our very fun series of Bible discussions related to and based on all six Star Wars movies. Prior knowledge of Star Wars is not necessary to partake and enjoy these Bible discussions.

> When: Tuesdays at 7:00 PM Where: Room 1-134 Contact: mitao@mit.edu

Week 1: THE PHANTOM MENACE March 9 - Revelation 12:7—13:1

Week 2: ATTACK OF THE CLONES March 16 – Romans 6:15-23

Week 3: REVENGE OF THE SITH March 30 – Ephesians 4:17-25

Week 4: STAR WARS: A NEW HOPE

April 6 - Acts 2:14-36

Week 5: THE EMPIRE STRIKES BACK

April 13 – Matthew 7:13-24

Week 6: RETURN OF THE JEDI

April 20 - It's a Secret



Tuesday. March 9. 2010 The Tech 13

# The MIT Figure Skating Club's Annual FIGURE SKATING EXHIBITION

Johnson Athletics Center Friday, March 12 7pm

Free Admission

Ice Dancing · Pairs Skating · Solo Skating · Group Numbers · Theater on Ice

\*\*This event is hosted by the MIT Figure Skating club and is sanctioned by the United States Figure Skating Association\*\*

http://web.mit.edu/skatingclub/www/Home.html



# **MIT Mentoring Fair**

Monday, April 12, 2010 12:00 – 2:00 pm Walker Memorial

Learn about Mentoring Programs at MIT for undergraduates, graduate students, staff and faculty.

### Help us recognize great mentors at MIT.

Please nominate someone you think deserves recognition for taking the time to support you. Tell us about someone that has enhanced your growth, knowledge and skills and has been a valuable resource to you as a mentor.

Contact Tobie Weiner (iguanatw@mit.edu) and send a paragraph or two explaining why this person has been a mentor to you.



# INNEW YORK CITY IS EASY Just click on www.studenthousing.org. You'll find clean, modern, safe, convenient housing.

igure Skating Club





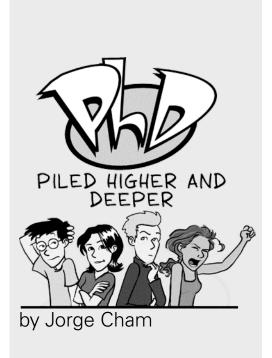
WWW.STUDENTHOUSING.ORG 800.297.4694

# FUN FUN FUN FUN

### Steal My Comic by Michael Ciuffo



STEALMYCOMIC-COM





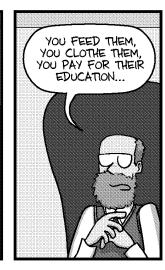




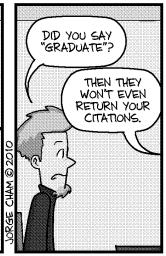


WWW. PHDCOMICS. COM









WWW.PHDCOMICS.COM

### **Crossword Puzzle**

Solution, page 8

### **ACROSS**

- 1 Ale outlet
- 4 Styx ferryman
- 10 Aldebaran or Arcturus 14 Before, in poetry
- 15 Organism requiring
- oxygen
- 16 Kind of list
- 17 Faberge creation
- 18 Start of Robert Benchley quote
- 20 Renter 22 Amatory
- 23 Require
- 27 Like a hermit
- 28 Part 2 of quote
- 32 Stage whisper
- 33 \_\_ dixit 34 Latin 101 verb
- 38 Manage to get by 40 Cater to
- 42 Looked over

FUN FUN FUN FUN FUN FUN

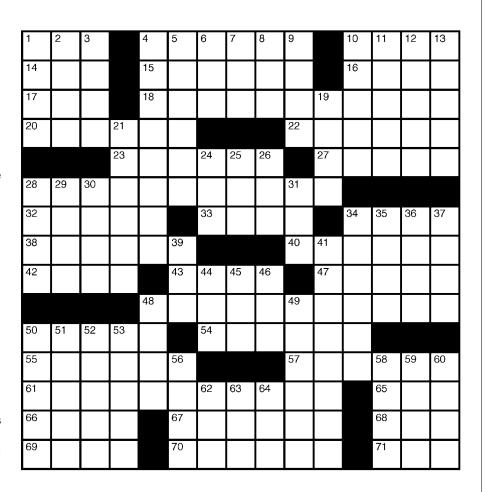
- 43 Longing
- 47 Title holder
- 48 Part 3 of quote
- 50 Hold tightly
- 54 Excessively
- 55 Confederates
- 57 More snoopy
- 61 End of quote 65 Fr. holy woman

- 66 Patella's location
- 67 Blanch
- 68 Goddess of folly
- 69 Male heirs
- 70 Uncle!
- 71 Shade provider

### **DOWN**

- 1 Banana wrapper
- 2 Entreat earnestly
- 3 Asks for alms 4 Having rhythm
- 5 Fine print word
- 6 Coach Parseghian
- 7 Ticket info 8 Sapporo sash
- 9 Hawaiian state bird
- 10 Bar accessory
- 11 Lone Ranger's buddy 12 Govt. in power
- 13 Rolls
- 19 Alum
- 21 Sowed
- 24 Friend from France 25 Little devil
- 26 \_\_ Vegas
- 28 Renown 29 Brit's indignant
  - comment
- 30 Tiger's sponsor

- 31 Keanu in "The
- Matrix"
  - 34 Eternally
  - 35 Gordon's merciless nemesis
  - 36 Screenwriter James
  - 37 Polo of "Meet the Parents"
  - 39 Klutz
  - 41 Channel port
  - 44 Actor Gulager
  - 45 Solo in "Star Wars"
  - 46 Last stop
  - 48 Aboveboard
  - 49 Ordnance officer 50 Wine holders
  - 51 Argentine plain
  - 52 Foreign
  - 53 Parties in a
  - conflict 56 Planted
  - 58 Aoki of golf
  - 59 Kett of old comics 60 Powerful stink
  - 62 Poetic contraction 63 The man in
  - question 64 Simpson judge



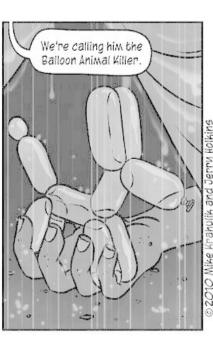
### **The Next Chapter**



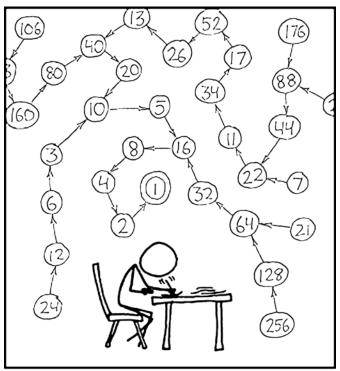
by Jerry Holkins and Mike Krahulik







### **Collatz Conjecture**



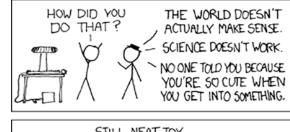
THE COLLATZ CONJECTURE STATES THAT IF YOU PICK A NUMBER, AND IF ITS EVEN DIVIDE IT BY TWO AND IF IT'S ODD MULTIPLY IT BY THREE AND ADD ONE, AND YOU REPEAT THIS PROCEDURE LONG ENOUGH, EVENTUALLY YOUR FRIENDS WILL STOP CALLING TO SEE IF YOU WANT TO HANG OUT.

obsessively-hand-applied rules. The Strong Collatz Conjecture states that this holds for any set of

### **Tesla Coil**









For scientists, this can be the hardest thing about

### **Easy Sudoku**

A WEBCOMIC OF ROMANCE,

by Randall Munroe

SARCASM, MATH, AND LANGUAGE

Solution, page 7

	•				,			
2			3			9	5	
		8		9			1	
	7					6		8
				6		8		1
6			9	3	7			4
6		3		1				
1		2					7	
	5			7		1		
	5 3	7			2			9

### **Hard Sudoku**

Solution, page 7

2	9	4				6		
				2	6			1
						2	3	
3		8	9	7		2 5		
			8		4			
		7		5	3	8		4
	7	2						
8			1	9				
		9				3	5	8

### 16 THE TECH

# Moneyball and Mark Cuban

### Thoughts from the Sloan Sports Conference

By Russell Spivak

I somehow managed to wake myself up Saturday morning to attend MIT Sloan's Sports Analytics Conference at the Boston Convention and Exhibition Center. I ventured into the main conference room and plopped down in one of the back rows, opening my laptop to take notes on a panel discussion on the future of sports ownership.

Sitting behind me was Mark

Yes, Mark Cuban, the polarizing owner of the Dallas Mavericks, was chilling behind me in jeans and tennis shoes, texting. Needless to say, I did a triple take and had to wipe the star-struck look off of my face. Now this is a way to start.

The day's conference held four sets of three 80 minute conferences simultaneously on a myriad of topics, all focused on the business aspect of sports, emphasizing the role of analysis and analytics in each market.

The marquee event was a panel discussion about the roles and limits of analytics titled "What Geeks Don't Get: The Limits of Moneyball." Isn't there more to sports than a computer crunching numbers? Where does old-fashioned wisdom come into play in today's world of statistics and replays, when even the most minute, seemingly irrelevant details catalogued and analyzed?

That debate goes to the heart of the conference, which examines how technology, statistics and analytics are changing the sports industry. Have technological advances allowed the computer to trump the seasoned

The start-studded panel discussion, moderated by Michael Lewis, author of Moneyball and The Blind Side, set the tone:

'Well," said ESPN columnist Bill Simmons, "I want to congratulate everyone on setting a record for the most dudes in a conference room at one time."

The discussion on statistical analysis had the over-arching theme that sports is no longer purely for joy of the fan, but is a real business that has the same operations, management and sales needs of any large, mainstream business.

The business sense, with every aspect of marketing, media, venue, revenue boost, personnel and analysis were all covered in forums with leaders of their industry, ranging from Cuban, Daryl Morey MBA '00, general manager of the Houston Rockets and Sloan MBA graduate of the class of 2000, to Bill Polian. president of the Colts, Jonathan Kraft, owner of the Patriots, Matt Silverman, president of the Tampa Bay Rays, and more.

The technological advancements that have dramatically changed sports were discussed

in a varied way: new mathematical formulas and analysis for increased success, the use of social networks like facebook for increased sales, increased performance in the scientific study of the body for performance enhancement (the natural way), and architecture and energy reforms in stadium and arena developments for efficient sports.

Saturday was the fourth time this popular annual event has been organized. This year there were over 400 people on the waiting list, hoping one of the 1,000 ticketholders would discover he or she had a scheduling conflict.

The conference was chaired by Morey and Jessica Gelman, the director of new business development and operational initiatives for the Kraft Group, alongside 13 Sloan MBA candidates who took charge of different aspects of the conference, like projects, public relations, communications. The conference is a great example of the work MIT students, be they undergraduate or graduate, can do we think big, don't we?

Clips and videos of the conference will soon be available on the conference's webside, http:// www.sloansportsconference.com

And, oh yes, Mark Cuban is as much of a character as the media. makes him out to be; but he is a lot friendlier and more knowledgeable than how SportsCenter may depict him.



Hillary E. Jenny '12 gets ready for a forehand during the women's tennis match in the J.B. Carr Tennis Bubble on Saturday morning. The Engineers lost 8-1 against New York University.

### **SCOREBOARD**

Men's Basketball	
Friday, 3/5	
vs. DeSales University	L 72-64
Women's Lacrosse	
Saturday, 3/6	
vs. Manhattanville College	W 15-9
Women's Tennis	
Saturday, 3/6	
vs. New York University	L 8-1
Men's Track & Field	
Saturday, 3/6	
ECAC Championship	17th of 49
Women's Track & Field	
Saturday, 3/6	
ECAC Championship	11th of 43
Men's Volleyball	
Saturday, 3/5	
vs. Bard College	W 3-0
vs. Milwaukee School of Engineering	L 3-1
Sunday, 3/6	
vs. College of Mount St. Vincent	W 3-0
vs. Carthage College	W 3-1

### **Engineers upset in** NCAA tournament

By Russell Spivak SPORTS EDITOR

In the Engineers' second trip to the Division III NCAA Tournament, they were upset by De-



Sales University 72-64 Saturday at William Paterson University. loss is the Cardinal and Grey's second

straight, after a defeat to Clarke University last Saturday in Rockwell Cage in the the NEWMAC

The game began with a back and forth battle, both sides streaking to leads that would be chipped away by the other. The Engineers battled back from a 27-20 DeSales lead toward the end of the first half to bring the difference between three at the

DeSales continued to streak ahead in the 2nd half, at one point taking a double-digit lead; MIT chipped away, however, and made a game of it, tying it at 54 behind the play of Mitchell H. Kates '13. The two teams battled, ending in a tie at the end of regu-

The game ended thrillingly in overtime, when the Bulldogs

of DeSales finally overtook the Engineers. DeSales was able to score 10 in the extra time, while MIT could only muster 2 points for a final of 72-64.

Even with the loss, Tech finished at 22-5, the best season in the program's 100-plus year history. Taking the old Brooklyn Dodgers adage, "Wait 'til next year," MIT is well positioned for the next couple of years. Kates, a freshman, headed the team as the point guard every game this season alongside freshman big-man Will Tashman '13, who finished the game with a career high 21 points complimented by 9 rebounds. Only one starter will be graduating, as well as one other senior on the team.

Other underclassmen with large roles on the team are William "Billy" E. Bender '12 and Noel Hollingsworth '12, who were named Academic All-Conference players, as well as James D. Karraker '12 and Patrick S. Sissman '10.

Bender, Hollingsworth, Kates, and Tashman together average over 50 points a game, nearly 75 percent of the team's scoring, and will all be back for at least two years. There is no doubt the future is bright for this team.



# Production: We make them look good

News ◆ Photography ◆ Features ◆ Opinion ◆ World & Nation ◆ Sports ◆ Comics ◆ Arts

join@the-tech.mit.edu