**Endowment at $10 bil MIT's percent returns outperform peers'**

By Leon Lin

In the past few months, several of the richer universities in the U.S. have announced their endowment performances for the past year ending on June 30. MIT's endowment grew to $30.1 billion, the highest value achieved in its history.

MIT's primary investment pool, produced a return of 8 percent, topping returns at other schools, including Harvard, Yale, Princeton, and Stanford, the four private universities with deeper pockets than MIT.

However, all of these schools reported poorer returns on investments in fiscal year (FY) 2012 than in the previous year. MIT posted a 17.9 percent return in FY 2011.

Increases in university endowments reflect gains from investments as well as contributions from donors, which accounted for 14.3 percent of the increase in MIT's endowment in FY 2012. These increases are offset by spending towards each university's operations. The portion of the endowment transferred to the operating budget is typically about 5 percent. Stanford also reported the highest endowment in its history, surpassing pre-recession values for the first time. Though Stanford only had an investment return of 1 percent for the year, donations boosted their endowment to $32.7 billion, overtaking Yale's $31.3 billion.

Harvard's investments produced a return of -0.05 percent which, after contributions and spending appropriations, resulted in Harvard's endowment dropping from $31.7 billion to $30.7 billion, down from the school's 2008 peak of $36.6 billion.

However, Harvard's endowment is still the largest among universities, with Yale's at a distant second. As with Harvard, the value of Yale's endowment fell slightly in FY 2012 and awaits a full recovery from the economic crisis.

Endowment, Page 18

**Two dead bodies found in the Charles**

Two dead bodies were found in the Charles River this week. On Monday, the unidentified body of a 62-year-old man was found near the Boston University Boathouse. On Tuesday, police identified dental records the body of 23-year-old Jonathan Dailey, a second-year graduate student at Boston Architectural College. He was discovered at the bottom of the river, chained to a cinder block. Dailey had been missing since Oct. 2 and was taking a semester off from graduate school.

Authorities have said they do not think there is foul play involved in the death of the 62-year-old man. Investigation into Dailey's case is ongoing.

Jake Wark, spokesman for District Attorney Daniel F. Conley, said in a statement to The Boston Globe, "The facts and circumstances surrounding Mr. Dailey’s death remain under investigation by State Police detectives assigned to the Suffolk DA’s office.” He added that the Office of the Chief Medical Examiner has not yet determined the cause or the manner of Dailey’s death.

---Deborah Chen

**Higgs Boson, explained**

**MIT physics profs try to clarify discovery**

By Janelle Mansfield

Last spring, news of the discovery of proof of the Higgs Boson particle swept across campus, prompting discussion in classrooms, on social networks and email lists, and in casual conversations among students.

During this news blitz, the security question on my mind was, what exactly is the Higgs Boson? Since I have no theoretical physics knowledge, I didn't understand the significance of it at all.

Feeling out of the loop on this piece of nerdy knowledge, I couldn't pass up the chance to hear four MIT professors explain what the mysterious particle is and why it is so exciting.

So, on Thursday night I made my way to 26-100 to hear several MIT professors speak about it. The lecture hall was packed; attendance was higher than most of my 702 lectures.

Professor Edward H. Farhi of the theoretical physics department took the floor first. He outlined the importance of the evidence from this spring, calling it ”a great coming together of theory and experiment” and “the most complicated experiment that has ever been built.” After building up some suspense in the audience, he introduced Assistant Professor Jesse Thaler to give an overview of the physical theory of the Higgs Boson.

---Higgs Boson, Page 16
CARAS — A year after the United States cut off its financing to UNESCO, following a vote to make Palestine a full member, the organization remains engaged in a frantic effort to cut back expenses and raise emergency money.

UNESCO’s director-general, Irina Bokova, has secured pledges of $17 million from China in December in an effort to try to make up for the roughly $144 million in dues that the U.S. has withheld, she said in an interview. Major contributors have included France, Germany, Norway, and Sweden, over two years for crucial programs.

“The situation is still critical,” Bokova said, call- ing the loss of U.S. financing “a big blow to the organization” that was also costing the United States.

“The suspension has diminished the possibility of the United States to be involved together with UNESCO,” the United Nations Educational, Scientific and Cultural Organization, she said, limiting its ability “to outreach to the Muslim world, to talk of democracy building in Arab countries” and to promote freedom of expression and the protection of journalists.

—Steven Erlanger, The New York Times

In talks, Japan and South Korea vow economic cooperation

TOKYO — The finance ministers of Japan and South Korea declared on Thursday that their nations would closely cooper- ate on economic and financial issues, in talks aimed at limiting the political damage from a diplomatic clash over contested islands.

The talks took place during annual meetings in Tokyo of the International Monetary Fund and the World Bank that were supposed to focus largely on the debt crisis in Europe. Instead, they have been at least partly overshadowed by concerns that the rekindling of territorial disputes in eastern and southeast- ern Asia could hurt the region's vital role as a source of growth for the global economy.

On Thursday, the head of the IMF, Christine Lagarde, told participants that fixing Europe’s debt problems and averting drastic fiscal cuts in the United States were needed to lift glo- bal economic confidence. That lack of confidence is “having a ripple effect on emerging markets, and in particular in Asia,” Lagarde said.

—Martin Fackler, The New York Times

Indonesia seeing increase of small terrorist groups

JAKARTA, Indonesia — Aysaaid Mbaa, the director of the National Counterterrorism Agency here, has a genealogy of ter- rorism spread across his office wall. It starts in 1949, the year Dutch colonizers acknowledged Indonesia’s independence, and extends to 2011. Like a family tree, it begins with one line and gradually branches out into an increasingly complex web with maps and photographs of the country’s most notorious terrorists.

“It’s like a database, the framework to coordinate intelli- gence,” he said.

But lately the database has expanded beyond the bound- aries of the capital and into more local groups with different objectives than those of their al-Qaeda-affiliated predecessors driven from the flight.

In the 10 years since Islamic militants blew up two night- clubs on the resort island of Bali, killing 202 people, Indonesian security forces have thwarted threats from the group by con- cealing of being militants and killed about 60. All the major sus-pects in the Bali attacks on Oct. 12, 2002, have been killed or imprisoned.

—Sara Shonhardt, The New York Times

A legal brawl in Mexico as bond buyers look on

By Azam Ahmed

TOKYO — Trouble is brewing in the indus- trial heartland of Mexico, but it’s not the violent drug wars that have plagued the bootseats of Monter- rrey. It is a legal brawl over the bank- ruptcy of the country’s largest glass- maker, Vitro.

Hedge funds and other who own the company’s bonds have ac- cused Vitro of conspiring to boil them out of hundreds of millions of dollars by duping legal loopholes.

Vitro, meanwhile, says its actions were perfectly legal under the Mexi- can system, and accuses the hedge funds of trying to impose U.S. laws on a foreign court.

The cross-border battle touches the foundations of international law and state, some academics and investors say. The dispute also raises questions for global investors navigating legal systems in emerg- ing countries that may be different from those found in the industrial world.

Vitro creditors say that if Vitro’s bankruptcy plan were to be upheld, other Mexican companies could have trouble raising money in the United States.

When a company files for bank- ruptcy in the United States, the absolute priority rule prevails. The rule establishes an order in which to pay off debts.

In the Vitro case, the opposite seems to have happened. The share- holders, including the Sada family, who sold it to the company more than 10 years ago, have control of the glassmaker. The bond- holders, meanwhile, received 40 to 60 cents for every dollar of debt they owned under the company’s bankruptcy plan, according to some estimates.

The case has sent ripples through the Mexican debt market. Creditors are leery of other companies’ pull- ing a similar move. Cemex, a major Mexican cement maker, recently had to place a clause into bond doc- uments promising not to do what Vitro did. Market participants have taken to calling this attitude the “Vi- tro effect.”

The company and its lawyers dismiss the notion of a Vitro effect. They say that Mexican law has al- ways had the loophole, which al- lows a company to use loans to its subsidiaries to generate votes to ap- prove a bankruptcy plan.

Nothing is different, they say, ex- cept for the obstinacy of the parties on the other side of the table: Elliott Management and Aurelius Capital Management.

If you’re a sophisticated party that’s gone to go and institute litigation in Mexico, you can hardly claim the benefits of U.S. law, and particularly the benefits of U.S. poli- cy, to protect you from the decision that comes out of that court,” said Andrew M. LeeBlanc, a lawyer for Vi- tro, in documents before a federal judge in Dallas.

Despite the uproar among Vi- tro’s creditors, both Elliott and Au- relius continued to buy the bonds even after the company issued a news release detailing a number of the actions that the hedge funds are now questioning, people briefed on the matter say.

By Christopher Jensen

TOKYO — Toyota announced on Wednes- day that it was recalling 7.4 million vehicles worldwide, including 2.5 million in the United States, to re- pair power-window switches that can break down and pose a fire risk.

The recall, the company’s larg- est for a single part, could set back its efforts to recover from previous safety issues and the earthquake and tsunami in Japan last year.

The vehicles affected in the U.S. include just more than one million Camry, Suntéa and Scion models from the Na- tional Highway Traffic Safety Ad- ministration opened an investiga- tion into reports of smoke and fire coming from driver’s side doors.

During its investigation, the safety agency collected reports of 88 fires, including 128 from the automaker, and of nine injuries of undefeated severity.

Toyota said it had traced the fire hazard to the master switch for con- trolling the power windows in the driver’s door. Some of those switch- es may have a “notchy” or “sticky” feeling because the switch supplier did not properly apply grease to the switches.

The automaker said if “com- mercially available lubricants” were used to fix the problem, the switch could “meld and lead to a fire under circumstances.”

In its news release, Toyota said there were no crashes related to the recall, but did not mention fires or injuries.

The recalled models in the U.S. are the 2007 to 2009 Camry, Camry Hybrid, Tundra pickup and RAV4; the 2007 and 2008 Yaris; the 2008 and 2009 Scion xD and xB; the 2008 Highlander and High- lander Hybrid; and the 2009 Corolla and Matrix compacts.

In a report to the safety agency, Toyota noted that it originally want- ed to conduct a “customer satisfac- tion campaign” but decided to pur- sue the recall after discussions with the agency. A customer satisfaction campaign can be as simple as an ex- tended warranty, whereas a recall is needed when there’s a safety risk requiring all vehicles to be repaired within a given time span.

Toyota said it would begin noti- fying owners by mail of the recall at the end of the month. Technicians will inspect, disassemble and apply grease to the switch free.

Toyota described the recall as voluntary, but under federal regula- tions once a safety defect is determined of a safety problem it must, within five business days, tell the safety agency of its plan for a recall or a face civil fine.

In 2009 and 2010, the company recalled more than 11 million Toyota and Lexus vehicles worldwide to re- place floor mats and sticky acceler- ator pedals.

By Roman Kovach

Polar air continues to move into our region, and the first frost looks like it will come to- morrow. A high pressure sitting south of us will bring cold air from Canada down into New England. Winds should be light today as well, but will subside on Saturday. By that time, the high pressure will reach us and provide clear, dry conditions. The cold temperatures will not last long because a low pressure will approach the Great Lakes, pushing warm air up from the Southeast by Monday. Any significant chance of snow is possible on Tuesday and likely to end off until late Sunday. So the jacket is a better choice over the umbrella this weekend.

Extended Forecast


Weather Systems

Stationary Front

Metropolitan Staff

Precipitation Symbols

Polar Air

Other Symbols

Haze

The New York Times
By Peter Lattman and David W. Hamilton

The private equity giants Blackstone Group and KKR hold advantageous deals that could compete for multimillion-dollar deals. But during last decade’s buyout boom, Blackstone was often accused of releasing emails in civil law suits against its business rivals. In one such case, the firm appeared to be on much cozier terms with Blackstone’s rival.

In September 2006, for instance, Blackstone and KKR were both circling the technology giant Freescale Semiconductor. After a Blackstone group outbid a KKR consortium for Freescale, KKR appeared to be on much cozier terms with Blackstone’s rival.

Blackstone’s rival.

“Henry Kravis just called to say congratulations and that they were Blackstone’s rival.

emailed his colleagues about Henry Blackstone’s rival.

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duce for multibillion-dollar

knoll Kravis Group and Kohlberg Kravis

private equity and KKR, the billionaire co-founder of Blackstone’s rival.

Henry Kravis just called to say congratulations and that they were standing down because he told me not before they would not jump a signed deal of ours,” James wrote.

Two days later, James sent an
e-mail to Kravis’s cousin and co-

and they were Blackstone’s rival.

would much rather work with you guys than against you,” James
didn’t think we can be

“Agreed, responded Roberts.

The emails are part of a court fill-

of the resistance.

ing his colleagues about Henry Blackstone’s rival.

an instant email that arrived at an instant email that arrived

with an instant email that arrived

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By Anne Barnard

SANAA, Yemen — A senior Yemeni employee at US embassy in Sanaa is shot dead.

Yemeni employee at US embassy in Sanaa is shot dead.

By Nasser Abumaye

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LETTERS TO THE EDITOR

EdX going forward

The following letter was addressed to The Tech's editorial board.

Your editorial of October 5 argued that “for EdX to succeed in transcending residential education, it needs a clear vision.” This vision was developed by the faculty -- and I could not agree more. To address this need, the administration is finalizing plans for a new unit, EdX, which will be chaired by Dr. Susan Solomon. We support this approach and look forward to announcing the appointment within weeks. The Director will work closely with faculty and students to assess our current model of on-campus education and to develop the kind of long-term vision, standards of success, and plans for space and staffing that we call for. This new appointment should be a springboard to a period of intense deliberation, and I am confident the collective wisdom and inventiveness of my faculty colleagues and our students from many disciplines will guide us, just as faculty and students led the creation of OCW and of MITx itself.

In his leadership of MITx, Chancellor Grimson already draws on the counsel of a working group composed of faculty from all five Schools as well as a number of our students. On Wednesday, by meeting with tour groups and engaging tour around the campus, I, too, am actively seeking input and ideas about the best way to blend residential and online education. We have also heard from many faculty members across the Institute who, in conversations with me and with each other, have taken it upon themselves to get their hands on these new educational tools and to engage in this profound rethinking. In their own courses. In direct response to faculty que- ries, the Chancellor recently developed and distributed a set of FAQs that explains the nuts and bolts of how faculty members can create pilot courses for the soon-to-be-launched international platform called “edX Studio,” these FAQs will be posted on the MITx site, too. What’s more, as part of its mission, edX is energetically collecting and assessing faculty submissions. It is clear that students learn both on campus and online, and that the EdX initiative can be a useful tool for engaging the creativity and expertise of the broader community.

I believe that MIT will invent the future of the research university that underscores our commitment to provide this fresh start. Science has improved the quality of life of millions of people, and we need to pro- mote this science.

Science has a deep history to service the world. When Francis Bacon first outlined his method for Baconian Inquiry in the early 1600s, known today as the scientific method, he stressed that science should be used as a tool to help mankind. Bacon argued that the service of science was threefold: first, to help the poor; second, to provide for the common good; and third, to benefit the individual.

So, what should we do with all the projects? Whether or not we were the neurotic in breaking the laws of relativity does not affect his life. He died a healthy man and his reputation or not the neurotics were in fact breaking the relations for himself.

Some say that he wanted all the knowledge. Whether or not we were the neutrinos in breaking the laws of relativity does not affect his life. He died a healthy man and his reputation or not the neurotics were in fact breaking the relations for himself.

Letters to the editor, columns, and editorial cartoons are written by individuals and represent the opinion of the author. The Tech reserves the right to edit or condense letters, shorter letters will be given higher priority. Once submitted, all letters become property of The Tech, and will not be returned. Letters and columns should be posted on The Tech’s Web site and/or printed or published in any other format or medium now known or that may be known in the future. Please sign all the letters received.

The name of the author of the last Friday’s guest column, “Children,” was misspelled. He is Thomas Crouzier, not Thomas Cruzair.

By Sam Shames

Science today has an image problem. Too often it is seen as an esoteric activity of academics, whose results have no influence on the daily lives of the Ameri- can people. When the news of the neuroti- cism of the research of an ancient pharaoh was reported and the public saw the scient- ific community scramble to debunk this claim, I cannot help but wonder what an American who does not follow science thought of the coverage. Part-ly, surely, he would have thought that all the research was for nothing. Whether or not we were the neurotics in breaking the laws of relativity does not affect his life. He died a healthy man and his reputation or not the neurotics were in fact breaking the relations for himself.

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The Big Mo and the Big Three 25 days, many possibilities

By A. J. Edelman

There are 25 days left until November 6, 2012. In the week and a half since the first presidential debate, polls have shifted significantly, changing the Electoral College (EC) math. While Governor Romney has held a lead in the nationwide and nationwide polling average, the popular vote is not an accurate barometer from which to measure the outcome of the election since it is the Electoral College (the delegates afforded to individual states) that determines the victory. Therefore, election-watchers (and the candidates) will closely be watching the individual state by state polls as the race comes down to the wire.

As of now there are at least 12 states considered to be toss-up (or battleground) states. Each of these states holds different numbers of delegates, making it the swing states of the race that will tip the scale. Last week’s debate there were 9 states considered to be toss-up states, so two additional states have moved from solid Obama into the toss-up category. The battle-ground states are in the chart accompanying this article (Bold indicates new battleground states).

The Path to 270

The Big Mo: in politics, momentum is key. Sometimes referred to as “the big momentum,” poll numbers provide not only funding and enthusiasm boosts, but also can act as a catalyst to help sway undecided voters. It is in many ways a non-factor compared to a campaign’s finances. The momentum heavily favors Romney right now, and all recent polls reflect this in the swing states.

Particularly troublesome for the Obama campaign are the states like Ohio, Florida, North Carolina, Virginia and Michigan, which comprise the bulk of the electoral vote. The EC holds 191 votes and wins 270 needed to win.

As the race moves into its final few weeks, both campaigns will focus their time and money in states they consider essential and abandon states that they consider out of reach. For the GOP this means that Pennsylvania and Michigan will continue to receive very little — if any — attention. At this point, Nebraska and New Hampshire may also be abandoned. Likewise for Democrats, North Carolina and Missouri, where Romney leads outside the margin of error, may be dropped.

The Big Three

The most obvious means of securing victory is for either candidate to win two of the three major tossup states — Florida, Ohio, Virginia. No Republican has ever won the presidency without winning Ohio. Should Romney secure victory in all three of these states he is virtually guaranteed victory. So too if President Obama takes two of these. It is still too early to predict what the final map would look like but if trends hold, but expect Obama to hold Iowa while Romney holds North Carolina, Missouri, and possibly Florida in his column.

The president maintains an edge in poll ing and according to many models has a greater chance of winning than does Governor Romney, yet ultimately the deciding fac tor is the big three states may be the get-out-the door (GOTV) state that will determine whether or not the final map will be swinging Romney’s way. The GOP has seen a 63 percent surge in volunteers and so far has an edge in early voting ap plications (backing a trend). Yet Democrats are well known for their formidable GOTV framework, which benefi ts greatly from the support of union volunteers. Expect GOTV efforts to be a large factor in whether some swing states vote one way or the other. In 2008, Obama received fewer votes on Elec tion Day than did McCain in Colorado, Flor ida, Iowa, and North Carolina, yet still won these states because of his success at driving early voting.

Pennsylvania, Michigan, and New Hampshire

President Romney’s father was once a popular governor of Michigan, the auto ballot is very popular in Michigan. Trends suggested that MIT would hold solidly Democ ratic, but two new polls suggest that Governor Romney has closed a double digit gap and is now within the margin of error (statisti cally neck-and-neck with President Obama).

This is likely attributed to Governor Rom ney’s strong showing in the debate, which has also helped Romney nearly erase a dou ble digit deficit in Pennsylvania, which has gone Democratic in each of the last 5 presi dential elections.

Prior to the debate, initially Governor Romney will likely continue to focus his time and mon ey elsewhere, in the coming days there will likely be a flurry of private polls conducted by Super-PACs and the campaigns to confirm the results. Should an ad-blitz break out in any of these states, it will signal indepen dent confirmation and both candidates will shift their strategies and campaign appearances accordingly. This is especially true of Pennsylvania, where Obama holds a 4 point advantage, almost within the margin of error, yet still breaks the 50 percent barrier. New Hampshire doesn’t have many delegates, yet Romney has ties to the state and opening up a new battleground in the Northeast may pressure Obama. Again, the ad-war will likely tell if private polling confirms NIF’s toss up status. Another 40 electoral votes in play will open up further permutations by which the candidates can gain the 270 delegates needed for victory.

What does the Electoral College landscape look like? In 12 states where polling indicates Obama and Romney are very close, Romney has seen significant gains this month, mostly seen after his strong debate performance last week. The rightmost column

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<td>TOTAL DELEGATES</td>
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Likely/Lean Obama (all states): 217 (53 to go)
Likely/Lean Romney (all states): 181 (89 to go)

The perception of science

MIT students need to promote the field

The perception of science, from Page 4

Posters everywhere highlight the importance of research in areas ranging from energy from energy storage, to biomedical de vices, to robotics. To the left of the MIT homepage offers a daily reminder of the continuous stream of innovative ideas that MIT researchers produce and how these ideas will benefit society. Unfortunately, stories like these rarely reach the general public.

We as MIT students know first-hand about the value of science; we see it every day. We also face the reality of science in America — I am continually amazed by the amount of articles on science and tech nology in the New York Times which quote MIT affiliates. We are the ambassadors of science and as such, we must do a better job promoting it. With this power comes the responsibility to share the general public how science benefits people and society.

We must remind the public of this fact; science has a proven track record.

We have short memories; most probably do not remember how almost all game changing technologies from the computer to the Internet emerged from government sponsored research done by scientists in colleges and universities.

We must remind the public of this fact; science has a proven track record. But moreover, we must inspire them with ideas about what the future might hold. Given what science has produced, isn’t it our obligation to offer the public a window into the generation of scientific discoveries?

Organizations like the TED conferences has started to take up this duty, but we at MIT must do more to inspire the next generation.

By stressing the idea that science can improve the standard of living and benefit everyone, we scientists and engineers can help change the public opinion on science and scientists. If more people realize just what a difference scientists and engineers make, then we may inspire more people to join us as we try to use science to save the world.

Sam Shames is a junior in Course 3.

Predictions

There is still significant time left in the campaign. Twenty-five days is an eternity in politics. Just as the final month of the 2008 campaign ultimately propelled Obama to victory, so too anything can happen during this election cycle. However, the current momentum and polls, these are possible scenarios:

Tie: It is possible for the Electoral College to reach a tie, 209-209. A tie hasn’t occurred in almost 200 years, and the chance in this cycle is remote. In such a case the presi dient and vice president would be chosen by the House of Representatives and Senate, respectively. Of the 12 battleground states there are 6 different combinations for a tie to be achieved.

Assuming that no tie takes place, then one of the more likely outcomes may look like a repeat of 2004, where the election was decided by Ohio, or a repeat of 2008, where the election was decided by Florida. Similar to 2010, it is inconceivable that a candidate wins the popular vote, yet Obama lost the Electoral College, yet such an outcome would likely see the roles reversed, with the Republican candidate winning the popular vote and the Democratic candidate winning the College.

What does the Electoral College landscape look like? In 12 states where polling indicates Obama and Romney are very close, Romney has seen significant gains this month, mostly seen after his strong debate performance last week. The rightmost column
Dinosaur Comics by Ryan North

Hey, remember when I argued QUITE PERSUASIVELY that Aladdin was history's greatest monster for never ever wishing to end to suffering?

Turns out he's got competition!

She doesn't say "Mirror mirror on the wall, how can life's curse of aging be stalled?"

Noooo!

Nor does she say "Mirror mirror on the wall, how can clean energy be provided for all?" or even "Mirror mirror mounted here, how can chicks and dudes have satisfying careers?"

Nor does she ask "Mirror mirror mounted centrally, please provide a closed-system technique of reversing entropy", what a jerk!

MEANWHILE, IN FAIRYTALE LAND:
Mirror mirror on the wall, who's the fairest of them all?

Fair like pretty or fair like equality? The word has overloaded semantic duality.

True enough!
Microsoft

Imagine the future we’d live in if we’d been willing to let one tech company amass that much power.

Thank god we nipped that in the bud.

A WEBCOMIC OF ROMANCE, SARCASM, MATH, AND LANGUAGE
by Randall Munroe

by Jorge Cham

THIS IS A PAID ADVERTISEMENT
Sudokú
Solution, page 12

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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 12

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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.

```
import new_skills

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

if you.interest == True:
    print "E-mail join@tech.mit.edu"
```
Hepatitis B Screening Training Session

Sunday October 14th
7-8pm, McCormick Brown Living Room

• Learn how you can help screen patients for Hepatitis B as part of Team HBV
• Get involved as a member of exec board
• Enjoy bubble tea!
Students in 2.009 (Product Engineering Processes) launched “snowballs” at polar bears and target flags last Friday in Killian Court as part of the class’ engineering process challenge. A variety of launching devices, such as giant slingshots and pneumatic guns powered by bicycles, were present at the festive event.
MOVIE REVIEW

Closing the loop

Present and future collide in Rian Johnson’s action-packed *Looper*

By Jaimie Chung

Despite the fact that *Looper’s* entire premise is time travel, it’s not your typical sci-fi film. It is hard to give a summary of the film without unraveling the plot, which speaks to how intricate the storyline is. Without giving too much away, the film centers on Joe (played by Joseph Gordon-Levitt), who is meant to kill his future self (played by Bruce Willis). Little does he know that his future self has a plan of his own to both stay alive and prevent future events.

Director and writer Rian Johnson cleverly evades the complications that come with time travel by having Bruce Willis’s character state outright, “I don’t want to talk about time travel shit.” Viewers who want to see a true science fiction film will be disappoint because these assassins operate under the knowledge that they will eventually have to “close their loop,” or kill their future selves to tie up loose ends. Throughout the film, characters use phrases such as “letting your loop run” and “it’s the second loop this week,” which helps legitimize the alternate reality Johnson has created.

Cinematographically, the film was a consummate work. Motifs like close-ups of cigarette smoke and ticking clocks are intricately placed; the camera work while taking, and the details necessary to maintain consistency between the future and present are painstakingly accurate. For example, in a diner scene, we see a newly injured, bandaged ear on Gordon-Levitt and a disfigured ear on Willis. Most of all, the dialogue is sharply witty. Jeff Daniels, whose character is from the future, utters “the ends justifying the means,” a theme Johnson has created. “Looper” refers to a solution to the problem of time travel. The term is apt in time from the future (so that there is no person, like Joe, who kills people sent back in time to prevent future events). The term also provides a twist ending which left me speechless.

“I don’t want to talk about time travel shit.” —Bruce Willis, as future Joe

I was particularly impressed by the juxtapositions the joins Johnson created. “Looper” refers to a solution to techdoku and the “trippy” factor. —cool graphics, an arsenal of weapons, and the “trippy” factor.

Solution to Crossword

Solution to Sudoku

Solution to Techdoku

MIT–ISRAEL INFORMATION SESSION

Tuesday, October 16, 5pm
1 Amherst Street, E40-4th floor

Discover opportunities for internships and research in Israel — ALL EXPENSES PAID! Learn about the application process and speak with returning interns.

Food will be served.

mit.edu/misti/mit-israel

WE’RE SEEKING TO BUILD OUR FORCES

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**Restaurant Review**

**Area Four’s student-friendly lunches**

Forego the usual food-truck lunch and head over to Area Square.

_by Katerina Botchkina_

If you’re particular about coffee, you know about Area Four already — their shots are dense, their lattes are thin and strong, and if, like me, you have a shameful preference for veins of the watery American stuff, they do a great job at that, too.

But it’s probably not the first place that comes to mind for a cheap, quick, healthy lunch. Sure, their rainy outdoor seating area is screened off by a 3-foot-high fence, but the people eating there are the kind that want to pay $16 dollars for a personal pizza and can wait 20 minutes for it to arrive. That’s a calculation that, on your average Tuesday, would send me running to a food truck.

Then that changed this summer, when Area Four rolled out a hot dog cart — wheels, umbrella and all — and parked it just outside their Main Street entrance. The hot dogs are made from 100 percent grass-fed beef sourced from a California farm — you can read about their ethical standards as you wait in line. While you’re at it, take a look at the 12-page menu list and consider your condiment options: All the standards, plus some pleasant surprises, like a snappy banana-pepper relish. And priced at $4 a piece, they’re clearly a bid to lure you from Ames street.

The hot dogs are 100% grass-fed beef sourced from a California farm.

Are they mind-blowing? Of course not. They’re hot dogs. Did it feel fantastic to sit in a pleasant, sunny downtown Ames street plaza and eat them? Yeah, but it wasn’t nearly as good as the coffee instants that you could buy. The other day I bought a $2.99 cup of coffee in a coffee shop. Not a great cup of coffee, but what it really needed was one of those Rascalls. I won’t be abandoning my usual lunch options for a steady diet of Area Four. It still comes close to $15 for pizza and a beer, and, grass-fed or not, there’s a pretty definite weekly limit on how many hot dogs I can feel great about eating.

But Area Four makes for a very welcome addition to the weekly lunch rush and, while they’re not my favorite place to eat, it’s a good option when a fancy cafe isn’t in the budget, an option that I won’t be abandoning.

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**Exhibit Review**

*If music is art, are the instruments?*

The MFA’s extensive collection of musical instruments offers surprises for the curious eye.

_by Anelheim Nenadzow_

You may think of a painting as a work of art, but do you ever think of a paintbrush as art? If music is art, are the instruments? You view musical instruments? Are they just musical pieces as works of art, but how do you view musical instruments? Are they just tools, or can they be works of art themselves?

For if you contemplate them, as if a Zen master of sorts. Then it’s likely that you’re on to something.

Whether you browse it online, visit and pick up an audio guide, or attend a talk, you’re bound to find something intriguing and unexpected in this collection. This humble room packs a punch — history lesson, concert, and art exhibit all in one!

---

**Book Review**

_Banksy revisited_

_A look back at the revolutionary oeuvre of an anonymous vandal_

_by Roberto Perez- Franco_

You know the dull wall of Building E38 (pink, cream, whatever) that runs between MIT Press and Coop? The other day somebody had the audacity (dare I say, the good heart) to spray-paint two gun barrels with Bart Simpson’s head on the surface of its lid, to a beautiful pianoforte from 1796 — made for the Queen of Spain — designed by the firearms-maker Thomas Heath, and decorated with cameos by Wedgwood. The pianoforte has three pedals, the first and second being “soft” and “sustain” pedals, and the middle one being a Bass drum beater (I kid you not), which was apparently incorporated due to an interest in Turn of the Century culture at the time.

As well as seeing the predecessors of modern-day instruments, it is also fascinating to see some innovative instruments that fell out of use or never quite caught on. For example, the musical glasses (or grand har- monicon) made in 1800 in Baltimore, a rectangular mahogany fold-up case played by running wet fingers along the rims of the twenty-three glasses and the body of the instrument, are available online along with photos and information about each piece in the collection.

---

**Musical Instruments collection**

_Museum of Fine Arts Ongoing Free with MIT ID_

is witty and enthusiastic and tells plenty of interesting anecdotes. There are also musicians who come in to discuss and perform on specific instruments. Upcoming sessions include "The Northumbrian Bagpipes," "The Modern Mandolins," "The Harpander Fiddle of Norway," "The Middle Eastern 'ud" and "The Pipa: Lotus of China." For more information, check out the MFA’s website.

Whether you browse it online, visit and pick up an audio guide, or attend a talk, you’re bound to find something intriguing and unexpected in this collection. This humble room packs a punch — history lesson, concert, and art exhibit all in one!
REGISTER TO VOTE!

Voter Registration Forms
Absentee Ballot Requests for ALL 50 STATES
FREE Stamps and Envelopes

Wednesday October 10th – Wednesday October 17th

10/10 through 10/12
Student Center: 9-10am, 4-5pm
Stata: 11-2pm

10/13
Student Center: 1-3pm

10/15 through 10/16
Lobby 10: 10-2pm

10/17
Student Center: 11-2pm

Also join us for a
VOTER REGISTRATION STUDY BREAK!

Wed. October 17th
CoffeeHouse
FREE FOOD
9:30 to 11:00 PM

All brought to you by the Undergraduate Association and The Tech
Upcoming Dalai Lama visit thrills City of Medford
Boston visit hosted by MIT’s Dalai Lama Center for Ethics & Transformative Values

By Lisa Wangsness
THE BOSTON GLOBE

MEDFORD — It is an ordinary working-class neighborhood: clapboard houses, chain-link fences. There is a statue of the Virgin Mary in one front yard; in another, a Halloween ghost waves in the wind.

But something extraordinary is happening here. Fences are coming down. Aluminum bleach boxes are going up. Thursday morning, a crew will begin erecting a 280-foot-long tent, large enough to fit more than 1,800 people.

The Dalai Lama is coming to Magoun Avenue. And — never mind the disruption, the noise, or that there aren’t many Buddhists in these parts — the neighbors are pretty much thrilled.

Jim McCormick, a former construction worker who has lived on the street for 20 years, said his sister-in-law, an 86-year-old mother-in-law, an ob- servant Roman Catholic, had been waiting for 20 years, said his sister-in-law, an 86-year-old mother-in-law, an observant Roman Catholic, had been looking forward to it before her recent death. “She would have been right out there,” he said.

The Dalai Lama is coming to Magoun Avenue.

The mustard-colored house across the street from McCormick’s is the Kurukulla Center for Tibetan Buddhist Studies, a home to the Dalai Lama’s visit.

At 7:30 Wednesday morning, a massive truck from a scaffolding company in South Boston squeezed a set of bleachers to seat 300 people into the backyard.

This visit “is a fulfillment of our teacher’s dying wish,” Cook said. It will come Tuesday at the end of a three-day trip to the Boston area hosted by the Dalai Lama Center for Ethics and Transformative Values.

His Holiness, the mayor added, may not have used those exact words.

But when his motorcade turned up Magoun Avenue, it came to a halt before it reached its destination. The Dalai Lama emerged from his car and, as the air reverberated with the chanting of monks broadcast over a loudspeaker, he made his way down the street, shaking hands and greeting Tibetans, neighbors, and others who had come to catch a glimpse.

McCormick fondly remembers the Dalai Lama greeting his elderly mother-in-law.

“She kissed her hand,” he said. “He looked at her, he looked surprised, he was repeating it out of his mouth in a dazed look.”

The Dalai Lama notified the Kurukulla Center that he would make his rounds to places of worship and homes in the neighborhood. McCormick said he was “pretty much thrilled.”

“When the center opened its doors last month to discuss the plan for the day with neighbors, organizers were prepared for the worst,” he said. “They invited the mayor, a police lieutenant, a state representative, and even the Rev. Chip Hines, pastor of St. Joseph in Medford, to help them explain their plans and offer reassurance.

But nobody complained. One neighbor offered use of her backyard. Another wanted to know whether there was anything they should or shouldn’t do to make the Dalai Lama feel welcome.

Several others asked how they could get tickets.

Jonathan Walker, 35, who lives nearby and works at Staples, wanted to know whether he could help clean up.

“It’s your community,” he said afterward, with a slight laugh. “It’s what you’re supposed to do.”

May Margurettock, 82, said she was looking forward to the day. “His Holiness is a wonderful inspiration for the whole world, actually.”

Linda Brown, a neighbor who works for the school department’s food service, said she and her husband did not hesitate when the center asked, a bit audaciously, if they could please remove their two backyard fences to make way for the Dalai Lama’s visit.

She said she was not a Buddhist but likes to take yoga classes at the center, and likes “the flow” of energy she gets from next door.

His Holiness first visited the Kurukulla Center in 2003.

“You just feel it,” she said. Barbara Melanson, a Buddhist and the center’s volunteer land- scape, said she had only the Dalai Lama was here in Medford, but he jumped out of the car to say to all the neighbors, “How ya doin’!”

McGlynn said. “Everybody pretty much felt the same way.”

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Sophomores + Juniors—Apply by December 3, 2012
Higgs Boson, from Page 1

One idea that stuck out to me during Professor Thaler’s talk was the idea that the discovery of a new particle corresponds to a theoretical principle of physics. He compared the discovery of the Higgs Boson and the idea of quantum probability to the discovery of the neutrinos and the principle of conservation of mass. When looking at the history of physics, new developments in theory constantly prompt new research to test them.

Thaler gave an overview of the Standard Model and how the Higgs Boson fits in. I was slightly apprehensive that I would not be able to understand anything during the theoretical discussion, but Thaler kept it simple and used metaphors. He began by listing the four fundamental forces — gravity, electromagnetic, strong (holds nucleons together), and weak — and explaining that each force is conveyed through the particles and the particles can collide with each other. The other fundamental forces have massless particles that don’t interact with each other. The difference in the weak force is due to the Higgs Boson, which is responsible for giving mass to fundamental particles. The strength of interaction of particles with the Higgs Boson determines their mass, so massless particles like the photon don’t interact with the Higgs Boson at all. Incorporating the Higgs Boson particle into quantum mechanics equations also ensures the consistency of quantum probability; without it, some events would be predicted to have a probability greater than one.

Years of studying, questioning, and suffering through vague confusion are necessary to understand the theory behind the Higgs Boson.

The presentation was closed out by Professor Christoph M.E. Paus, who highlighted the contribution MIT students made to the discovery of the Higgs Boson, described the process of finding evidence for the discovery of the Higgs Boson, and encouraged students to gain research experience. He said that “research is challenging … but people at MIT are used to that.”

The night ended with a Q&A session with the four professors. My brain was too overloaded by all the theoretical thinking at this point to raise any intelligent questions. On my way back from the lecture, I realized the event had actually given me many more new questions to think about. One question was raised by the professors themselves: What’s next after the Higgs Boson? Farhi admitted during the Q&A that there are many unsatisfying points about the Standard Theory which indicate many more discoveries like this remain to be found. “We know this is not the end of the theory,” he said.

The lecture left me still unsure about the nature of the Higgs Boson. I went to the lecture expecting a simple explanation, after which I would be an expert on the Higgs Boson, but quantum mechanics is rarely straightforward. Years of studying, questioning, and suffering through vague confusion are necessary to understand the theory behind the Higgs Boson. But, even if I couldn’t gain a full understanding of theoretical physics principles in the span of an hour, I definitely left with a sense of excitement about what I did learn.

I definitely left with a sense of excitement about what I did learn. The professors displayed so much enthusiasm about the discovery and the future developments to come. The ultimate goal of physics — to accurately and completely describe the universe — is something that I am glad to have been part of, if only for one hour on a Thursday night.
HELLO!
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So if you think you might be interested, or even if you just want to see what we do, join us for dinner in our office on the fourth floor of the Student Center (W20-483) on Sundays at 6 pm, or email us at join@tech.mit.edu
The Hertz Foundation
freedom to innovate

The Fannie and John Hertz Foundation is pleased to announce the Fall 2012 Graduate Fellowship Awards.

Mr. Chen, Ms. Moynihan, Mr. Ramanan, and Mr. Yu are 4 of 15 exceptionally talented and creative young innovators to receive the Hertz Graduate Fellowship Award of up to $250,000 in the Applied Physical, Biological and Engineering Sciences.

The Hertz Foundation would like to extend congratulations to the Massachusetts Institute of Technology for attracting these Hertz Fellows to the MIT graduate program.

Learn More or Apply for a 2013 Hertz Foundation Fellowship www.HertzFoundation.org

CONGRATULATIONS
Allen Yuyin Chen
Bioengineering

Kelly Moynihan
Biomedical Engineering

Vyas Ramanan
Bioengineering

Yun William Yu
Applied Mathematics

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2012 Endowment
MIT’s overall investments up 5%

Endowment, from Page 1

Jane Mendillo, president and CEO of the Harvard Management Company, attributed 2012’s performances to “unresolved macroeconomic headwinds” in the Harvard Gazette. MIT’s Report of the Treasurer was released last month. Executive Vice President and Treasurer Israel Ruiz SM ’01 has declined to make further remarks on MIT’s 2012 performance. The MIT Investment Management Company did not respond to The Tech’s requests for comment.

The varying performances among universities are due in part to the disappointing performance of emerging markets in 2012. The S&P 500, a benchmark for investments in domestic equities, returned 5.5 percent. The Harvard Management Company invested roughly equal amounts in emerging markets, developed foreign markets, and U.S. markets in 2012, according to a September report from Mendillo. MIT-IMCo invests more than three times as much in developed and domestic markets than in emerging markets.

The 4.6 percent of MIT’s endowment allocated for spending in FY 2012 made up 15.7 percent of the $3.0 billion collected in operating revenues, assets from which funds are pulled to run MIT. The lion’s share of these assets comes from research grants, which comprised just over half of FY 2012 operating revenues and totaled to more than five times MIT’s income from tuition. Gains from a pool of investments distinct from the endowment investments also contribute to the cash flow into the operating budget. The FY 2012 returns from these investments were worse than those from the primary endowment investment pool. All together, MIT’s investments grew 5 percent in FY 2012.

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Jets
Their offense couldn’t get any
rushing. Cleveland started off
they become too one-dimension-
Mark Sanchez threw an intercep-
the AFC’s best team, the Houston
allowing three touchdowns to
game. Their running game will be
should be well rested for this
Predictions: 24-17 Ravens

Indianapolis Colts @ New York Jets
Saturday, Oct. 13, 1 p.m.
The Colts shocked the Packers last week in an emotional game after their Head Coach Chuck Pagano was diagnosed with leu-
they have an outstanding defense in the
in the second half after allowing three touchdowns to New Orleans. In the first half Andrew Luck set a record for passing yards in a game for a rookie with 362 yards. He has a really good connection with long-
time Colts great Reggie Wayne, and they are becoming a fear-
some duo. The Jets nearly beat the AFC’s best team, the Houston Texans, but they let slip away as Maximum pressure on an intercep-
tion with 1:51 remaining. The Jets still have not won in the first half, and they become too one-dimension-
al offense to win consistently.

Cincinnati Bengals @ Cleveland Browns
Saturday, Oct 13, 1 p.m.
The Browns looked flat against Miami, with QB Andy Dalton throwing for 323 yards and the Browns defense effec-
tions and not be-
ing able to move the ball. Their de-
defense has been poor, however, holding Reggie Bush to under 50 yards rushing. They were up 14-0 well against the Giants, jumping out to a 14-0 lead before the Giants scored. The Browns cut down on the interceptions if Cleveland wants a chance to win Sunday. Fun fact: the Browns have not won a division game since 2010.

Detroit Lions @ Philadelphia Eagles
Sunday, Oct 13, 1 p.m.
Detroit has been unimpressive this season so far. The Lions were out of the gate to a 1-3 start, they travel to the Eagles for a tough game against the Ea-
Stafford still leads the NFL with the best passing attack in the NFL, but De-
’t haven’t been able to convert in the red zone. They will have difficult doing so this week as well. The Eagles offense cut off another close game, this time a loss, to the Pittsburg Steelers, so they will be looking to right the ship. Once again, the story of the game was Michael Vick. The Eagles have to hold onto the ball, juggling three times and losing two of those fumbles, but intelligently, and the Eagles are one of the most complete teams in the

Oakland Raiders @ Atlanta Falcons
Sunday, Oct 13, 1 p.m.
Atlanta won last week, unbeaten in their site. They look to defend the No. 1 pick of the first time in franchise history. They took the lead with 2-4 re-
main and the Falcons are back. The less Redskins couldn’t muster enough offensive firepower to win the game. Expect Matt Ryan to pick up the slack.

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Dallas Cowboys @ Baltimore Ravens
Sunday, Oct 13, 1 p.m.
Dallas heads to Baltimore coming off an embarrassing loss to the Chicago Bears. Tony Romo looked lost as he threw 4 interceptions and two inter-
ceptions, two of which were returned for touchdowns. It won’t get any easier this week as they play the Ravens, a known for their defense. Even though Baltimore was stagnant last week against Kansas City, they man-
aged to pick up almost 500 yards and a superb defensive effort. Ray Rice went on to blow out the Browns.

Buffalo Bills @ Arizona Cardinals
Sunday, Oct 13, 4:05 p.m.
The Bills defense was nonex-
less franchise, allowing 45 points and over 300 yards rushing. Since their first half lead last Monday, the Bills offense against the Patriots, the Bills offense has been out-
scored 90-10 — not the sign of a playoff team. In consecutive weeks, the Bills have allowed al-
most 1200 yards of total offense, which is a record. The Arizona NFL is no longer a winning streak after losing last week to the Rams. Their offensive line play must improve if they want to keep Zeke Elliott healthy, but their defensive continuity must be strong.

Minnesota Vikings @ Washington Redskins
Sunday, Oct 13, 4:25 p.m.
This week, and the Vikings are quickly cementing themselves among the NFC’s best. Percy Harvin and Adrian Peterson have been huge this season. Harvin looks like he has found his game, and teammateerials. Adrian Peterson has not been able to sprint for over 300 yards, and Rivers was sacked for over 300 in the past two games. The Vikings are currently third in the NFC North, which hurts their playoff hopes.

New England Patriots @ Seattle Seahawks
Sunday, Oct 13, 4:05 p.m.
England started off their game last week against Denver looking terrific on offense. They jumped out to a quick 31-7 lead, but their defending defense allowed Peyton and the Broncos to creep back into the game. Luckily Copenhagen has enough time, but their defensive effort has to be con-
scious of the great running backs they’re faced with.

Washington Redskins

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Walker Peterson '15 made it 6-0 in MT’s favor with a 6-1, 6-2 victory in the No. 5 match.

South Carolina's C.J. Ponder has 100-yard rusher for 19 straight games now, an incredible feat considering some of the great running backs they’re faced with.

Women's Soccer vs. Springfield College
1 p.m., Roberts Field
Women's Tennis vs. Virginia College
2 p.m., Rockwell Cage
Women's Soccer vs. Springfield College
4 p.m., Roberts Field

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