INSTITUTE CLOSED DUE TO WINTER STORM

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The Tech
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Friday, February 8, 2013

WEATHER, p. 2

FRI: 33°F | 23°F
Heavy snow

SAT: 24°F | 22°F
Snow

SUN: 32°F | 10°F
Sunny

HO YIN AU—THE TECH

Installations from the Martin Luther King Jr. Design Seminar (17.920) class, held during IAP, are up in Lobby 10. The class focused on topics such as civil rights, race, and identity. The installation will conclude on Feb. 14, 2013.

Winter storm Nemo finds its way to Boston

Institute closes for second time this academic year

By Jessica J. Pourian
CONTRIBUTING EDITOR

A major snowstorm is expected to hit MIT today, as winter storm Nemo makes its way across the coast. MIT announced last night that it would be closed today — the second campus closure due to weather this year, after Hurricane Sandy shuttered the Institute on Oct. 29, 2012. Massachusetts Governor Deval Patrick has declared a state of emergency that will be effective today starting at noon. Community members should check *emergency.mit.edu* for the most up-to-date information.

Nemo will dump one to two feet of snow on Boston between Friday morning and Saturday afternoon, with snow potentially coming down at a rate of up to two to four inches per hour. The National Weather Service has issued a blizzard warning for this weekend, predicting

Snowstorm, Page 16

MIT Kendall plans spark debate

Forum discusses offices, retail, & housing on east campus

By Leon Lin
ASSOCIATE NEWS EDITOR

MIT's latest rezoning petition, which would bring commercial and residential developments as well as new academic buildings to east campus, prompted concern from students and drew criticism from faculty and staff at a forum about Kendall Square plans on Wednesday. The topics discussed included the future of graduate housing and the broader question of how the petition would serve MIT's interests.

Hosted jointly by the Undergraduate Association, the Graduate Student Council, and the Postdoctoral Association, Wednesday's forum was an unusual gathering of many segments of the MIT community, though more than half of the around 200 attendees were graduate students.

The forum began with an overview of the rezoning petition from Steve C. Marsh of the MIT Investment Management Corporation and Israel Ruiz SM '01, executive vice president and treasurer of MIT. Marsh and Ruiz highlighted revisions to the petition made in response to worries expressed in the faculty newsletter and feedback from a faculty task force formed in August. These changes included conditions on the increase in the building height limit and a doubling of the multifamily residential

Kendall, Page 19

MOOC

Massive **O**pen **O**nline **C**ourses

edX and Coursera believe online courses are the future of education. How are they doing so far?

p. 9

IN SHORT

All Varsity Sports contests for Saturday have been canceled. DAPER facilities will remain closed until at least 12 p.m. on Sunday. Check *www.mitathletics.com* for more updates.

Nominations are now open for the MIT Awards Convocation. Nominate students, faculty, and staff for some of the Institute's most prestigious awards! The deadline is March 15. More info at *http://awards.mit.edu.*

Graduate Housing IAP Sublets end Sunday. Do yourself a favor and move after the snowstorm, if you haven't already.

Spring PE classes start on Monday! Make sure you show up for the first class so you don't lose your spot!

Send news information and tips to *news@tech.mit.edu.*

A vision of OCW for the future

In the wake of edX, where does OpenCourseWare fit?

By Deborah Chen
EXECUTIVE EDITOR

OpenCourseWare's (OCW) goal for the next decade, as presented on their website, is unapologetically bold: to reach a billion minds by the year 2021. But since the announcement of MITx and edX over a year ago, there understandably has been some confusion about how OCW will fit into the picture. All three share a common goal — to make an MIT-caliber education freely available to the world — and much of MIT's material on edX (developed through MITx) is already available on OCW. With these seeming overlaps, what is the future of OCW?

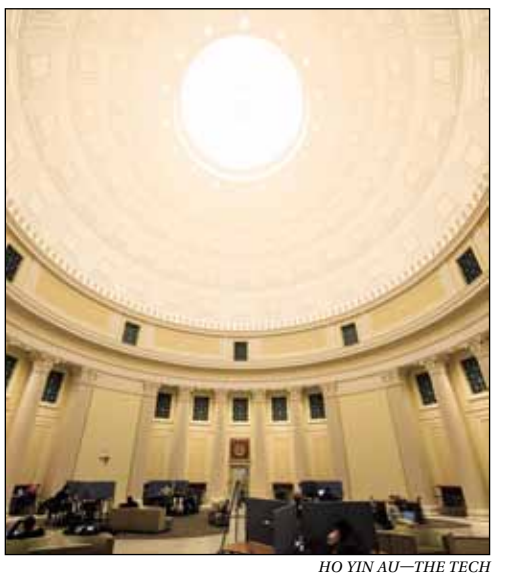
In some sense, the future of OCW is what it is now and will continue to be: a static collection of material as presented in a class at MIT. Meanwhile, courses on MITx are interactive, complete with assignments, exams, grades, and feedback, offered on the edX platform. MITx aims to supplement and reinvent the residential learning experience for students on campus, and, according to Shigeru Miyagawa, chair of the OCW Faculty Advisory Committee, OCW will capture this shift in classroom material after the fact.

"It is pretty clear that technology will continue to migrate into the classroom, and change the ways people teach," said Miyagawa. "MITx is changing the very idea of lecture, and the professor-lecture format will continue to evolve. When you ask about the future of OCW, the real question is, what will residential education look like? And OCW will be a reflection of that."

According to Sanjay Sarma, MIT's Director of Digital Learning, OCW's staying power comes from the specialized role it occupies in MIT's online learning initiatives.

"MITx and OCW serve very different purposes. MITx is a class — students follow a fixed schedule with predetermined deadlines, while students using OCW can go at their own pace. There are some who prefer

OCW, Page 13



HO YIN AU—THE TECH

The reading room was recently reopened to students as a 24/7 study area. Along with the skylight, new efficient lighting systems were installed, as well as new paint that restores the reading room to its original colors.

BORED DURING THE SNOWSTORM?

Contemplating life and extracurriculars? Consider *The Tech*! We'd love to have you.

MIT AND KENDALL SQUARE

MIT is doing Kendall Square wrong.
OPINION, p. 4

DRAMASHOP'S MARGO VEIL

Getting into acting at MIT.
ARTS, p. 12

MTG PRESENTS: *ROCKY HORROR!*

The Musical Theatre Guild's production plays in La Sala this weekend.
ARTS, p. 12

VOLLEYBALL UP TO 5-5 RECORD

Nationally-ranked No. 13 men's volleyball team improved yearly record. **SPORTS, p. 20**

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Battling self-immolations, China makes more arrests

HONG KONG — The police in a restive Tibetan area have arrested 12 people and detained dozens more accused of a playing a part in acts of self-immolation by Tibetan monks and others protesting Chinese rule, the state-run media said Thursday, as the government stepped up its campaign of attributing the protests to a plot inspired by the exiled Dalai Lama.

The announcement of the crackdown in Qinghai province in western China comes as the number of self-immolations reported in Tibetan parts of the country over the past four years approached 100, a somber milestone that has appeared to spur efforts by the Chinese police and officials to crack down on people and groups seeking greater freedom for Tibetans.

China's state-run Xinhua news agency said that since November the police in Huangnan, a heavily Tibetan prefecture of Qinghai, have formally arrested 12 suspects and detained 58 other people over self-immolations in the area. Despite the Chinese government's crackdown, there have already been three self-immolations by Tibetans this year. The second one died.

One of those arrested, whose Tibetan name is reported as Puhua, was charged with homicide and accused of giving speeches encouraging self-immolations at funerals for people who died by engulfing themselves in fire, the news agency report said. It did not give details about the other suspects, when they were held by the police or the accusations against them.

—Chris Buckley, The New York Times

Chicago heiress said to be candidate for Commerce

WASHINGTON — Penny Pritzker, an heiress to the Hyatt hotel fortune, is a leading candidate to become President Barack Obama's next commerce secretary as the president slowly moves to complete his second-term economic team.

Pritzker, who led the groundbreaking fundraising effort for Obama's first presidential campaign, withdrew from consideration for the same position in 2008, with some people suggesting that her family's immense wealth might complicate her nomination at a time of deep financial crisis. Now, however, sources familiar with the president's thinking say he may yet turn to his longtime friend to lead the Commerce Department and join the administration's effort to recharge the still sluggish economy. She would replace Rebecca Blank, who has been acting secretary since John Bryson resigned last year, citing health reasons.

A formal announcement of who will lead the department is still weeks away, a White House official said, and Obama could still choose someone else. In the meantime, the president is also searching for replacements in other key agencies and departments.

—Michael D. Shear, The New York Times

White House tensions over Syria exposed in hearing

WASHINGTON — In his first term, President Barack Obama presided over an administration known for its lack of open dissension on critical foreign policy issues.

But on Thursday, deep divisions over what to do about one of those issues — the rising violence in Syria — spilled into public view for the first time in a blunt exchange between Sen. John McCain, R-Ariz., and the leaders of the Pentagon.

Testifying before the Senate Armed Services Committee, Defense Secretary Leon E. Panetta acknowledged that he and the chairman of the Joint Chiefs of Staff, Gen. Martin E. Dempsey, had supported a plan last year to arm carefully vetted Syrian rebels. But it was ultimately vetoed by the White House, Panetta said, although it was developed by David H. Petraeus, the CIA director at the time, and backed by Hillary Rodham Clinton, then the secretary of state.

—Michael R. Gordon and Mark Landler, The New York Times

Iran's supreme leader rejects direct talks with US

By David E. Sanger
THE NEW YORK TIMES

WASHINGTON — Iran's supreme leader, Ayatollah Ali Khamenei, rejected any idea of bilateral talks with the United States on Thursday, in a speech in which he seemed to dismiss the views of Iranian officials — including the country's foreign minister — who had advocated for such negotiations.

"The Iranian nation will not negotiate under pressure," Khamenei said. Noting the international sanctions against Iran, which were bolstered on Wednesday by new American financial restrictions that essentially reduce Iran to using its oil for barter trade, he added: "The U.S. is pointing a gun at Iran and wants us to talk to them. The Iranian nation will not be intimidated by these actions."

"Direct talks will not solve any problems," he concluded.

His statement was considered particularly important because, as one senior Obama administration official put it, "we believe Khamenei now holds the entire nuclear file."

But the White House did not immediately react to the statement, and some officials said that history — including during the Iran-Iraq war — demonstrates that Iran can change its position quickly. Despite the ayatollah's comments, it appears that talks scheduled to begin Feb. 26 between Iran and six nations, including the United States, will go ahead in Kazakhstan.

But U.S. officials have said repeatedly in recent months that they believe negotiating in that multinational forum can be awkward, partly because of differences with Russia and China over Tehran. That is one reason Vice President Joe Biden went to a security conference in Munich last weekend to publicly reinforce President Barack Obama's private offer of direct talks.

It was at that conference that the Iranian foreign minister, Ali Akbar Salehi, said he was open to such talks, although Biden noted that they could proceed only if the ayatollah showed serious interest. Salehi had been one of Iran's top nuclear negotiators, and while he has often projected a moderate tone, he has also made it clear that his authority is limited. An effort to negotiate a deal early in Obama's presidency resulted in an agreement that Khamenei rejected.

The ayatollah's objection is an edict to which other Iranian officials, including President Mahmoud Ahmadinejad, must adhere, and it comes after several high-ranking Iranian officials, including Ahmadinejad and Salehi, said that the Obama administration had been taking positive steps toward Iran. Khamenei's wording was quite direct in his speech before air force commanders at his Tehran office, and his comments were reported on his personal website.

"I'm not a diplomat, I'm a revolutionary, and speak frankly and directly," he said. "If anyone wants the return of U.S. dominance here, people will grab his throat."

In Tehran, the comments were met with some sense of resignation — and suggestions that Obama's openness to negotiation was a ploy, designed to set international opinion against Iran.

Manhunt for ex-officer in three California killings

By Ian Lovett and Adam Nagourney
THE NEW YORK TIMES

LOS ANGELES — A former Navy reservist who was fired from the Los Angeles Police Department in 2008 has gone on a murderous rampage aimed at police officers and their families, law enforcement officials said Thursday, killing at least three people — including an 11-year veteran of the Riverside Police Department — and setting off a huge manhunt across Southern California.

The police were on high alert in a dragnet that appeared to rattle even a part of the country familiar with sweeping police hunts. Protection teams were dispatched overnight to guard uniformed officers and their families, scores of officers set up lines of defense outside the fortress that is the Los Angeles Police Department headquarters, and motorcycle officers were ordered to retreat to the safety of patrol cars.

In Torrance, two women delivering newspapers were shot and wounded by police officers who mistook the Honda pickup they were driving for the one identified as belonging to the gunman, a gray Nissan. About 12 hours later in San Diego, squads of police cars, in a blaze of red lights and screeching tires, converged on a motel where the suspect was mistakenly thought to be hiding after his wallet was found on a sidewalk.

As night fell, the gray Nissan was found, destroyed by flames, at the side of a dirt road in a snowy, wooded area near Big Bear, a ski resort about 100 miles from downtown Los Angeles. The resort and local schools were closed as soon as the vehicle was discovered.

The suspect was identified as Christopher J. Dorner, 33, who worked for the Police Department from 2004 to 2008. Dorner had posted a rambling and threatening note on his Facebook page, which police referred to as "his manifesto," complaining of severe depression and pledging to kill police officers to avenge his dismissal for filing a false police report accusing a colleague of police abuse.

In the note, Dorner said he had struggled to clear his name in court before resorting to violence.

The 6,000-word manifesto was bristling with anger and threats, naming two dozen police officers he intended to kill. Dorner laid out grievances against a police department that he said remained riddled with racism and corruption, a reference to a chapter of the department's history that, in many people's view, was long ago swept aside.

The authorities responded by assigning special security details to protect the people named in the manifesto and asked the news media not to publish their names.

WEATHER

Winter megastorm Nemo, today through Saturday

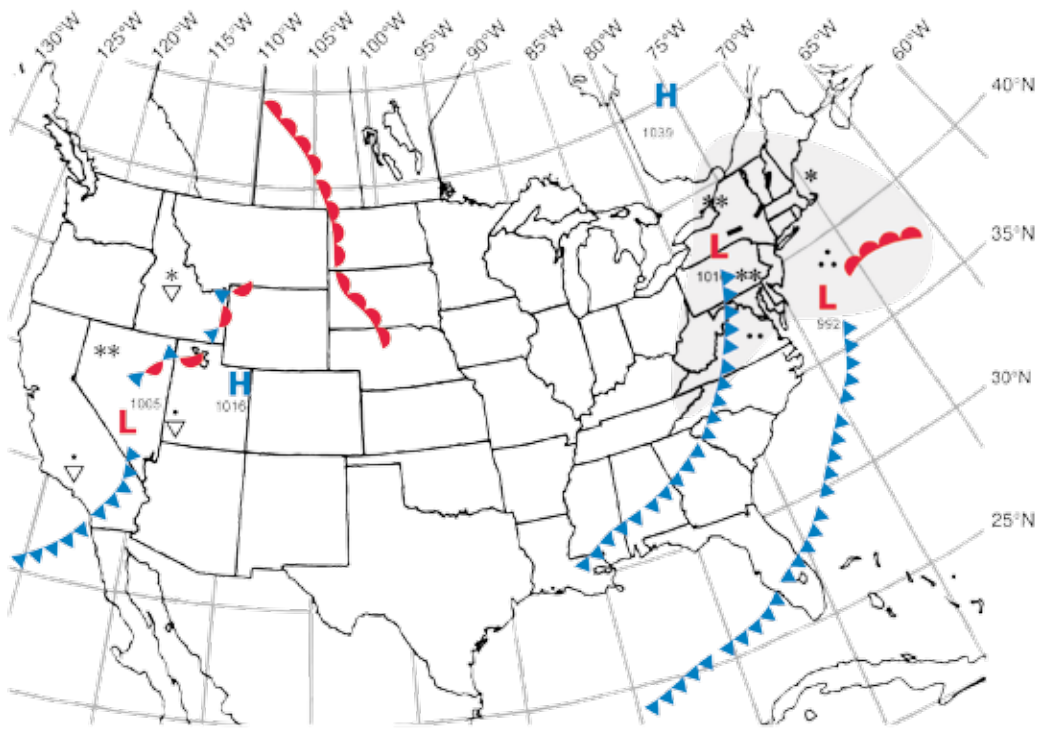
By Roman Kowch
STAFF METEOROLOGIST

A threatening nor'easter will impact our region today. The storm may have historic consequences, possibly dropping over 2 feet of snow across much of southeast New England and producing white-out conditions late today into tonight. A low pressure center moving northeast along the coast will rapidly intensify as it combines with another low pressure moving east over Pennsylvania and New York. The system is rich with moisture and will drop heavy snowfall across our region into Saturday. Snowfall totals will be around 10-12 inches over Cape Cod, reaching 20-28" over the Greater Boston area. In the heaviest snow bands, we cannot rule out thundersnow either.

Winds will become a major concern through the day as well. Sustained winds will be 30-40 mph during the height of the storm, which should occur between midnight and 4 am tonight. Gusts may also reach 60 mph briefly and cause property damage. Best advice is to hunker down tonight and avoid all travel as roads will be treacherous.

Extended Forecast

Today: Snow, becoming heavier through the day. High 33°F (1°C). NE wind at 15-20 mph, increasing to 25-35 mph with gusts to 45 mph late.
Tonight: Blizzard conditions. Low 22°F (-6°C). N wind at 30-40 mph, briefly gusting to 60 mph.
Tomorrow: Snow in the morning, clearing late. High 24°F (-4°C). N wind at 25-35 mph, decreasing through the day.
Sunday: Sunny. High near 32°F (0°C). Low near 10°F (-12°C).
Monday: Chance of rain and snow. High near 44°F (7°C). Low near 20°F (-7°C).



Situation for Noon Eastern Time, Friday, February 8, 2013

Some states push measures to repel new US gun laws

By Jack Healy
THE NEW YORK TIMES

DENVER — A tide of anger at Washington's gun-control efforts is sweeping through statehouses from South Carolina to North Dakota, taking the form of laws that would let states ignore — or at least resist — any new national gun restrictions.

Lawmakers in at least 15 states have introduced bills that would nullify any new efforts to further restrict access to guns or high-capacity magazines within their borders. Some have provocative language calling for states to arrest and prosecute federal agents who dare to enforce new firearms regulations.

Some of the measures have died quietly or been voted down amid concerns they are unconstitutional. Others are moving along with support from rural, pro-gun Republicans, who say their constituents are threatened by Washington's push — however halting and uncertain — for stricter gun laws.

Quixotic as they may be, the nullification moves reach back to John C. Calhoun and the antebellum South, and tap a deep frustration with what conservative lawmakers call Washington's intrusion on the rights of states and gun owners. The spirit, while more muted, echoes the state-level backlash to President Barack Obama's health-care law in 2010.

"It's about citizens having the ability to be armed to protect themselves in their homes," said Casey Guernsey, a Missouri state representative and hunter who holds an annual coyote-shoot in his district as a charity fund-raiser. His bill to block any new gun laws has 60 co-sponsors in the state's Republican-controlled House and is likely to come up for a hearing next week, he said.

"We aren't here to do the bidding of the federal government," he said. "Whenever they go out of bounds, it's our responsibility to step up."

They are supported by states' rights groups like the Tenth Amendment Center (named for the Constitutional provision that grants power to the states and people), and have allies among the scores of rural sheriffs who are objecting to new gun laws.

In Wyoming, home to some of the country's least restrictive gun regulations, a bill to exempt the state from any new gun-control laws sailed through the Republican-controlled House by a vote of 46-13 and is now headed to the State Senate.

The measure, called the Firearm Protection Act, declares that any new gun-control laws or executive orders that ban semiautomatic weapons or limit ammunition clip sizes are "unenforceable" in Wyoming. Any federal agent who tries to enforce gun-control measures would be guilty of a felony punishable by five years in prison and a $5,000 fine. It also allows the state's attorney general to defend Wyoming residents prosecuted for violating federal gun laws.

"I don't want to see federal agents arrested. That's not the goal," said Rep. Mark Baker, a Republican from southwest Wyoming. "It gives us a way to challenge them."

Report faults Indian government over child sex abuse

By Sruthi Gottipati
THE NEW YORK TIMES

NEW DELHI — Sexual abuse of children is "disturbingly common" in India, and the government's response to it has fallen short, both in protecting children and in treating victims, Human Rights Watch said in a report released Thursday.

The group urged the government to better shield children from sexual abuse as part of a broad push for reform after the death of a young woman who was gang-raped here in December. Although there are child protection laws on the books, including one passed last year, the rights organization said the measures were not properly enforced.

"Children are sexually abused by relatives at home, by people in their neighborhoods, at school, and in residential facilities for orphans and other at-risk children," said the 82-page report, "Breaking the Silence: Child Sexual Abuse in India."

A 2007 government-sponsored study of 12,500 interviews with children in 13 Indian states, said that 53 percent of the children reported having been sexually abused in some way, but only three percent of the cases were reported to the police.

"Children who bravely complain of sexual abuse are often dismissed or ignored by the police, medical staff and other authorities," Meenakshi Ganguly, the director of Human Rights Watch in South Asia, said in a statement.

In response, the government acknowledged flaws in its child protection system, with the head of one government agency saying at a news briefing that in many cases police or court officials didn't accept that rape or incest had occurred.

"People have to be made aware of their rights, the procedures to be followed in registering a case in a police station, and insist that they get justice," said Shantha Sinha, chairwoman of the agency, National Commission for Protection of Child Rights, Associated Press reported.

In interviews with more than 100 people, Human Rights Watch found that the police, government officials and doctors were unprepared to deal with child sexual abuse cases and often made the situation worse by not believing the children's accounts and subjecting them to humiliating medical examinations.

The rights group reported that in four cases, doctors used an unscientific "finger test" to examine girls who had been raped.

"The process is so traumatic that in some cases the children are better off not reporting" abuse, Ganguly said in an interview.

Sexual abuse of children happens everywhere, Ganguly said, but in India the official response to it compounds the problem. In one episode, a 12-year old girl who reported to the police that she had been raped by a man from a politically connected family was locked in jail for almost two weeks, the report found. The police insisted that she change her story, it said.

Catholic bishops reject contraception compromise

By Robert Pear
THE NEW YORK TIMES

WASHINGTON — The nation's Roman Catholic bishops rejected the latest White House proposal on health insurance coverage of contraceptives on Thursday, saying it did not provide enough safeguards for religious hospitals, colleges, and charities that objected to such coverage for their employees.

The bishops said they would continue fighting the federal mandate in court.

The administration said the proposal, issued last Friday, would guarantee free employee coverage of birth control "while respecting religious concerns" of organizations that objected to paying or providing for it.

The bishops said the proposal seemed to address part of their concern about the definition of religious employers who could be exempted from the requirement to offer contraceptive coverage at no charge to employees. But they said it did not go far enough and failed to answer many questions, like who would pay for birth control coverage provided to employees of certain nonprofit religious organizations.

"The administration's proposal maintains its inaccurate distinction among religious ministries," said Cardinal Timothy M. Dolan of New York, the president of the U.S. Conference of Catholic Bishops. "It appears to offer second-class status to our first-class institutions in Catholic health care, Catholic education, and Catholic charities," he said. "The Department of Health and Human Services offers what it calls an 'accommodation,' rather than accepting the fact that these ministries are integral to our church and worthy of the same exemption as our Catholic churches."

The bishops' statement, issued after they had reviewed President Barack Obama's proposal for six days, was more moderate and measured than the imprecations they hurled against the original rule issued by the White House early last year. Dolan said the bishops wanted to work with the administration to find a solution.

The administration had no immediate reaction to the bishops' statement, other than to say it was not a surprise.

Under the latest proposal, churches and nonprofit religious groups that object to providing birth control coverage on religious grounds would not have to pay for it. Women who work for such organizations could get free contraceptive coverage through separate individual health insurance policies. The institution objecting to the coverage would not pay for the contraceptives. Costs would be paid by an insurance company, with the possibility that it could recoup the costs through lower health care expenses resulting in part from fewer births.

Suspect in Texas veteran's killing was hospitalized

DALLAS — Eddie Ray Routh, the former Marine corporal accused of killing Chris Kyle, an author and retired Navy SEAL sniper, had been released from a veterans hospital here four days before the shootings over the objections of his parents, Routh's court-appointed lawyers said.

Routh, 25, and his relatives told police in recent weeks and months that he had been deeply troubled and was suffering from post-traumatic stress disorder, according to court documents. He had a series of run-ins with authorities in parts of North Texas, and had threatened to kill himself at least once, police records show.

Routh had been undergoing treatment at the Dallas VA Medical Center and Green Oaks Hospital, a psychiatric center in Dallas. On Jan. 24, Routh was released from the Dallas VA center but soon returned, and he was again released on Jan. 29, said his lawyers, R. Shay Isham and J. Warren St. John. On both occasions, Routh's father and mother, Raymond and Jodi Routh, had protested his release, the lawyers said.

—Manny Fernandez and Kathryn Jones, The New York Times

Russian performers urge support for adoptions by Americans

MOSCOW — A panel of respected figures from Russia's art world issued an emotional appeal to President Vladimir V. Putin on Thursday to make an exception to a recent ban on adoptions by Americans, and allow children to join American parents they have come to know.

Chulpan Khamatova, revered here for her charity work as well as her acting, spoke in front of a screen showing blown-up photographs of families whose adoptions have been halted. Beside her sat Beth Hettinger of Westfield, N.J., who flew to Russia to bring back Alexei, who is 18 months old. Hettinger was scheduled to leave Russia without Alexei on Friday.

—Ellen Barry, The New York Times

Hewlett-Packard pushes China to limit student labor

HONG KONG — Hewlett-Packard, one of the world's largest makers of computers and other electronics, is imposing new limits on employment of students and temporary agency workers in Chinese factories. Following recent efforts by Apple to increase scrutiny of student workers, the move reflects a significant shift in how electronics companies view problematic labor practices in China.

Many factories in China have long relied on high school students, vocational school students, and temporary workers to cope with periodic surges in orders as factory labor becomes increasingly scarce. Students complain of being ordered by school administrators to put in very long hours on short notice at jobs with no relevance to their studies; local governments sometimes order schools to provide labor, and the factories pay school administrators a bonus.

For much of the past decade, many of the world's big electronics companies have largely neglected the problem, beyond in some cases tracking reports of abuses. Apple made the unusual move last year of joining the Fair Labor Association, one of the largest workplace monitoring groups, which inspects Chinese factories making computers, iPhones, and other devices under Apple's contract.

—Keith Bradsher and David Barboza, The New York Times

Central bank chief's comments send euro lower

FRANKFURT, Germany — The president of the European Central Bank on Thursday cited the rising value of the euro as a possible threat to the region's economic recovery, comments that immediately sent the euro down sharply against the dollar and yen.

Mario Draghi, the ECB chief, denied that the central bank was trying to influence the value of the euro, no doubt mindful of provoking a currency war with Japan or the United States. But he then made statements that markets interpreted as meaning the ECB could take action if the euro rose too much.

"The exchange rate is not a policy target, but it is important for growth and price stability," Draghi told reporters.

Draghi, during the ECB news conference, was careful to avoid any explicit threat to take action to push down the euro, or to criticize any other countries. He said the euro's current value wasn't far from its historical norm. But he noted that economic policy by other countries, none of which he named, could affect exchange rates.

—Jack Ewing, The New York Times

Investor sues Apple over stock plan

Wall Street has had a long romance with Apple. Now one of the company's best-known investors is saying: I love you, but you need to change. The surprising declaration by billionaire hedge fund manager David Einhorn adds to the growing dissatisfaction with Apple and its once soaring stock.

On Thursday, Einhorn urged his fellow shareholders to block a plan by Apple to scrap a certain class of stock. He says that the move limits the company's ability to use its enormous war chest — some $137 billion in cash — to reward investors.

The campaign is an unusually aggressive one for Einhorn, who came to fame betting against Lehman Brothers. To thwart the proposal, Einhorn is suing Apple in U.S. District Court in Manhattan, claiming that it violated securities rules by tying the plan with two other initiatives that he sees as good corporate governance.

The standoff sets up an unusual clash between two sides who can each claim a huge following on Wall Street. In one corner is Apple, whose stock's almost unearthly growth has bewitched investors across the globe — at least, until recently. In the other is Einhorn, widely regarded as an intelligent investor whose moves inspire legions of copycats. His merely asking a few questions on an earnings call for Herbalife, a nutritional supplement company, last May prompted a huge plunge in its shares.

—Michael J. De La Merced, The New York Times

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GUEST COLUMN

How MIT is doing it wrong in Kendall

By Mike Connolly

In spite of a severe Cambridge housing crisis, the Massachusetts Institute of Technology plans to build on-campus towers for lease to commercial tenants.

Under a zoning petition before the City Council’s Ordinance Committee, the institute is seeking permission to upzone 26 acres in the vicinity south of Main Street, east of Ames Street and north of Memorial Drive. Officially known as the PUD-5 District, this represents a substantial portion of MIT’s East Campus.

To be fair, the petition is praiseworthy for its contemporary approach to urban revitalization. It calls for high-density, mixed-use, transit-oriented development complete with interconnected open spaces and LEED Gold building standards.

Nevertheless, the petition remains deeply flawed because it skews far too heavily in favor of commercial real estate development while ignoring the institute’s pressing need for graduate student housing.

At its core, the project seeks to redefine the East Campus with a gateway of corporate towers — some likely rising 300 feet. At a recent committee hearing, councillor Minka vanBeuzekom noted that the proposal represents “a complete blurring of what’s academic and what’s commercial.”

> **The problem is that doing world-class scientific research is not a 9-to-5 job.**

Of course, Kendall Square has one of the hottest commercial real estate markets in the country, and commercial real estate development is far more lucrative than residential development. From a purely financial perspective, upzoning makes sense. What remains unclear, however, is whether the institute’s quest for rental income is compromising its broader academic mission.

The focus on profit seems to be exacerbated by the fact that MIT does not have a campus planning committee with faculty and student participation. Instead, its decision is apparently being driven by Steve Marsh, the real estate director of the institute’s Investment Management Corp. Marsh takes home nearly $700,000 annually, plus bonuses based on financial returns.

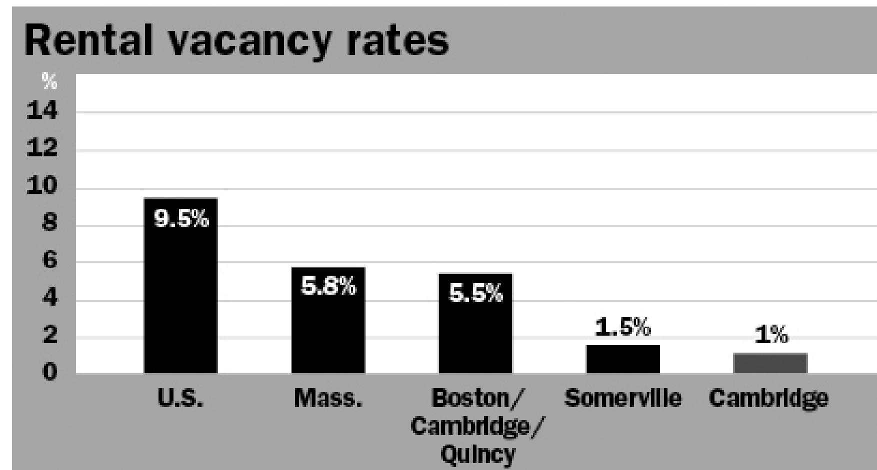
No relief for grad students

Longtime Cambridge activist James Williamson sums up the situation in simple terms: “It’s money versus people.” And without a doubt, the people who are affected the most are the institute’s graduate students and postdoctoral fellows.

Currently, MIT is unable to offer housing to approximately 4,000 of its 6,500 graduate students, according to Nathaniel Schafheimer G, co-chairman of the Graduate Student Council’s Housing and Community Affairs Committee.

About 2,400 of these students end up renting market-rate apartments in the city. Given our extremely tight rental housing market, it’s no wonder most of these folks say they are “very dissatisfied” with the cost of housing. Last year alone, off-campus rents for MIT graduate students jumped by 8 percent.

Schafheimer put these numbers into perspective a recent public hearing. “Rent makes up nearly half of our pretax income, so when rents off-campus are rising at this extremely high rate, stipends can’t follow at the same rate, and students’ purchasing power and standards of living are decreased,” he said.



Brian Spatocco presented this 2011 data in the May/June 2012 MIT Faculty Newsletter while a third-year graduate student in materials science and is president of the Graduate Student Council. “It is likely just as hard now to find an apartment in Cambridge as it is in Manhattan,” he wrote. *SOURCE: CAMBRDGE DAY*

Part of the reason: citywide vacancy rates are at an all time low. In the Central Square neighborhoods closest to campus, vacancies hover around 1 percent. “That’s Manhattan-level demand,” Schafheimer elaborated.

If the graduate students were just your average young professionals, they might be able to relocate to some less expensive community — Watertown or East Boston, for instance — and spend a couple of hours per day commuting.

The problem is that doing world-class scientific research is not a 9-to-5 job. “Living near campus is not a luxury,” Schafheimer said. “Many scientists need to be near the lab at all hours to check on experiments, and those who don’t still need interdisciplinary time with their peers. For many types of research, the power of proximity is vital.”

“MIT’s graduate students are the human engine that drives research and development activity,” said Jonathan King, a professor of molecular biology who — despite his deep ties to the institution — is outspoken in his opposition to the plan. “The reason the high-tech industry wants to come to Cambridge is because of these graduate students, not because of these commercial buildings being built on the campus.”

> **‘MIT’s graduate students are the human engine that drives research and development activity. The reason the high-tech industry wants to come to Cambridge is these graduate students, not because of these commercial buildings being built on campus.’**
>
> *—Jonathan King*
> MIT PROFESSOR OF BIOLOGY

At the end of the day, half of all graduate students leave the institute’s campus after 6:30 p.m., and more than a quarter of all graduate students leave after 8 p.m. The question we must consider is whether it makes sense for some of our nation’s brightest researchers to spend their time commuting between Cambridge and other more affordable communities.

A lost opportunity on housing

With its emphasis on commercial development, not only does the MIT proposal fail to address the needs of graduate students; it deprives the people of Cambridge of a unique chance to alleviate some of the pressure imposed by our terribly overheated rental housing market.

That’s because the 2,400 institute graduate students who rent in Cambridge tend to occupy some of our more modestly priced apartments. If the university offered additional housing to this group, these apartments would become available to the general population of Cambridge.

The importance cannot be underestimated. It represents a once-in-a-lifetime opportunity for our city to effectively recover a large stock of not-so-expensive rental housing. For a rough comparison, consider that in the entire 15-year history of the city’s inclusionary zoning program, only some 450 units of affordable housing have been

Connolly, Page 5

CORRECTIONS

A story in Tuesday’s issue on some of the 6.x70 competitions mistakenly indicated that 6.270 has only existed for “over a decade” — rather, 6.270 is in its 26th year, having started in 1987.

OPINION POLICY

Editorials are the official opinion of *The Tech*. They are written by the Editorial Board, which consists of Chairman Sarah Ritter, Editor in Chief Anne Cai, Managing Editor Ian M. Gorodisher, Executive Editor Deborah Chen, and Opinion Editor Jacob London.

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Graduate student housing is key to a revitalized Kendall

The question boils down to 'money versus people' — can Cambridge and MIT do better?

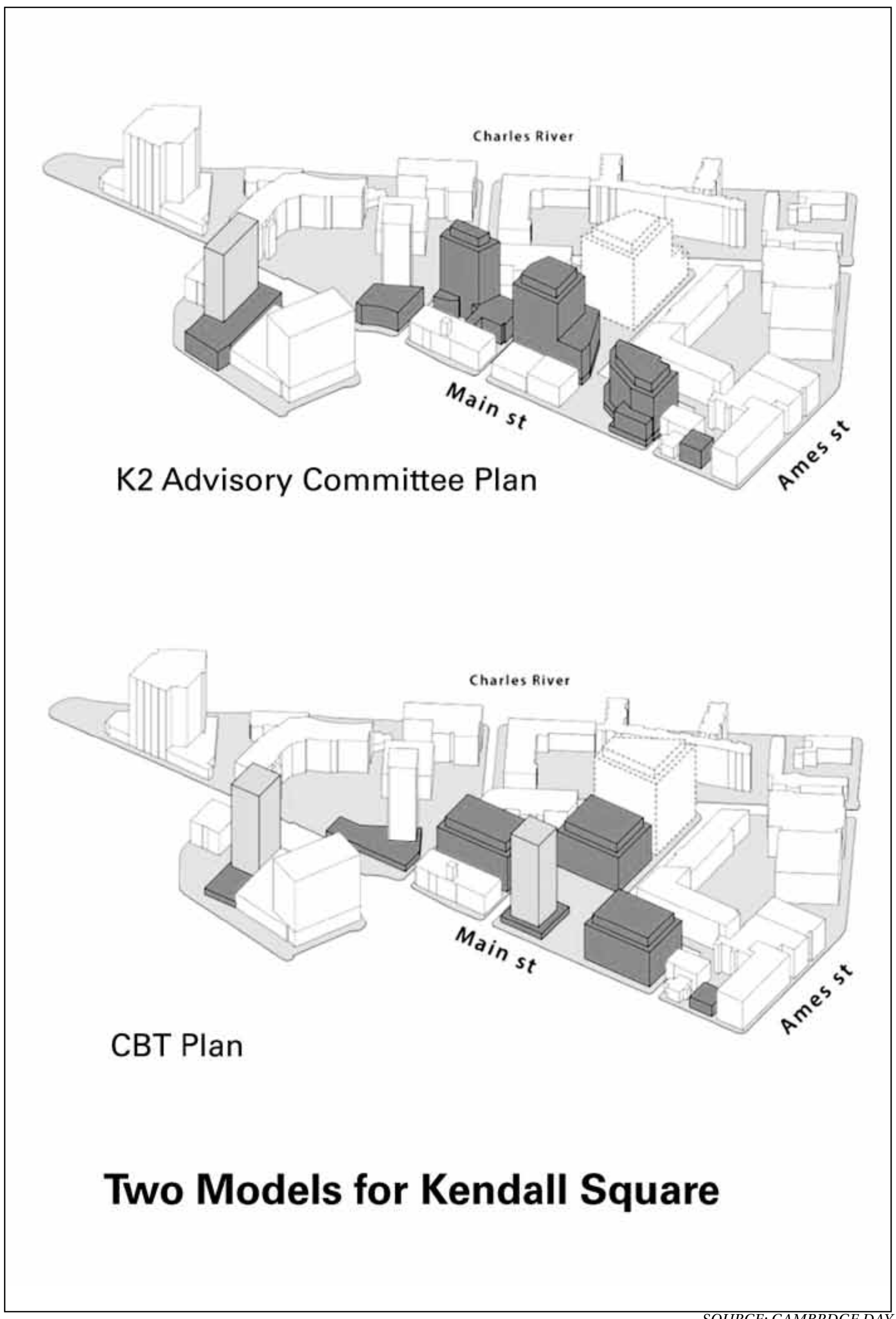
Connolly, from Page 4

created. Again, that's not a perfect comparison, but it speaks to the scale of the opportunity that lies dormant in these plans.

Despite the lack of graduate student housing, supporters of the MIT plan have been quick to tout the "strong housing component" in the current proposal.

In the context of our citywide housing crisis, that seems like a stretch.

Granted, the proposal does call for at least 240,000 square feet of new housing; the institute figures this will yield up to 300 units.



SOURCE: CAMBRDGE DAY

But these units will be largely inaccessible to graduate students, with 80 percent of the new housing looking extremely expensive (think 25th-floor views overlooking the Charles River). With a torrent of additional corporate development already in the pipeline for Kendall Square, it's doubtful this housing will have any perceptible impact on our city's exorbitant rental prices.

Advisers in, advice out

Another common argument in support of the plan: "It's consistent with the recommendations of the Kendall Square Advisory Committee."

This may be true — but it's hardly a surprise.

One year into the public planning process for the proposal, City Manager Robert W. Healy selected members for a newly commissioned Kendall Square Advisory Committee (aka "the K2 Study").

Unfortunately, the committee was stacked in favor of major real estate developers. Forest City, Boston Properties, Alexandria, Twining Properties, and MITIMCo were individually represented, and even Joseph Tulimieri, the chief of the Cambridge Redevelopment Authority asked to resign for potential finance improprieties, was given a seat at the table. Meetings were typically held between 8 and 10 a.m. on weekdays, and formal minutes were never recorded.

In the end, the committee placed a heavy emphasis on commercial real estate development. But is that any wonder? For most of these big developers, new corporate space is the real pay dirt. On a committee dominated by so many powerful interests, actual neighborhood leaders such as Barbara Broussard were left complaining that their voices weren't being heard.

Fortunately, the East Cambridge Planning Team, a respected neighborhood group with a track record of working in concert with developers, took the unusual step of commissioning its own study. The results — produced by Boston's CBT Architects — were truly impressive. Noting a "land use imbalance" with too much focus on commercial office and laboratory space, the independent study called for 446,000 square feet of new residential space,more than double the amount of residential space than was recommended in the city's K2 Study.

When city officials presented both visions to the Cambridge Planning Board in September, several members said they preferred the independent CBT study to the city's own.

Yet the council is just weeks away from rewriting the zoning code to open the door for on-campus commercial towers.

The month ahead

Ordinance Committee chairman David Maher recently scheduled two additional meetings at the end of February to review various elements of the MIT petition. The Planning Board is expected to complete its work around the same time. The proposal will likely be voted on by the full city council, probably sometime in March.

> **The question now is whether the MIT community and people of Cambridge can decide upon something better.**

In response to faculty dissent and student concerns, MIT Provost Chris Kaiser has commissioned an 18-month study to look at the issue of graduate student housing.

Professor King remains skeptical: "If they want to do a year-and-a-half study, then it should be the other way around. The proposal should be amended to include graduate student housing, and the study can tell us if commercial real estate development makes sense."

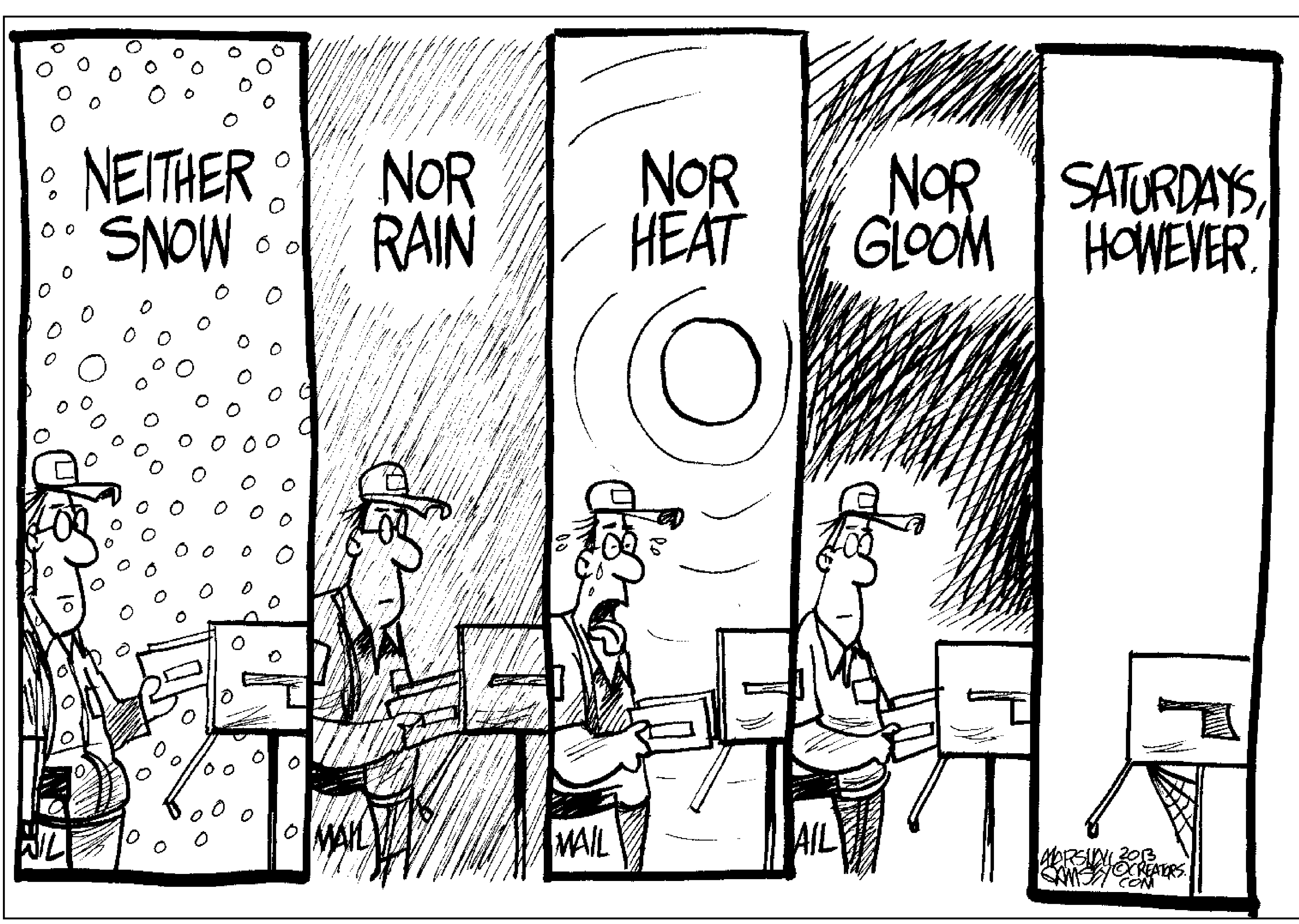
Given the fact that the graduate students have been struggling to keep pace with the cost of housing for more than a decade, King seems to have a point.

In the final analysis, beyond all the excitement surrounding Kendall Square's revitalization and beneath all the hype over bike sharing, tech incubators and the pastel renderings of tree-specked canyons of glass and steel, the issue of graduate student housing really boils down to "money versus people."

The question now is whether the MIT community and people of Cambridge can decide upon something better.

People wishing to oppose the plan and encourage the construction of more graduate student housing are invited to sign this petition.

The petition is available at *www.NoMoneyConnolly.org/MIT*.



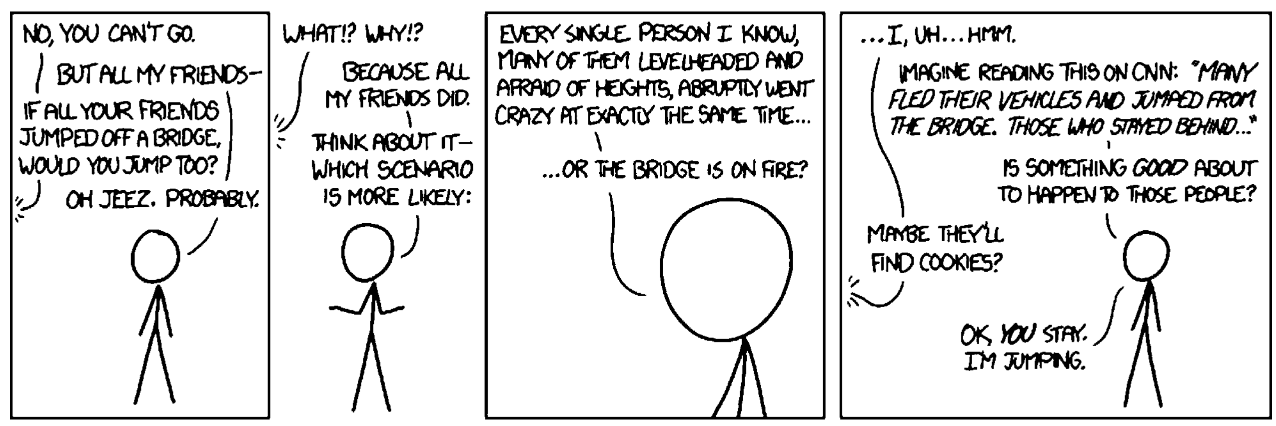
Fun

[1170] Bridge

xkcd

A webcomic of romance, sarcasm, math, and language

by Randall Munroe



And it says a lot about you that when your friends jump off a bridge en masse, your first thought is apparently 'my friends are all foolish and I won't be like them' and not 'are my friends ok?'.

SMBC by Zach Weiner

Saturday Morning Breakfast Cereal

[2875]

PAGE 16

Sudoku

Solution, page 16

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

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

Techdoku

Solution, page 16

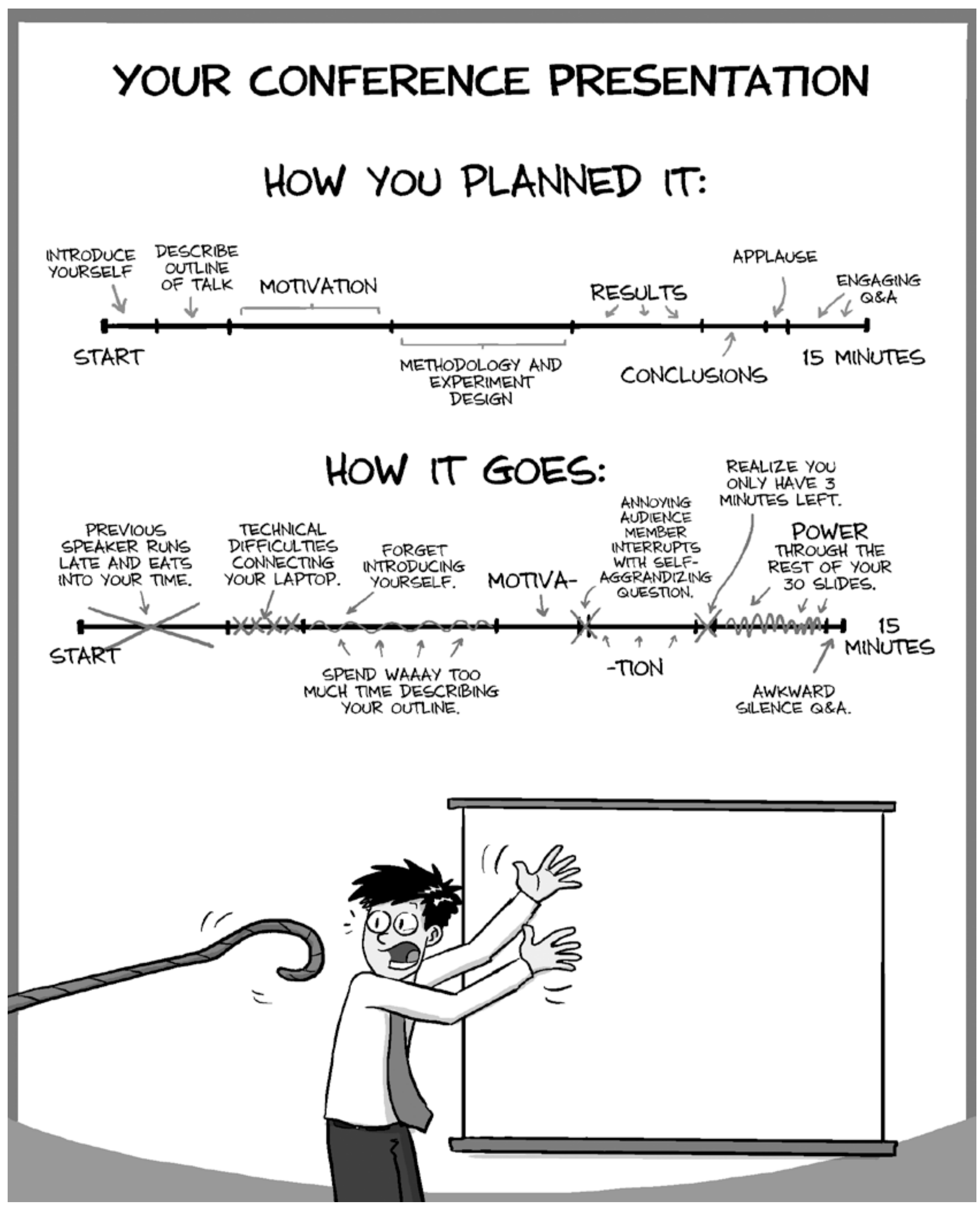
8×	22+		3×	30×	
				12×	
90×		13+			
	9+			36×	
		12×			8×
2×			30×		

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

UPPERCUT by Steven Sullivan

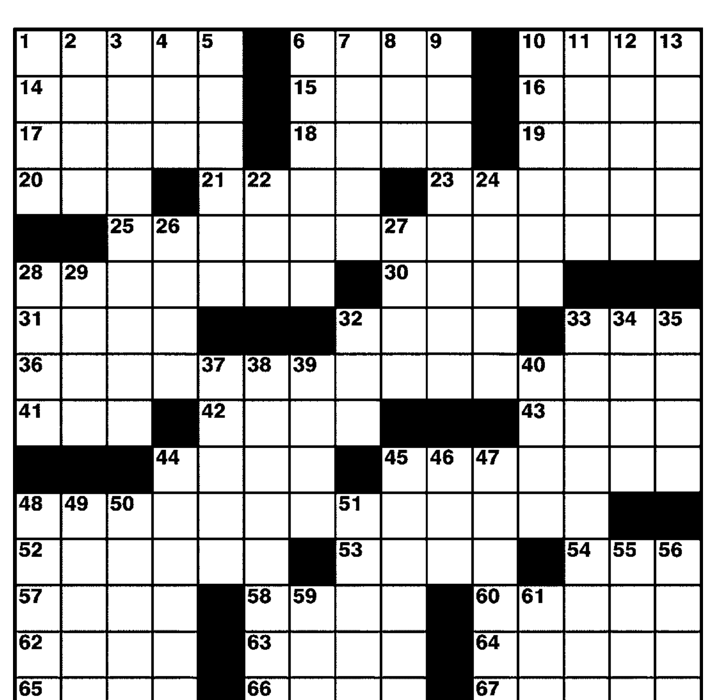
Piled Higher and Deeper

by Jorge Cham



Double Duty by Ki Lee

Solution, page 16



ACROSS
1 Aspect
6 Post-op spots
10 Rudiments
14 Low-priced, in product names
15 Miso soup ingredient
16 Smudge
17 Just great
18 Sticky stuff
19 Major month for matrimony
20 Remain on the bench
21 Tot's boo-boo
23 Come forth
25 Hollywood multitasker
28 Designer Kors
30 Squabble
31 Court org.
32 Prepare carefully
33 Southern end of I-95
36 Academia multitasker
41 Mayday relative
42 Buoyant
43 One of ten in a paper box
44 Mlle., in Madrid
45 Sad story
48 Diamond multitasker
52 Topknot or high bun
53 Isolated
54 E-file agency
57 Censorship-challenging org.
58 Way of walking
60 "Obviously, Einstein!"
62 Flow slowly
63 Of a different kind
64 This and this
65 Vortex
66 Brooklyn NBA team
67 Varieties

DOWN
1 Some cops
2 Antioxidant berry
3 Web store button
4 Outcome
5 Nissan rival
6 Socialite celebrity
7 Sounded happy
8 Meteor, maybe
9 Campaign finance group
10 Hopeless
11 Utter impulsively
12 River through Kinshasa
13 Cattle drive participant
22 Misfortune
24 Had in mind
26 Nigeria neighbor
27 Spot of land
28 Tousle
29 Analogy phrase
32 Work hard at
33 Parasite
34 Be in charge
35 Fighting force
37 Golden-__ corn
38 The atmosphere, mostly
39 Disneyland shuttle
40 Force along
44 Overly sweet
45 Some govt. securities
46 Unraveled
47 Go-betweens
48 Developmental stage
49 Tied up, in a way
50 Wasn't at one's best
51 Elite group
55 Deteriorate
56 Does and ewes
59 Draught serving
61 Taunting cry

Sudoku II

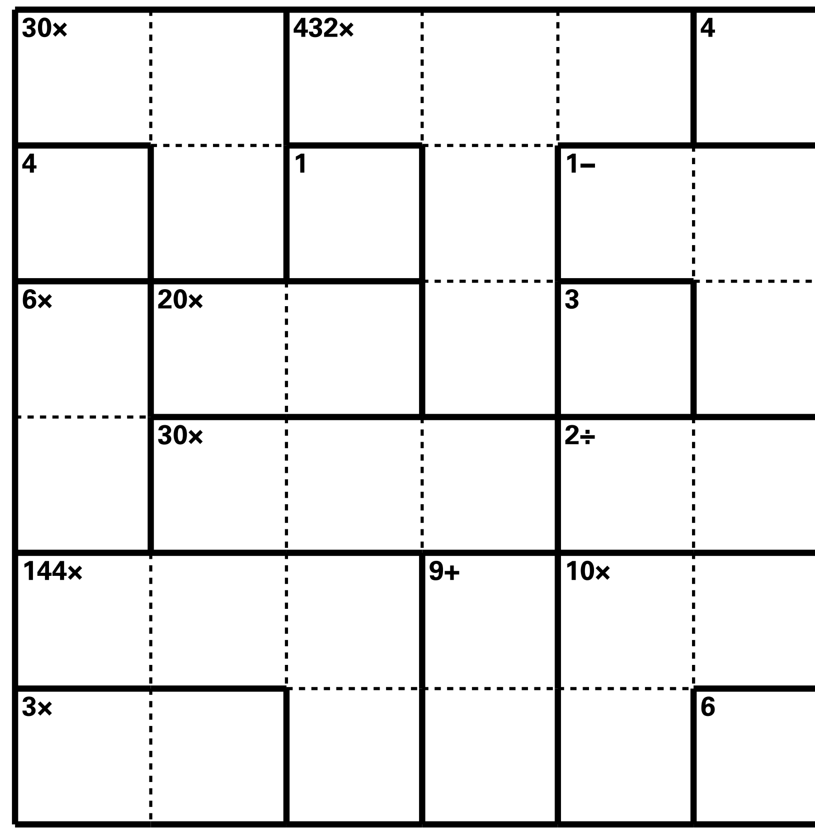
Solution, page 16

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

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

Techdoku II

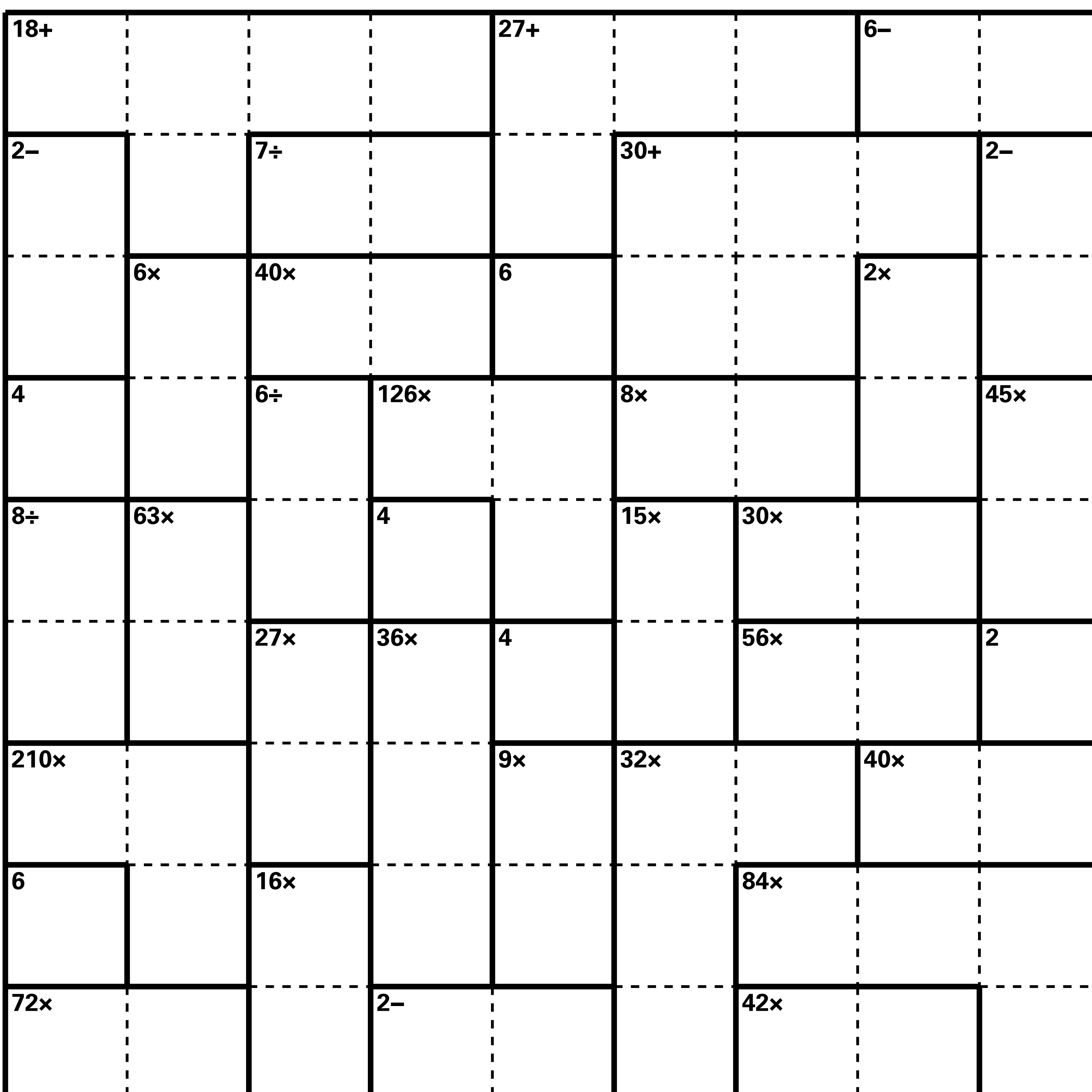
Solution, page 16



Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

Sensei Techdoku

Solution, page 16



Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–9. Follow the mathematical operations for each box.

EMILY KELLISON-LINN—THE TECH

The edX "orgboard" near the office entrance holds the name and photo of every edX employee.

MOOC

Are edX and Coursera the future of university education?

By Ethan A. Solomon
Staff Reporter

Pretty much everybody's gotten on board the MOOC bandwagon. MIT says its edX platform for "Massive Open Online Courses," as they're called, heralds a "revolution in education." Stanford professors Andrew Ng SM '98 and Daphne Koeller, who cofounded edX competitor Coursera, have similar ambitions for their startup — and 33 universities have joined with them so far. Political commentators are excited, too: "Let the revolution begin," proclaimed Thomas L. Friedman in The New York Times.

Despite the hype, MOOC providers do acknowledge that robust online education is in its infancy, and as *The Times* and *NPR* describe it, there are "kinks to be worked out." Universities that offer online courses through edX or Coursera rightly worry about how exams will be administered, how cheaters will be identified, and how grading will be scaled to hundreds of thousands of students in a single course. A lot of smart people are coming up with clever ways to address all those problems, and more.

But few from these universities or in the media have stopped to seriously and publicly ask: Never mind the "kinks," how do we know these courses are any good?

I could take Anant Agarwal, edX president and former CSAIL chief, on his word: "We will not water down the courses," he says. "They will continue to be MIT-hard or Harvard-hard." Or Coursera, which says on its website that "you will watch lectures taught by world-class professors, learn at your own pace, test your knowledge, and reinforce concepts through interactive exercises."

But this is a revolution we're talking about, here — there's no room for error. The only way to really be sure that this stuff is great teaching is to actually take some courses. So I did.

I had two main goals in doing so. First, a side-by-side of courses from two leading MOOC providers can help prospective students make informed choices about which courses to take. Second, like any college courses, MOOCs benefit from critical, independent, and public evaluation from people who don't have a stake in their outcome.

That second point is especially critical at a time when universities are starting to fundamentally rethink how they educate. What traditions from centuries of brick-and-mortar teaching should be transferred online, and what should we throw out? What worked well about old teaching models, and what can be improved?

1 6.00x & Machine Learning

Fully and comprehensively evaluating edX (now offering 13 courses) and Coursera (217 courses) would mean taking hundreds of online classes. Instead, I chose one from each to be examples of the experience: edX's 6.00x (Introduction to Computer Science and Programming), via MITx, and Coursera's Machine Learning, via Stanford. It is important to note that, just like traditional college courses, your mileage may vary depending upon your interest in the subject and who's teaching it.

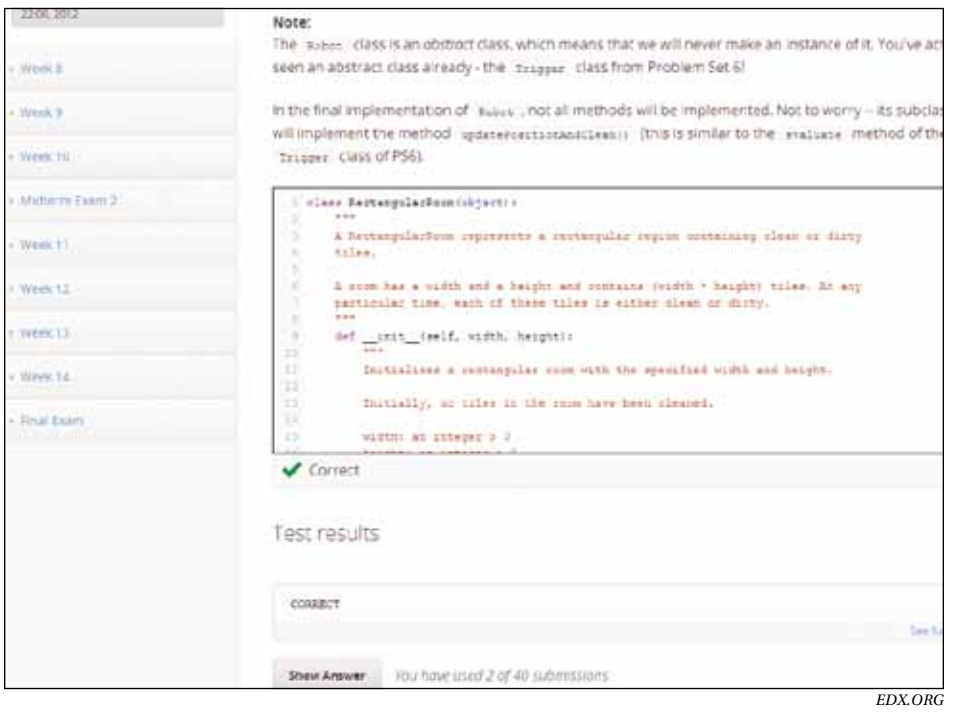
> **"MOOCs benefit from critical, independent, and public evaluation from people who don't have a stake in their outcome.**

6.00x is a 14-week introduction to fundamental concepts in programming and computer science, taught in Python. It emphasizes recursion and the divide-and-conquer paradigm, object-oriented programming, simulations, basic statistics and data analysis, and optimization problems, in addition to the nuts and bolts of learning to use Python for the first time. The instructors are MIT computer science professors Eric Grimson PhD '80, John V. Guttag, and Christopher J. Terman PhD '78.

Machine Learning (ML), taught by Coursera co-founder Andrew Ng SM '98, is a broad overview of popular machine learning algorithms such as linear and logistic regression, neural networks, SVMs, and *k*-means clustering, among others. It is light on theory but heavy on applications, aiming to help students get the most practical use out of machine learning algorithms.

I was impressed with both courses for the same reason I've been impressed with some "traditional" courses I took at MIT: I felt like I *actually learned something* I could take with me. Before I say what about the courses I liked (and later, what I didn't like), I want to explain, for the uninitiated, what's involved in taking a MOOC.

- **Lectures:** The backbone of almost all MOOCs on edX/Coursera is the lecture, just like regular college courses. But instead of one to two hour sessions in a giant hall, MOOC lectures are organized in "sequences" of 5–15 minute videos, usually featuring a professor scribbling on PowerPoint slides and marking up graphs and diagrams. On average, MOOC students can expect two to four hours of lecture time per week, but they're free to play videos at 1.25x or 1.5x speed to cut that down.
- **Finger Exercises:** Lecture sequences are often sprinkled with short and simple comprehension questions — edX calls them "finger exercises," since they usually don't take much work. If you've been paying attention to the video, these questions are not challenging and will count for a small portion of your grade, if any at all. Some might ask for the numerical answer to a computation, and others are multiple-choice.
- **Homework:** Homework in 6.00x and ML are usually combinations of multiple-choice questions and programming assignments. ML would often ask students to implement a learning algorithm covered in lecture, and an online checker would test your algorithm in a few test cases and award credit for passing. Similarly, 6.00x students complete close replicas of regular 6.00 problem sets — implement a recursive function, define classes and methods to carry out a simulation, etc. — also awarding credit according to what test cases your code passes.



EDX.ORG

6.00x students earn credit for submitting code to online checkers. Feedback is instant, but limited: A green checkmark appears if your code passes all test cases, otherwise it lists failed tests.

MOOC, Page 10

MOOC, from Page 9

• **Exams:** Both platforms have courses which require students to take midterm and final exams, but ML was not one of them. 6.00x again reflects 6.00; there are two two-hour midterm exams and a four-hour final, which together account for the bulk of the final grade. The tests are similar to problem sets: implement a function to do this-or-that within certain design parameters.

• **Forums**: MOOC backers say the discussion forums are a big part of the online learning experience. This is where you go if you're stuck on a question or don't understand a concept. Sometimes course staff — even the professors — will reply to questions posted on the boards, but more often expect help to come from other students.

> **MOOCs are not like OpenCourseWare classes. Critically, MOOCs offer assessment, interaction with course staff, and deadlines.**

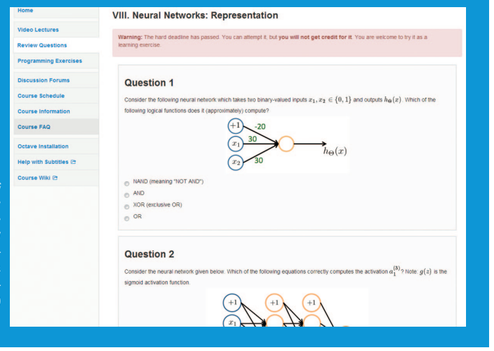
• **Certification:** Tell whomever cares that you took an online course — you'll have a PDF to prove it! Many MOOCs, including most courses on edX and Coursera, currently offer certificates of completion if you finish enough of a course. The free versions of 6.00x and ML that I took offer "honor code" certificates, which means that no steps were taken to prove that the real Ethan Solomon took the course, merely that somebody who wrote their name as "Ethan Solomon" took the course, and they may or may not have cheated their way through it. More robust forms of identity verification and certification have recently been announced on both platforms, though they carry a fee.

If you're a student who's used to watching lectures online, skipping recitations and only showing up to hand in problem sets, the MOOC experience will be nothing fundamentally new to you.

But don't get the wrong idea. MOOCs are not like OpenCourseWare classes, which are essentially ordinary class material dumped online. Critically, MOOCs offer assessment (albeit more limited than what you'll find on-campus), some form of interaction with course staff, and deadlines to complete homework and exams. Also, MOOC videos are usually not pure replays of recorded brick-and-mortar lectures. Videos have either been redone from scratch, or hour-long videos have been broken up into more manageable chunks.

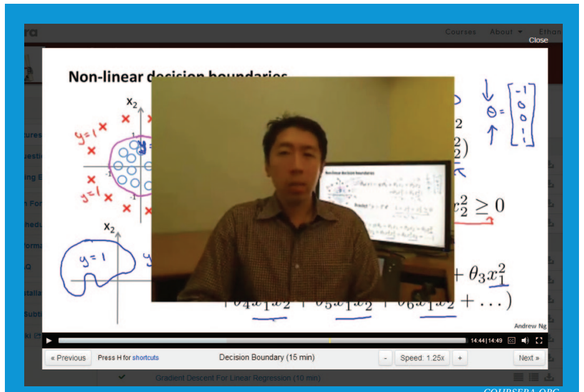
EMILY KELLISON-LINN—THE TECH

EdX President Anant Agarwal, former MIT CSAIL chief, in edX's 11 Cambridge Center headquarters. Agarwal also taught MITx's first course, 6.002x (Circuits and Electronics). On the whiteboard are edX design plans, and Pac-man chases a ghost.



COURSERA.ORG

Stanford's Machine Learning homework assignments were MATLAB/Octave-based programming assignments and multiple-choice review questions, seen here. On each retry of a problem set, question parameters and answer choices would change to thwart random-guessing strategies. Students can try review questions up to 100 times.



COURSERA.ORG

Stanford professor Andrew Ng SM '98 teaches Machine Learning, a 10-week Coursera MOOC. A key component of most MOOCs are lecture segments, pictured here, where instructors write notes and mark up slides.

2 The Good

"If at first you don't succeed, try, try, try again. Heck, try again as much as you want." This philosophy was big in both 6.00x and ML, and I liked it. Ordinary homework and problem sets offer students plenty of opportunities to get things wrong. ML students can retry review questions up to 100 times, and 6.00x problem set questions can be submitted up to 30 times. Instead of submitting a homework assignment to a TA once, only to get it back days later with red ink and lose it at the bottom of thier backpacks, students have enough opportunities to grapple with the problem until they get it right.

> **It felt liberating to force the instruction to meet my preferred pace, and not the other way around.**

The instant gratification from a right-or-wrong autograder can be addicting. I found myself surprisingly unwilling to give up on a difficult problem, even though I wasn't working towards official credit for either of these courses. A pointless little green checkmark, paradoxically, is a tempting reward for giving the problem another shot.

The cost to the "try, try again" system is assessment. With 30 or 100 allowed attempts, problem set scores become much less useful for differentiating student performance, because any determined student could probably get full credit. 6.00x skirts this problem by weighting exam scores much more than problem set scores, and exam problems grade submissions the first time they run without syntax errors. And you're only given five total attempts to run your code, syntax errors or not. In essence, formal assessment tools don't follow the "try, try again" paradigm.

(Machine Learning had no exams, so it was indeed possible — even expected — that any determined student earn full points on every assignment. As I'll discuss soon, this might be a problem for ML as far as differentiating student performance goes, but I found it wasn't a major qualitative impediment to learning.)

6.00x and ML were more efficient information-delivery systems than many courses I had taken at MIT. Lectures are streamlined and chunked into topic-based segments. There's no class administrivia to get out of the way at the beginning or the end of a lecture, nor must a student sit through a professor's explanation of a topic he or she already understands.

I didn't take notes for either courses, but that was OK — the full lecture videos and lecture slides were made permanently available for later reference. I found that the MOOC design let me sit back and actually listen to what the instructor was saying (at 1.25x speed!). It felt liberating to force the instruction to meet my preferred pace, and not the other way around.

Even the "finger exercises" — short questions sprinkled throughout lecture videos — felt worth it. At first I approached them with deep skepticism, remembering my unsatisfactory experience with "clicker questions" in MIT freshman classes. (More often than not, those questions disrupted the lecture's flow, much like this parenthetical sentence, or the answer and follow-up explanation was already clear to me.) 6.00x deserves particular commendation here; finger exercises forced me to think about what Profs. Grimson, Guttag, or Terman just said. But if I wanted to move through lectures quickly, I could just save the exercises for later.

> **A pointless green checkmark, paradoxically, is a tempting reward for giving the problem another shot.**

The lecture videos themselves weren't bad, either. Andrew Ng describes most machine learning algorithms with ease, though he is able to cut the more complicated corners by glossing over theory and emphasizing application instead. Grimson, Guttag, and Terman move at an MIT-pace through 6.00x — just as edX promised — so those who have never taken a college course before might find it daunting.

3 Room for Improvement

EdX and Coursera MOOCs began in earnest less than a year ago. As an early-adopter, I expected flaws, and encountered some in both courses. How could edX and Coursera do better?

Feedback is deprived on both platforms. Students in 6.00x and ML could expect a "right or wrong" judgment on their code, but usually nothing much more. Where TAs could offer nuanced feedback as to the efficiency of a piece of code in a traditional college course, edX and Coursera can only (currently) hope to confirm that the code passes a few test cases. Everybody knows that wrong answers taken many shapes and sizes — the perfect MOOC would identify why an answer is wrong and suggest particular concepts to review.

> **Automated grading systems are not yet intelligent enough to offer highly individualized feedback, but both platforms are thinking of ways to improve.**

It's not surprising that substantive feedback is a challenge, and Ng and Grimson readily acknowledge that there's plenty of work to be done here. Automated grading systems are not yet intelligent enough to offer highly individualized feedback, but both platforms are thinking of ways to improve. Ng says Coursera provides custom error messages for the types of incorrect answers that show up frequently; Grimson suggests code-grading could be crowdsourced.

It's not clear how much progress needs to be made before MOOCs could provide feedback equivalent to that of a human teaching assistant, nor is it clear how educators could rigorously tell when MOOCs have reached that point. But the fact remains that feedback is critical to a good education. Fortunately, edX and Coursera leadership know this well.

"Remember, this is version one," said Agarwal. "We are working on machine learning and various forms of peer grading that will enable us to provide a lot more detailed feedback."

Before the time that automated feedback gets really good, MOOC backers might make two important points. First, many MOOCs are designed with the "blended model" of learning in mind, meaning that colleges expect to offer MOOCs in conjunction with real human instructors on-campus, not as full-fledged course replacements. Second, healthy discussion forums can partially compensate for the lack of formal instructor feedback, because other students, and occasionally a edX/Coursera teaching assistant, *can* provide comments on code or walk students through a solution. Still not as great as sitting down with a TA, but certainly better than nothing.

> **The fact remains that feedback is critical to a good education. Fortunately, edX and Coursera leadership know this well.**

My experience with edX and Coursera discussion forums was a mixed bag. A voting system tends to increase the visibility of helpful posts and suppress the bad ones, but MOOC-takers should still expect to slog through some whiny/irrelevant/self-congratulatory posts. Welcome to the Internet.

Aside from feedback, organization was by far 6.00x's greatest challenge. To be sure, the first two-thirds of the course was great. From September through November, problem sets were posted on time, course staff kept the bulletin reasonably up-to-date with news of upcoming exams and new lectures, and the occasional glitch was resolved within a day or two, at most. 6.00x essentially featured the same organizational standards I had come to expect from an average on-campus MIT course — far from perfect, but very manageable.

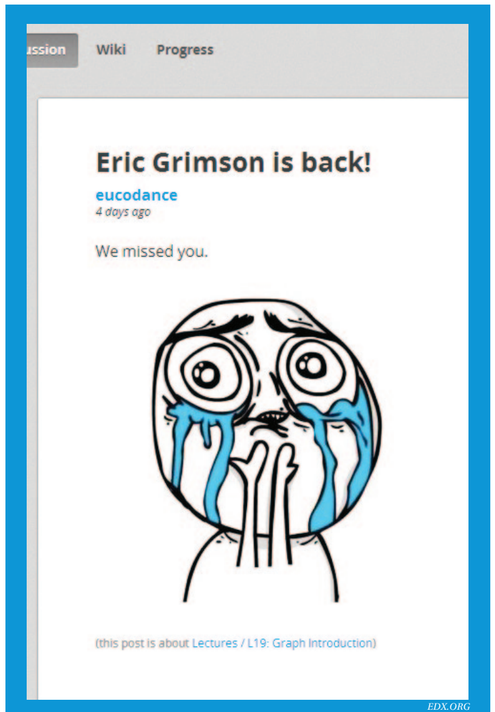
Unfortunately, things seemed to grind to a crawl, and then a halt, in December. Lectures and problem sets were not posted. The forum buzzed with confused students, some wondering whether the course had ended prematurely, but no edX staff stepped in to clear things up.

On Jan. 4, Grimson posted an apology on the course bulletin, attributing some of the glitches to an "undertaking of this magnitude," and others to personal crises that led to "a breakdown in process and communication." Parts of the team did not know some elements of the class were on hold, and Grimson said that the staff would work to ensure that there would be no single points of failure in future versions of the class.

The last problem set was made optional, the last set of lectures were released, and final exam details were posted. The course concluded a couple of weeks later without major problems.

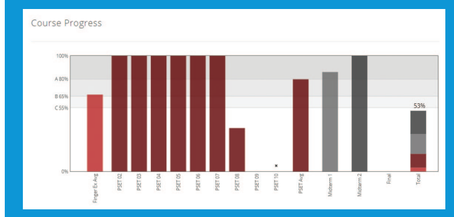
"I apologized to the class because it wasn't the experience I wanted them to have," Grimson told me in an interview two weeks ago. "This is part of the growing pains of doing something at this scale."

Students were overwhelmingly understanding, by the way. "Don't feel bad at all for the lack of updates. I actually enjoyed a bit of time off ;)," posted a student by the username skyking. "Totally ... no need to apologise for your absence. We're all just grateful this whole thing even exists," added RHill.



EDX.ORG

6.00x students developed an unusual fondness for Professor Eric Grimson PhD '80, who is also MIT's chancellor. After Grimson reappeared in a few lecture sequences — having been replaced for some lectures by Profs. John Guttag and Chris Terman — this post was upvoted to the top of the discussion forum and garnered 15 additional comments.



EDX.ORG

EdX features a slick course progress interface that lets students easily see how many more points they need for a certain grade. Most of the 6.00x final grade derives from two midterms and a final exam, with problem sets and finger exercises — like small exercises or concept questions —rounding out the rest.

4 Is it MIT-hard and Stanford-hard?

No. But that answer deserves several important qualifiers.

First, a debate over the "rigor" of an online course is partly semantic. EdX backers say they aspire to make their courses are just as *rigorous* as an on-campus equivalent, but acknowledge that the courses are still *different.* Different in the sense that on-campus versions of 6.00x and ML, for example, feature open-ended project- or group-based components — activities which MOOCs can't yet support.

Depending upon whom you ask, the absence of a rich project experience in an online course categorically makes it less difficult, in that there's just less work to do. Not to mention the lack of thoughtful feedback on exams and assignments means the bar MOOC students need to pass is a little lower. 6.00 students can't submit code that "just works;" it has to be good code, too.

However, the claim that edX courses are not "watered-down" is still valid if these courses assess understanding of the same concepts within the limits of online course technology. In other words, nobody's taking any lecture videos or problem sets and cutting out stuff they think might be too hard for an online audience to understand.

> **6.00x isn't 6.00, but it isn't watered-down. Syllabi are virtually identical, problem sets are mostly the same, and exams are substantially similar.**

"The content, the material, the flow — it's pretty much the same rigor," Agarwal told me. "Of course, the experience is different, but it's a comparable rigor."

6.00x isn't 6.00, but it isn't watered-down, either. 6.00/6.00x syllabi are virtually identical; problem sets are mostly the same, aside from edX's inability to give high-level feedback on code. 6.00x exams were substantially similar to 6.00 exams available on OpenCourseWare.

Coursera and edX take different approaches to the rigor question. Ng says that instructors are free to determine course difficulty for themselves, and that Coursera simply provides tools. Some Coursera courses may be tailored to particular audiences — like high school students — and the difficulty modified accordingly. At the same time, faculty from any of Coursera's 33 partner universities might choose to launch a course if they feel it mirrors on-campus rigor as much as possible.

> **There's nothing wrong with a machine learning course which can expose a broader audience to really cool supervised and unsupervised learning algorithms.**

I've never taken an ordinary Stanford course, but Machine Learning was not as challenging as the average MIT undergraduate course, broadly speaking. There were no exams, review questions tended to be simple multiple-choice, and there was a lot of hand-holding through the programming assignments. Most assignments came with a detailed step-by-step guide.

Let me be clear, though. MIT students sometimes equate "more difficult" with "better," but that's only true in certain contexts. There's nothing wrong with a Machine Learning MOOC which can expose a broader audience to really cool supervised and unsupervised learning algorithms. People with full-time jobs or a weaker background in computer science could learn something useful on Coursera that might have been unapproachable in an edX course.

Agarwal says that edX might also experiment with different versions of courses for different audiences, but the goal right now is replicate on-campus rigor as closely as possible.

5 Learning To Teach

At the foundation of any online learning venture is the guess that online tools can make education better. But how can edX and Coursera actually tell that their services improve learning beyond the status quo?

MOOCs are giant experiments. MOOCs collect data about the way students interact with the user interface and draw inferences about how UI changes affect student performance. The platforms also facilitate A/B testing — give one group of students version A of the course, give another version B, and see if there is a significant performance effect.

> **'We might be evangelizers on the one hand, but as researchers we also have to be skeptics.'**
>
> ***—Anant Agarwal***
> PRESIDENT, EDX

Last term, edX experimented with two slightly different versions of 6.002x (Circuits and Electronics). Group A saw an extra summary video at the end of each lecture sequence, Group B got nothing special.

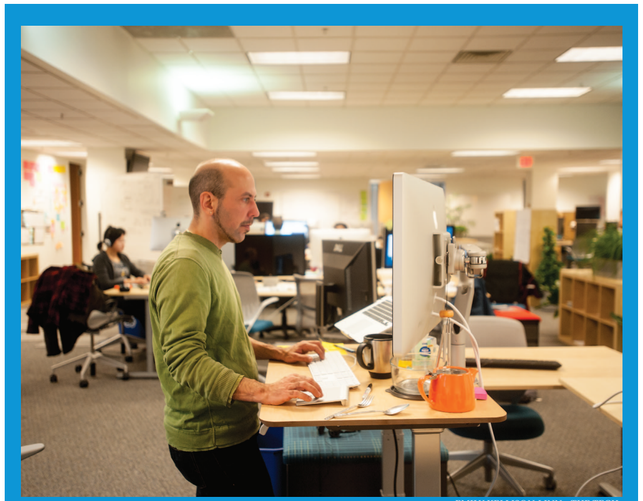
"Does [the summary] make it too long? Does it make it make it too painful for students? Does it make it incoherent? We didn't know," said Agarwal.

Grimson says MITx will "mine the massive amount of data we have coming from the online courses to answer questions like, 'How many key concepts are there in this class?,' 'Where are the weak points in terms of how we're teaching it?' That feeds back into the question of how we teach our own students."

On the Coursera side, Ng points out that Coursera's approach is grounded in prior academic studies on online learning and pedagogical research about features like the finger exercises and unlimited retries. Coursera is also examining the "flipped classroom" model — complementing MOOC content with in-person discussion and instruction — in a scientific way (as is edX).

Ultimately, MOOCs might be an opportunity to ask even more fundamental questions about education: What exactly does it mean for a course to be successful? How do we rigorously measure things in information retention and concept mastery? And are there any paradigmatically different ways of teaching altogether that MOOCs can uncover?

"We might be evangelizers on the one hand, but as researchers we also have to be skeptics," said Agarwal. "We have to test and retest all the hypotheses."



EMILY KELLISON-LINN—THE TECH

EdX engineer Jay Zoldak works on code for the edX website.

INTERVIEW

Getting into the Dramashop's *Margo Veil*

On performing in the non-linear play and acting at MIT

By Grace Young
ARTS EDITOR

CERIDWEN A. RILEY '15

The characters played by Noah M. Arbesfeld '13, Illan F. Halpern '13, Cathy T. Zhang '13, and Johari Frasier '13 die at a party in Dramashop's production of *Margo Veil*.

Dramashop's production of *Margo Veil* plays this weekend and next. The play starts with an explosion, indicating a war. Set in a recording studio, the cast makes a radio-show with entertainment of all forms: romance, action, magic, religion. The titular character is an actress whose soul gets transferred to different bodies. *The Tech* interviewed cast member, Princess Len M. Carlos '13.

The Tech: What have rehearsals been like?

PLC: Very fun. I appreciated the script more because of rehearsals. The play is very technical, so rehearsals aren't just about acting. It's about integrating sound and lighting effects — a bit like a movie.

TT: What do you like about the characters in the play?

PLC: There are a lot of characters. Everyone in the cast acts more than one role. The characters don't linger on stage for a long time; they're very dynamic, and they have many quirks. For example, I'm a blind Lithuanian woman, with Margo Veil's soul. We get to experiment with the characters, because they're very stylized. All of them are goofy, even when the scene is serious.

> **'Don't try to connect the pieces together.'**
> *Princess Len. M. Carlos '13*

TT: What advice do you have for someone seeing the show for the first time?

PLC: Don't expect a plot. Enjoy it moment by moment, and don't try to connect the pieces together. When you think of it as entertainment instead of a play, you enjoy it more. Every moment blows you away if you don't look for a plot. It's like a variety show. I haven't encountered a play like this before. In acting classes, they give you scenes that are very narrative, but *Margo Veil* is nothing like that.

I was intrigued by the synopsis, but the synopsis doesn't sound as fun as the play actually is. After you read the synopsis you still don't know what it's about. It's kind of misleading because the play isn't linear and doesn't have a plot; it jumps around.

TT: How did you hear about the play?

PLC: I heard about it when I was taking Intro to Acting (21M.600) with Wesley Savick, who directed the play. I really liked how he taught acting. When he asks you to do something he explains the motivation for it. I heard about the play in his class, and decided to join while I was taking Actor and the Text – many of my classmates were trying out too.

TT: What got you interested in performing?

PLC: Prof. Alan Brody's class Actor and the Text (21M.705). That class is the most mind-blowing class at MIT. In that class I experienced the stage as a safe space, where you can be your character and not afraid of being judged for yourself. Actions not usually accepted by society, you can do on stage.

INTERVIEW Dramashop's *Margo Veil*

Interview with cast member

Valentine's Day Movies?

There could be something in theaters for you! Or not.

If you're going to be oh-so traditional Valentine's Day next week and take a date out to a movie, here's a quick list to help you out.

- ***Beautiful Creatures*** No, it's for teenagers. Like Twilight.
- ***Bullet to the Head*** Eh, it's a run-of-the-mill action movie.
- ***Warm Bodies*** Sure, a zombie romance could work.
- ***Side Effects*** No, Channing Tatum and Catherine Zeta Jones in the same movie. Watching two people probably 10 times hotter than you on Valentine's Day isn't a good idea.
- ***The Gatekeepers*** No, documentary about survivors from Israeli security agency doesn't seem too suitable.
- ***Girls Against Boys*** No, it's a poorly reviewed horror movie — better to watch on DVD, on a couch under a blanket.
- ***Identity Thief*** No, this is goofy crime movie.
- ***Safe Haven*** Sure, but you should only go for it if you're into mushy Nicholas Sparks novels.
- ***A Good Day to Die Hard*** Eh, maybe it'd be an option without a date.
- ***Escape from Planet Earth*** No, it's a kid's movie.
- ***The Haunting in Connecticut 2*** No, it's a tense haunted house movie. We have enough stress in our lives.

… So maybe better to do something else.

—Grace Young

MTG presents *The Rocky Horror Show*

YAN JIAO

MIT Musical Theatre Guild's production of The Rocky Horror Show plays this weekend in La Sala de Puerto Rico. The show follows a newly engaged couple on a road-trip gone awry. They encounter a transvestite mad scientist the day he releases his ultimate creation, a muscle man named Rocky Horror, into the world. The young couple face the temptations of sex, drugs, and mad science in this B-movie inspired, sci-fi rock musical comedy.

OCW looking to grow alongside MITx in the future

MITx and OCW collaborate and share resources; OCW plans ambitious next decade

OCW, from Page 1

one to the other ... the future of OCW is bright, and it could be the place we place the nuggets that make up an MITx class."

The futures of OCW, MITx, and edX are inextricably intertwined.

Miyagawa adds that with material from 2150 classes, OCW is a much broader presentation of the courses offered at MIT. "You can imagine students on edX using OCW to review prerequisites or using it as a followup to their edX course," he said.

Future initiatives

OCW has four key initiatives for the next decade, focused on improving the publication, spreading OCW around the world, serving key audiences, and creating communities of learning.

One upcoming feature is OCW Educator, a project designed to supplement existing courses with material about best teaching practices. OCW will also continue to develop its materials for high school students, and its Mechanical MOOC (Massive Open Online Course) project — a "MOOC" using pre-existing resources such as OCW, CodeAcademy, and online learning forums. Launched in Oct. 2012, the "MOOC" uses mailing lists as the primary means to coordinate student activity. In the future, one could see more courses that follow a particular theme, such as the Energy Studies minor currently on the site.

Funding and resources

OCW receives half of its roughly four million dollar operating budget from the Office of the Provost, and the other half from donations, grants, corporate sponsors, and fundraising efforts. Though OCW had a shortfall of roughly one million dollars last year, Carson says OCW has enough reserve funding to last for a couple of years, and will focus on finding new revenue streams and strengthening existing fundraising efforts.

In addition, MIT's commitment to OCW is strong. According to Sarma, the future of OCW, MITx, and edX are inextricably intertwined. "What happens in the next 100 years is anyone's guess, but MIT has made a game-changing move with edX, and because OCW's mission is so fundamental to edX, I see both of them being a part of MIT's contract with the world and its students. For the foreseeable future, OCW is here to stay."

OCW has been instrumental in getting the year-old MITx off the ground.

Sarma adds that funds that go toward MITx could also be shared with OCW. "Since OCW has become a fundamental feeder into MITx's pipeline, the effect is that much of the operating budget can be shared over time. The net operating budget will go up, it will just be harder to tell precisely which funds went into which effort. The idea is to work it into our system so that MITx becomes a natural outcome of OCW."

MITx and OCW Collaboration

According to Steve Carson, Director of External Affairs for OCW, since the development of MITx and edX, traffic to OCW has jumped. OCW features a link to edX on its front page, and edX links to OCW in its curriculum as well. "The MOOCs have been good for us, driving lots of traffic. We have between 1.5 to two million visitors a month now, and we see lots of people who come from edX, don't have time to do the class at that pace, and study on their own using OCW."

Far from detracting from MITx, OCW has been instrumental in getting the year-old MITx off the ground. Both offices are overseen by the Office of Digital Learning, and two employees of MITx are former employees of OCW. Furthermore, because of the overlap in workflow OCW and MITx share — both offices obtain material and publish it to the web — MITx has been able to take advantage of processes already set in place by OCW, according to Carson.

For example, with some modifications, videos captured for OCW can be adapted for MITx, and OCW can obtain permission from faculty to publish their material to both MITx and OCW, saving an additional request from MITx. Carson says there is a high degree of collaboration between the two offices.

"OCW has a lot of experience in publishing content and working with faculty," said Carson. "As MITx is built, we can lend OCW staff to support their work and bring a level of structure to their team as they continue to develop new content."

Alexander Wang, Samsung partner

Smartphones, fashion, technology

By Elizabeth Olson
THE NEW YORK TIMES

The fashion designer Alexander Wang is joining forces with Samsung to create a new print based on doodles, sketches, and photographs that are being contributed via smartphone by some of the top names in fashion.

Wang's collaborators will participate electronically, sending ideas on Samsung Galaxy Note II smartphones, as inspiration for a one-of-a-kind print that will be used on a limited-collection bag. Proceeds from sales of the bag will be donated to a New York art charity for children.

For Samsung, establishing a distinctive identity is critical as it battles its biggest rival.

For Wang, who recently became the creative director of the storied French fashion house Balenciaga, partnering with Samsung "represents a new way that technology and style can come together," he said in an interview.

In a nearly two-minute video, called "Be Creative," which was released Thursday in tandem with the opening of New York Fashion Week, Wang uses his Galaxy phone to capture ideas on the way from his Soho apartment to his design studio, and then to configure the space where his collection will be shown.

Samsung, which is taking a viral approach and showing the video only on social media, hopes the partnership with Wang will underscore its message that "technology empowers creativity," said Christine Cho, director of global marketing for Samsung Electronics, from its headquarters in Seoul, South Korea.

"We thought Alexander Wang would be able to show that," she said, "because of his passion for experimentation and his on-the-go lifestyle."

The electronics giant is walking in the footsteps of companies in other industries, like automakers that have allied with luxury-level fashion to distinguish themselves from rivals. To gain notice for the 2013 Chevy Malibu, General Motors, for example, worked with the fashion designer Isaac Mizrahi, who created an apparel and accessories collection celebrating the car's redesign.

"Fashion can be a good way to humanize technology," said Sabrina Horn, head of the Horn Group, a digital communications agency, who noted that technology companies "often forget to strike that emotional connection with consumers."

For Samsung, establishing a distinctive identity is critical as it battles its biggest rival, Apple, in the hotly contested mobile devices market. Last year, Samsung shipped 396.5 million mobile phones worldwide, according to a report from the Boston research firm Strategy Analytics. Smartphones earn the most revenue for Samsung, which had more than $143 billion in sales last year. Samsung also sells products like flat screens, chips, and microprocessors.

Samsung did not divulge how much it is spending on its partnership with Wang, but overall the company spent nearly $212 million on advertising in the first nine months of 2012, according to figures provided by Kantar Media, the WPP unit. Samsung introduced the Galaxy Note II smartphone last year. It is striving to familiarize consumers with its abilities with its new campaign.

"It's all about association. If Samsung wants to be perceived as hip, cool, and cutting edge, it has to have a partner with the same qualities," Hal Hershfield, assistant professor of marketing at New York University's Stern School of Business, said of Samsung's alliance with Wang.

"Like Apple, which has a certain image, both Microsoft — with indie bands — and Samsung with fashion are saying that we can play this game, too," Hershfield said.

After the Feb. 23 deadline for submissions from Wang's fashion circle — including models, photographers, and fashion editors like Vogue's Sally Singer — Wang will create a designer print for the limited-edition bag. Samsung, an official sponsor of New York Fashion Week, plans to donate the proceeds to Art Start, a New York City nonprofit that

Samsung, Page 17

EMILY KELLISON-LINN—THE TECH

Members of Techiya, MIT's Jewish, Hebrew, and Israeli a cappella group, hold a community singing event outside LaVerde's on Tuesday evening. Passers-by were invited to pick up music and sing along.

New faces in the Division of Student Life hired this year

Colombo satisfied with progress

By Jaya Narain
ASSOCIATE NEWS EDITOR

The MIT Division of Student Life (DSL) has undergone a slew of hiring in the last two years. These additions have been focused in three major areas: student development and support, the Student Activities Office (SAO), and residential life.

In the sector of student development and support, the last two years have seen a new associate dean, Judith Robinson; a new Director of Community Development and Substance Abuse, Don Camelio; and a new Director of the Office of Student Citizenship, Christy Anthony. Dean for Student Life Chris Colombo, said that he is pleased with the work the new staff has done. He cited as an example Camelio's work in working with student leadership to revise the administration of the Good Samaritan policy, which regards students seeking alcohol-related medical attention.

The associate dean of the SAO, Leah Flynn, has been at MIT since the fall of 2010. This fall, Joel Pettigrew joined the SAO as the Program Coordinator for Student Activities and Event Management. The Residential Life division is headed by a new associate dean, Naomi Carter. Residential Life has also seen the addition of five individuals since summer 2012 to fill the new Residential Life Area Director (RLAD) positions (although seven RLADs were chosen, two of them were previously Residential Life Associates — RLAs).

Other new staff members hired this academic year include Lorena Tovar, Senior Administrative Assistant for the Public Service Center; Nilam Kotadia, Manager of Assignments in Residential Life and Dining; Katie Hoppe, Administrative Assistant for the Department of Athletics, Physical Education, and Recreation; and Chris Artis, Financial Analyst for DSL Administration.

Peter Cummings, the Director of Finance and Human Resources, said that the majority of hiring was done to fill vacated positions rather than newly created positions. Colombo and Cummings said that the turnover rate of administrative staff at MIT is comparable to that at other schools, citing his own experiences at Johns Hopkins and Columbia as examples. Within the sector of student life, Colombo said, whether people choose to stay at a certain university or move depends on what opportunities for advancement are available at their university. He added that personal preferences such as job location and environment can also play a role.

When screening candidates, DSL looks for "people who have expertise and have either been through academic programs or have been in positions in the student affairs world," said Colombo, and DSL looks for candidates who have appreciation for how their own field intersects with other areas of student life. DSL does consider how candidates might fit into the unique environment of MIT, but Colombo also believes that there are "basic aspects within the student development world" that cut across MIT and its peer institutions.

With such a large percentage of new staff, Colombo and Cummings are taking steps to ensure a smooth transition. Colombo said that often when someone comes to a new university, the first six months are an adjustment period, and Cummings has helped put things in place to help with the orientation of new staff.

"With this level of turnover, one thing that we've had to be more intentional on is bringing staff in — the phrase is 'onboarding' — and really expanding from the basics of 'Here's your office and now go do,'" said Cummings. Because of this, they consider a new DSL staff member's first year a period of teaching him or her how to navigate MIT, what students' lives are like, and how to get things done.

That the department emphasizes the first six months and "after that, if our goals have been achieved, they're going to be comfortable in their environment," said Colombo.

When Kotadia, who joined DSL over the summer, first came to work in the department, she had "buddies" to help her navigate the job. After she became more comfortable on the job, she began to work more on her own, but she says she still has resources in her group to help her as questions arise.

Colombo says he is particularly excited to work with this group. "They're a superb group of individuals," he said. "They work very hard, and they have a clear understanding of what MIT's mission is about and how DSL's mission fits within MIT's mission. They are excited about their work."

ELISABETH L. ROSEN

Professor Jeffrey C. Grossman demonstrates that Latkes are a better fuel than Hamentaschens by lighting one on fire at the annual Latke Hamentaschen Debate held in 10-250 on Feb. 6.

Winter Storm Nemo shuts down transit, schools

Governor Deval Patrick declares a state of emergency, brunt of blizzard to hit Saturday

Snowstorm, from Page 1

winds over 30 mph with gusts up to 65 mph and possible coastal flooding. Temperatures will be in the 20s.

Snow is expected to begin this morning, but not hit Cambridge in full force until this evening. The worst of the storm is expected Saturday morning near Cape Cod, according to the National Weather Service. If it snows more than 18.2 inches, Nemo will be one of the worst winter storms in New England history (see sidebar). The snow should stop in Boston by Saturday evening.

Impact on MIT

Ahead of the official announcement, many labs and classes canceled tomorrow's activities. CSAIL had asked employees to stay home; the weekly lab classes for the Gordon-MIT Engineering Leadership Program were canceled for the day; and the Department for Athletics, Physical Education, and Recreation (DAPER) canceled all recreational events. The Z-Center will remain closed on Saturday. In an email to all of CSAIL, Karen Shirer, the assistant director for administration, wrote, "Given the projected snow storm for tomorrow, Feb. 8, 2013, and potential for dangerous and time-consuming commutes, we are recommending that anyone who can work from home, please do so." Most of the building will be locked for the day.

The cities of Cambridge and Boston have both declared a snow emergency.

MIT Career Services has canceled all in-person interviews for today. Many companies are on campus doing interviews for full-time and summer positions and have had to reschedule their appointments. Skype and phone interviews are to proceed as scheduled.

Transportation

The MBTA will cease service at 3:30 p.m. today and will operate at a decreased capacity throughout the day. For updates, check the MBTA's website at *http://www.mbta.com/winter/*. On the road, white-out conditions are expected on I-95 for today's evening commute.

EZ Ride will implement its Early Release schedule today. In an email to *parkinfo@mit.edu*, Larry Brutti, operations manager of the MIT parking and transportation office, wrote, "Evening Shuttles will begin operating full evening service at 2:00 p.m. inbound from Cambridgeport (2:32 p.m. outbound from North Station). Service will end ONE HOUR EARLIER than normally scheduled, with the 6:30 p.m. inbound shuttle from Cambridgeport (last outbound from North Station at 6:10 p.m.)." More complete information can be found at *http://www.charlesrivertma.org/program_ezride_advisories.htm*.

MIT encourages those commuting to take public transit and leave cars at home, since road conditions will be very poor. The city of Boston has also requested drivers stay off the road so the Boston Public Works crew can clear the streets more easily.

In addition, the cities of Cambridge and Boston have both declared a snow emergency and thus a parking ban. Nonessential city staff have been told to stay home, and public schools in the area will be closed. Community members looking for more information can call the snow line at 617-253-SNOW. For additional snow and safety tips, visit *http://www.cityofboston.gov/snow*.

The Blizzard of 1978

Warnings of the severe wether have caused Boston residents to recall the blizzard of early Feb. 1978, when 27.1 inches of snow fell on New England (there had also been a notable previous blizzard in January of the same year). 23.6 of those inches fell within 24 hours, with the peak snow rate around three inches per hour.

Cars were stranded on the highway because of the deep snow, and houses along the coastline were destroyed by waves. The storm, which lasted nearly 36 hours, held sustained winds of over 35 mph for more than three hours at a time. 1,950 cars were abandoned on I-95; 2,000 homes were destroyed; over 10,000 people were in storm shelters; and 54 people died. The damage of the storm was estimated to be around $1 billion.

Like for today's storm, back in 1978 Massachusetts declared a state of emergency and the Institute closed (though for the whole first week of classes!). Cars on dorm row were towed, and the Lecture Series Committee (LSC) worried that they would not be able to get their shipment of movies for the weekend. You can read the original *Tech* article about the famous blizzard here: *http://tech.mit.edu/V98/PDF/N2.pdf*.

Top 10 Boston snowstorms ever recorded
(Numbers courtesy of the National Weather Service)

Feb. 17–18, 2003
27.6 inches

Feb. 6–7, 1978
27.1 inches

Feb. 24–27, 1969
26.3 inches

Mar. 31–Apr. 1, 1997
25.4 inches

Jan. 22–23, 2005
22.5 inches

Jan. 20–21, 1978
21.4 inches

Mar. 3–5, 1960
19.8 inches

Feb. 16–17, 1958
19.4 inches

Feb. 8–10, 1994
18.7 inches

Dec. 26–27, 2010
18.2 inches

Solution to Crossword
from page 7

F	A	C	E	T		I	C	U	S		A	B	C	S
E	C	O	N	O		T	O	F	U		B	L	O	T
D	A	N	D	Y		G	O	O	P		J	U	N	E
S	I	T		O	W	I	E		E	M	E	R	G	E
		A	C	T	O	R	D	I	R	E	C	T	O	R
M	I	C	H	A	E	L		S	P	A	T			
U	S	T	A				P	L	A	N		F	L	A
S	T	U	D	E	N	T	L	E	C	T	U	R	E	R
S	O	S		A	I	R	Y				R	E	A	M
			S	R	T	A		T	R	A	G	E	D	Y
P	L	A	Y	E	R	M	A	N	A	G	E	R		
H	A	I	R	D	O		L	O	N	E		I	R	S
A	C	L	U		G	A	I	T		N	O	D	U	H
S	E	E	P		E	L	S	E		T	H	E	S	E
E	D	D	Y		N	E	T	S		S	O	R	T	S

Solution to Sensei Techdoku
from page 8

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

Solution to Techdoku
from page 6

2	3	4	1	6	5
4	5	6	3	2	1
3	4	5	2	1	6
6	1	2	5	4	3
5	6	1	4	3	2
1	2	3	6	5	4

Solution to Sudoku
from page 6

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

Solution to Techdoku II
from page 8

5	1	2	3	6	4
4	6	1	2	5	3
2	4	5	6	3	1
3	5	6	1	4	2
6	2	3	4	1	5
1	3	4	5	2	6

Solution to Sudoku II
from page 8

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

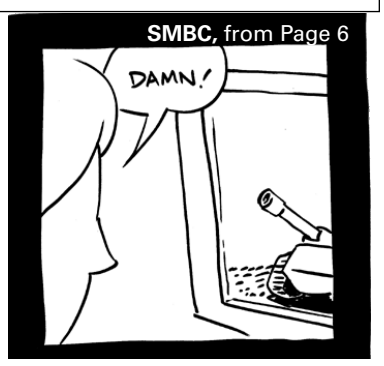
```
File   Edit   Options   Buffers   Tools   Im-Python   Python   Help
from new_skills import *

def learnMarketableJobSkills():
    return linux, OSX, javascript, applescript, perl, python, PHP

if self.interest == True:
    print "E-mail join@tech.mit.edu"

----:----F1 joinTechno.py       (Python)--L1--Top----------------------------------------------------
```

SMBC, from Page 6



The intersection of fashion, technology

Samsung seeks new, hipper image

Samsung, from Page 13

provides art workshops for at-risk children ages five to 21. Wang chose the charity.

> **'I don't have to wait until I get home or to my office to sketch it.'**
>
> *—Alexander Wang*

Samsung has made other forays into the fashion field. Last summer, the company paired with the well-known designer Zac Posen to highlight an earlier Samsung tablet. A video featuring Posen showed him using his Samsung for notes, draping and creating a gown. He has appeared as a judge on "Project Runway," the Lifetime Television show whose sponsor, Hewlett-Packard, provided touch-enabled screens for fledgling designers to create original patterns.

Samsung's current pairing with Wang allies it with a young designer who created his own fashion label and entered fashion's top ranks when he won the prestigious CFDA/Vogue Fashion Fund award in 2008. In his video, filmed by Matt Bieler, a director for Serial Pictures, the boyish Wang collects ideas, designs, and makes business preparations for his Fashion Week show.

"With a little multitasking, I can keep it all together," he says in the video, where he uses the stylus to write notes and create drawings. "It's not just the clothes. It all makes up the bigger picture."

When Wang arrives at the Cunard Building in Lower Manhattan, the 1921 Art Deco edifice that once housed the passenger shipping company, to plan his Fashion Week showing, he sketches out the seating, lighting, and runway placement on his Galaxy. Then, using the device's file-sharing software, he taps his phone to an assistant's to transmit his plan instantly.

"When I see something that inspires me, I don't have to wait until I get home or to my office to sketch it." Wang said. "I can do it on the spot," he added, "which is helpful because I have the worst memory."

New York's mayor builds an empire in London

By Michael M. Grynbaum
THE NEW YORK TIMES

LONDON — It is the biggest development in this city's buzzing financial district, and even Olympics-jaded Londoners call it grandiose: two bronze-and-stone towers, connected by sky-bridges atop the ruins of a 2,000-year-old Roman temple.

Bloomberg Place, roughly the size of a Manhattan city block, is the future European home of Michael R. Bloomberg's company and charity. But it is only one piece of the New York City mayor's growing British empire.

He is underwriting a major expansion of one of England's most prestigious galleries, in Kensington Gardens, designed by noted architect Zaha Hadid.

He has the ear of London's raffish mayor, Boris Johnson, who dispatches aides to City Hall in New York for tutelage in municipal management.

Bloomberg and his aides court the city's elite, holding expensive dinners for tastemakers and important people on Downing Street. The buzz is so great that one of Prime Minister David Cameron's chief aides impishly floated the idea of a Bloomberg candidacy — for mayor of London.

As he imagines a more global life for himself after City Hall, unshackled from the 24/7 needs of running New York, Bloomberg — an Anglophile with a taste for English Regency style — is exporting his vast quantities of financial, social, and political capital to this ancient city, where he has long yearned for influence.

Manhattan is home, and Bermuda a weekend escape, but no place has captured the mayor's imagination like London, a kind of Bloombergian utopia where guns are banned, drivers pay a fee at peak hours, and bicycling is a popular mode of commuting.

The affection, it turns out, is mutual: Bloomberg wrote a blurb for a book written by Johnson.

"Mike's had a lot of cut-through in Britain," Johnson said in an interview on a London commuter train last month. "We endlessly try to find ways of entertaining him, but generally speaking, it's the other way around."

Advisers to Cameron tried their own version of 3-1-1; Johnson started a volunteer program modeled after Bloomberg's. Both have dined with the mayor in Manhattan.

"When I'm in New York, I'm treated like a king by Bloomberg, and it's fantastic," Johnson said.

Still, any foreign affair has its hiccups. Bloomberg's attempts to install noisy air conditioners at his $20 million London home have earned the ire of neighbors, prompting local officials to call the plans "totally unacceptable." And some of his more high-minded policies, like soda limits, have left the natives bemused.

A gallery in the park

Just as he assiduously conquered New York City's social scene, Bloomberg has, from his earliest days here, relied on parties and philanthropy to propel himself into London's upper echelon.

He threw himself into the city's cultural scene, joining the boards of the Serpentine and the Old Vic theater. A public relations firm was hired to make introductions in London society.

In a country where the government often financed the arts, Bloomberg adopted a more U.S. style of corporate giving, stamping his name in museums where he paid for audio guides and sponsoring the Royal Court theater's "Bloomberg Mondays," when tickets were sold at a discount.

He bought a box at Ascot, the high-society horse racing grounds, and flew in celebrities by helicopter from London. (Guests received a photograph of themselves drinking champagne with the top-hatted host.)

Even the Royal Family was in his sights. Bloomberg once spent a night at Prince Charles' home in Scotland, known as Birkhall. The mayor, who keeps luxurious homes himself, later told an aide to Johnson that he had been unimpressed.

"Won't stay there again," he said, of the 53,000-acre estate.

Bloomberg has held parties at his two-story apartment on exclusive Cadogan Square, although his mayoralty makes it hard to spend a lot of time there: Bermuda is a two-hour flight, but a trip to London would leave him less than prepared in an emergency. Nowadays, he often spends less than 24 hours at a time in London, preferring to sleep on his private jet.

The distance has not stopped the mayor from trying, on two occasions, to outfit the home with king-size air-conditioning units, an unusual amenity in rainy London.

The plans have met with resistance. Giulia Marsan, a descendant of the founder of Fiat, who lives next door to Bloomberg, told the local planning board that she would "strongly object" to the units, citing noise concerns. An environmental officer agreed, and the board later rejected the plans.

Marsan, in a brief interview, said she barely saw Bloomberg in the neighborhood.

"That's the hope for everybody in Cadogan Square," she said. "You never know what's going on with your neighbors."

Often, Bloomberg picks other places in which to entertain. He has dined at Le Gavroche, a high-end French restaurant, named for a street urchin in "Les Miserables," with a $280 tasting menu. On a recent trip, he held a dinner with Louis B. Susman, the U.S. ambassador; Kevin Spacey, the actor; George Osborne, the chancellor of the Exchequer; and Honeysuckle Weeks, a young English actress Bloomberg admired.

Weeks later gushed about the "special dinner" to The Daily Mail. Bloomberg was less impressed: He was disappointed when he learned that Weeks smoked.

"It's not a timid building"

Bloomberg has long sought a place on the map — literally. Years ago, there was talk that Bloomberg wanted to rename Finsbury Square, site of his company's office, after himself.

He ended up getting another square instead.

Bloomberg Place, soon to be enshrined on the London map, is currently a mud pit crawling with cranes and bulldozers. By 2016, it will be home to a futuristic campus designed by architect Norman Foster: It is to include a pair of undulating office buildings, pedestrian plazas, spaces for 390 bicycles, and, if the mayor gets his way, branches of New York restaurants.

"It's not a timid building," Foster said, on the phone from his home in Switzerland. "It will leave a large impression on London." (Some neighbors are less generous, calling the development "a bulky, impenetrable mass.")

The development represents Bloomberg's future, but he is also buying a piece of London's past.

In one corner of the development sits the Temple of Mithras, a relic from London's days under Roman rule. First uncovered in 1954, the temple, a sacrificial altar for an ancient religion, is being restored with Bloomberg's money.

Last month, a team of 55 archaeologists from the Museum of London were combing the temple site. Their efforts, paid for by Bloomberg, have turned up dozens of artifacts, including coins, pewter bowls, jewelry, and, preserved just where it was found, a human skull.

When the plaza is finished, visitors may descend from Bloomberg Place to view the temple in its original setting. The artifacts, however, become the property of Bloomberg LP, spoils of an expanding modern-day empire.

"We could do a swap"

In 2008, moments after he was elected London's mayor, Johnson was startled to receive a cell phone call from a U.S. area code. A familiar voice crackled through.

"Mazel tov," said the mayor of New York City.

Always eager for global impact, Michael Bloomberg, whose mayoralty will end Jan. 1, has not let the 3,500-mile distance from New York prevent him from dabbling in British politics.

When Cameron sought the prime minister's office in 2010, Bloomberg arranged for top political strategists from SKDKnickerbocker to help out.

Bloomberg and his company have contributed nearly $1.5 million to English candidates and political parties. And he has spoken twice at gatherings of Britain's Conservative Party, whose center-right, business-friendly views he shares.

The modern London mayor's office was created in 2000; Bloomberg has offered something of a guide.

"It is very helpful for me politically in London to have such a great example of a municipal authority in New York," Johnson said.

Johnson sent his new chief of staff to New York for several days of training with Bloomberg's deputies. Following Bloomberg's example, he pursued private foundations to pay for pilot projects, and, when he started a volunteer program similar to New York's Cities of Service, members of Bloomberg's staff flew across the Atlantic to help implement it.

Some Londoners, tickled by Bloomberg's nanny-state schemes in New York, compare Bloomberg to Titus Salt, a 19th-century English industrialist who carefully monitored his workers' vices. (Ale consumption, for instance, was strictly limited.)

"I'm not certain I would try to tell the people of London about the dimensions of their Coke portions," Johnson said.

As his train neared London Bridge station, Johnson had an idea.

"We could do a swap," said Johnson, who was born in New York. "When's he standing down?"

Faculty, students at Kendall forum remain skeptical

Many concerned that proposal does not effectively address need for graduate housing

Kendall, from Page 1

space required by the petition as part of the 1.1 million square feet of commercial development.

While the comments and questions that followed represented a diversity of opinions, many of the students and the invited staff and faculty speakers shared a sentiment that the petition did not sufficiently address the housing situation of graduate students.

"Graduate students are the engine of MIT R&D productivity," biology professor Jonathan A. King said. "Their most pressing need is decent, affordable housing." The MITIMCo petition ignores this need and proposes commercial office towers in the center of east campus." The proposed sites for commercial development are on the corridor of parking lots just south of Main Street.

The petition allows for 300 new units of housing.

King said that new commercial space would not affect the rental market favorably. "The people working there will want to live nearby. I can guarantee that those people are making a lot more than you are."

A recurring topic was the high cost and low vacancy rate of rental housing in the area. One graduate student stood up and announced his annual income, challenging the presenters to explain how he could afford to pay the rent and support his family.

Robert Winters, mathematics lecturer, said that the housing situation has changed much in the past four decades. Previously, graduate students didn't mind closer quarters, and costs were much lower. He claimed, to applause, that since 1985 he has not increased the rent for graduate students living at a property he owns.

Ruiz suggested that the money MIT made from corporate tenants could feed back into funding for graduate students. He said that the annual contributions from Pfizer, Novartis, and Sanofi would total $30 million, equivalent to a $600 million boost to the endowment, larger than any gift in history.

> **'This is not for the planning board to decide. This is for MIT to decide.'**
> *–Robert Winters*

Martin Schmidt, associate provost and EECS professor, also defended the commercial portion of the petition, saying that any plan for the campus has to satisfy "boundary conditions" and "stand on its own financial legs."

Linda Patton, assistant director of off-campus housing, was not optimistic about the future of graduate housing, calling it an "economic problem" that "MIT cannot solve," noting increases in demand for housing due to big companies moving into the area. "We try to accommodate 50 percent of graduate students, but the graduate population keeps increasing. We take two steps forward and three steps back."

King and others also stressed that graduate work is very difficult with a long daily commute. "Every faculty member who runs a wet lab knows that."

While the current Kendall petition does not include housing specifically for graduate students, Ruiz and Marsh said that the northwest end of campus might see such developments in the future. They also emphasized that the petition would be an "envelope" plan within in which specifics could be worked out after it passed the City Council.

It was announced to faculty earlier this week that an institute study on student housing was to be completed this term and chaired by Urban Studies professor and former chancellor Phillip L. Clay PhD '75.

Some commenters found the introduction of commercial space on campus unwelcome for reasons unconnected to the issue of housing. A couple of speakers worried about interference with open intellectual exchange.

O. Robert Simha MCP '57, former director of campus planning (1960 –2001), was opposed to east campus properties being used for anything other than academic growth. "It took us many, many years for us to acquire this land," he said. He was also reluctant to see the MIT cityscape change. "Tall buildings do not work at MIT. The one we have does not work."

Literature professor Ruth Perry called the line between the commercial and the academic "perilously thin in this era of tech startups." She predicted that commercial buildings would "change the character" of campus and "dilute the community feeling."

Perhaps more fundamentally, those like Perry were concerned about whose interests were being defended in the campus planning process.

It's not that there has been no input from non-administrators in the planning process. Thomas Kochan, professor of management, advocated that MIT move forward with the petition, bearing in mind several conditions, in line with the recommendations of the faculty task force appointed last year.

But, Perry called Ruiz and Marsh's portrayal of the inclusion of faculty in the process "misleading." "It's probably a mistake to have real estate executives in charge of campus planning."

The petition is slated to be voted on by the City Council in April, according to Ruiz.

The viewpoints at the forum are certainly not new. Most recently in January, ten senior faculty members sent a letter to the Planning Board in January warning that "this use of limited campus land for commercial development will undermine MIT's unique abilities to contribute to solving national problems through education and advanced research, and it will dilute its contribution to the Cambridge community."

Winters said, "This is not for the planning board to decide. This is for MIT to decide."

COURTESY OF ISRAEL RUIZ

Volleyball improves record

Men's team goes 2-2 at tournament last weekend

By Mindy Brauer
DAPER STAFF

The nationally-ranked No. 13 MIT men's volleyball improved its yearly record to 5-5 after a 2-2 performance at the Golden Flyer Invitational hosted by Nazareth College this past weekend. On Saturday, the Engineers swept No. 11 Medaille College, 25-22, 20-15, 25-20, but fell to Elmira College, 20-25, 25-18, 21-25, 27-25, 15-7. The next day, MIT blanked Southern Vermont College, 27-25, 25-21, 25-19, and then dropped a 28-30, 25-19, 25-22, 21-25, 15-8 decision to No. 5 Nazareth. Paul M. Syta '14 represented the Cardinal and Gray on the all-tournament team.

Matthew P. Hohenberger '13 produced 14 kills, a .310 hitting performance, five digs, and three aces against Medaille while Kenneth M. Siebert '14 registered nine kills, a .444 hitting percentage, and four blocks. Patrick J. Vatterott '13 tallied six blocks, five kills, and four digs as Syta posted 30 assists and seven digs. Brendan S. Chang '16 and Christopher T. Omahan '15 rounded out the defense with six and four digs, respectively.

Against Elmira, Hohenberger amassed 26 kills, a .400 hitting effort, five digs, and two aces as Vatterott notched nine kills, a .571 hitting percentage, two blocks, and an ace. Siebert contributed eight digs and six kills while Tavish W. Smith '16 contributed to the attack with five kills. Syta had 44 assists and five kills on seven attempts as Chang and Omahan collected 15 and 10 digs.

Syta earned a double-double on 35 assists and had 10 digs and two blocks against Southern Vermont. Hohenberger totaled 11 kills and a .421 hitting percentage and Omahan posted eight kills and seven digs. Tyler R. Nolan '15 registered eight kills and a .400 hitting performance while Vatterott chipped in five kills. Chang generated 11 digs and Andrew A. Busse '15 had three blocks.

In the finale against Nazareth, Hohenberger amassed 14 kills, six digs, three blocks, and two aces. Syta racked up 40 assists, nine digs, five kills on five attempts, and two aces. Siebert finished with 12 kills, four digs, and three blocks and Vatterott had five kills and three blocks. Busse bolstered the front row with four kills and four blocks while Chang and Omahan totaled eight and seven digs, respectively.

XIAOYI REN

Foilist Alexander E. Siy '13 makes an attack during a bout at the Eric Sollee Invitational on Sunday, Feb 3.

UPCOMING HOME EVENTS

Saturday, February 9

Track and field vs. Coed Invite II	*12 p.m., Johnson Track*
Women's basketball vs. Springfield College	*1 p.m., Rockwell Cage*
Men's basketball vs. Clark University	*3 p.m., Rockwell Cage*

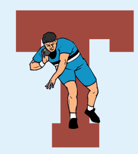
Monday, February 11

Men's basketball vs. Wheelock College	*7 p.m., Rockwell Cage*

SPORTS SHORT

Women's track and field ranked 12th in the nation

In the U.S. Track & Field and Cross Country Coaches Association (USTFCCCA) poll that was released on Wednesday afternoon, the MIT women's track and field team remained ranked 12th in the nation. Since the Jan. 23 ranking, the Engineers have moved up two places from 14th.



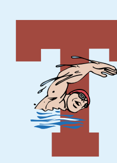
At the Tufts Stampede over the weekend, MIT finished in second place out of 24 teams with 155 points, just 11 points behind host Tufts who came first. The Engineers' best showing was in the 3000 meters, where they swept the top six spots. Sarah K. Quinn '16 finished first with a time of 9:56.01, smashing both the MIT freshman and varsity records. Isabella R. Stuopis '16 set yet another freshman record, this one an improvement on her own weight throw record from the previous weekend at Boston University, moving the new mark to 45-1.

This weekend, the Engineers will split up and attend three different meets. Some athletes will return to Tufts, others will be competing at Boston University and another small group will remain at home for the second MIT Coed Invite of the season.

—Charlotte Brackett

Freshman named NEWMAC swimmer of the week

After his performance at the Wheaton Invite over the weekend, Dion W. Low '16 was named the New England Women's and Men's Athletic Conference (NEWMAC) men's swimmer of the week. He wrapped up the two-day meet with a second and a third place finish.



Low started off the weekend by coming in second place in the 100-yard butterfly with a time of 52.92. Later on, he came third in the 100-yard backstroke in 53.56.

MIT will have a week off from competition and will return for the NEWMAC championship, which will take place in the Zesiger Center pool from Feb. 14 to 17.

—Charlotte Brackett