MIT's Oldest and Largest Newspaper



FRI: 70°F | 54°F
Rain

SAT: 67°F | 48°F
Windy

SUN: 63°F | 50°F
Mostly sunny

Volume 131, Number 44 tech.mit.edu Friday, October 14, 2011

Not so fast, neutrinos

MIT physics professors examine the subatomic speed limit controversy

By Stephanie Holden

On Sept. 23, European scientists announced that they had observed neutrinos, a class of subatomic particles, traveling faster than the speed of light — the universe's fundamental "speed limit." The experiment, OPERA (Oscillation Project with Emulsion-tRacking Apparatus), was a collaboration between the Italian Gran Sasso National Laboratory (LNGS) and Europe's high-energy physics laboratory CERN. Since the announcement of this anomaly, the scientific community has been hotly debating its validity, as well as the possibilities that could arise from such results.

MIT Physics Professor Scott A. Hughes said, "Carl Sagan had this saying, that extraordinary claims require extraordinary evidence. This is not extraordinary evidence."

Hughes pointed out that the OPERA experiment was not originally designed for measuring the speed of neutrinos. The main goal was to transmute — or convert — one type of neutrino, called a muon neutrino, into a tau neutrino, a heavier type of particle.

Hughes conceded that the researchers "have done as good a job as they can, but this is extremely hard to measure ... there's this table of systematic errors in their measurements, and one error tends to dominate. If they combined their errors in a different way, their results could have been within the error bars."

"I don't think the paper is outlandish," added Physics Professor Janet Conrad.

However, she and Physics Professor Frank Wilczek — a Nobel laureate — both said that the main evidence that contradicts OPERA's result is the data set from Supernova 1987A, when neutrinos produced from the star explosion arrived

Neutrinos, Page 15



Members of LBGT@MIT hosted a colorful closet in Lobby 10 on Wednesday, a day after National Coming Out Day. Members of the MIT community were welcome to "come out" of the closet throughout the day.

Former MIT police officer D'Amelio sentenced to 2.5 years in jail

Former MIT police officer Joseph D'Amelio, charged in 2009 for trafficking prescription drugs, was sentenced to two-and-a-half years in jail at his trial Tuesday.

D'Amelio was arrested in uniform in March 2009 when Boston Police caught him buying OxyContin and Roxicodone pills — both of which contain oxycodone — in East Boston. At his arraignment, D'Amelio was charged with

trafficking more than 100 grams of oxycodone — an offense which carries a sentence of between 10 and 20 years in state prison.

D'Amelio pleaded guilty to — and was sentenced for — the lesser charge of possession with intent to distribute. However, court documents explicitly state that he left the site of the oxycodone deal with "a list of prices," not the pills them-

selves (as had been previously reported).

D'Amelio was sentenced to serve in Boston's Suffolk County House of Correction, but his defense counsel requested that he serve his time in the Dukes County Jail in Martha's Vineyard — a significantly more pleasant facility — instead. The court subsequently recommended that D'Amelio go to Dukes County, but Suffolk County

District Attorney Press Secretary Jake Wark said that D'Amelio's chance of serving there was "slim."

As of Thursday evening, it was unclear where D'Amelio will serve his sentence.

Speaking on behalf of the prosecution, Wark said, "We've obtained an outstanding result for a defendant who never had physical possession of the drugs."

—Adisa Kruayatidee

House dining popular with 15's

1,888 students enrolled in dining plan, 45% are freshmen

By Ethan A. Solomon

Etnan A. Solo EDITOR IN CHIEF

The new House Dining program is popular among freshmen, but less so among upperclassmen, according to enrollment statistics released to *The Tech* by the Division of Student Life. The mandatory meal plan for residents of Maseeh, Baker, Next, Simmons, and McCormick amassed a total enrollment of 1,888 students, 45 percent of which are freshmen.

Fourteen percent of all dining plan participants do not live in a dining dorm and voluntarily opted in, and 14 percent of all students in non-dining dorms joined the program. In addition, 719 students chose to "opt-up" from a required meal plan to a more expensive one. The cheapest plan — "Any 7," available only to juniors and seniors — is \$2,500/year for 210 meals, and the most expensive — required for all Maseeh freshmen — is \$4,500/year for 570 meals.

Out of the 446 juniors and seniors who were eligible for Any 7, 110 of

Dining, Page 7

Who has a dining plan?

1888 students (45%) are on an MIT dining plan

36% dining-dorm freshmen 9% 51% dining-dorm upperclassmen opt-in freshmen opt-in upperclassmer

38% of freshmen who weren't required to buy a dining plan **bought one anyway**

Only 4% of upper-classmen did this

Who is on the full 19 plan?

Students on this plan have all meals provided by MIT— breakfast, lunch, and dinner on weekdays, and brunch and dinner on weekends. For freshman in Maseeh, this plan is mandatory.

45% are freshmen in Maseeh, who are required to have this plan

43% are freshmen not living in Maseeh, for which this plan is **not** required.



Upperclassmen stick with Any-7

Juniors and Seniors in dining dorms were given the option of a less substantial plan in which they are allowed 7 meals per week. This plan will no longer be offered after the 2012-2013 academic year

75% of students who were offered this plan chose it



MIT tackles hunger

MFWH organizes 12 hr. hunger strike

By Adisa Kruayatidee

STAFF REPORTER

What's for lunch? Next Friday,

participants in Hunger Strike will be tackling significantly larger-scale hunger issues. The planned 12-hour fast marks the conclusion of Hunger Week, a series of events and fundraisers sponsored by MIT Fighting World Hunger (MFWH). Community members are welcome to commit to the Strike by paying \$5 for an event T-shirt.

Ting Mao '14, founder of MFWH, said Hunger Week's main goals

were to kickoff the club's yearround commitment to raising hunger awareness. Around campus, the club's black-and-red posters read, "Are you hungry? One in seven in the world are."

Hunger Week will feature a canned food drive as well as T-shirt and challah fundraiser sales. MFWH's operating base will be the Hunger Week booth in Lobby 10, running from 9 a.m. to 5 p.m. Monday through Friday, where students can learn more about world hunger

Hunger Week, Page 8

IN SHORT

Nominate a member of the Class of 2010, '11, or '12 for a spot on the MIT Corporation! Nominations are open until Oct. 30. Visit http://bit.ly/MITCorpNomination for more information.

DAPER is offering three new PE classes this quarter: broomball, rifle, and boot camp for athletes. Visit *http://mitpe.com/* to learn more.

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

HOW DOES THE TECH WORK?

Learn more about what we do and why we do it. **EDITORIAL**, **p. 4**

LEGALIZE IT!

Most of you agree, we should legalize pot. **OPINION**, **p. 5**

GET LOST IN TIME

A history of cinema in clocks, watches, and timepieces. **ARTS**, p. 10



SIT DOWN WITH ANDY MCKEE

Fingerstyle guitarist chats with *The Tech's* Jeff Chen. **ARTS**, **p. 9**

TEA TOO HOT FOR YOU?

Hal Anil examines the Tea Party movement, and what MIT thinks of it. **OPINION**, **p. 6**

SECTIONS

World & Nation .	2
Opinion	4
Arts	9
Fun Pages	. 11
Sports	.20

New leader named for bankrupt solar company Solyndra

 $A \, bankrupt cy \, court \, on \, Thursday \, approved \, the \, hiring \, of \, a \, chief$ restructuring officer at the California energy company Solyndra. R. Todd Neilson, who served as the bankruptcy trustee for the boxer Mike Tyson and the rap impresario Suge Knight, will now lead Solyndra as it struggles to emerge from bankruptcy.

The company president, Brian Harrison, who appeared before a House subcommittee Sept. 23 but invoked the Fifth Amendment, resigned on Oct. 7, the company said in a court filing. It said Harrison's position was to be superseded by Neilson, a director of Berkeley Research Group, based in Los Angeles.

The House Committee on Energy and Commerce plans a hearing on Friday to examine whether the Energy Department acted properly earlier this year when it allowed Solyndra, which took \$528 million in government loans before declaring bankruptcy, to restructure the loans and accept money from an additional lender. The new lender would have precedence over the government in a liquidation.

—Matthew L. Wald, The New York Times

Obama says facts support accusation of Iranian plot

WASHINGTON - President Barack Obama on Thursday vowed to push for what he called the "toughest sanctions" to punish Iranian officials whom he accused of complicity in a suspected plot to kill the Saudi ambassador to the U.S.

At the same time, State Department officials said U.S. officials had been in direct contact with the government of Iran over the accusations.

In his first public remarks on the issue since it was revealed Tuesday, Obama sought to counter skepticism about whether Iran's Islamic government directed an Iranian-American car salesman to engage with a Mexican drug cartel to assassinate Saudi Arabia's ambassador to the U.S. and carry out other attacks. Obama insisted that U.S. officials "know that he had direct links, was paid by, and directed by individuals in the Iranian government."

The president said the administration had reached out to its allies and the international community to make its case. "We've laid the facts before them," Obama said at a news conference conducted with the visiting South Korean president, Lee Myung-bak. "And we believe that after people have analyzed them, there will not be a dispute that this is in fact what

—Helene Cooper, The New York Times

As China's economy cools, loan sharks come knocking

WENZHOU, China — As China's economy has begun to slow slightly, more entrepreneurs are finding themselves unable to meet debt payments to loan sharks on which interest rates often run as high as 70 percent in this nation's thriving unregulated, underground loan system. Many private businesses in China routinely use lenders of this sort because the government-run banks typically lend only to big state-run corporations.

Such illegal lending amounts to about \$630 billion a year, or the equivalent of about 10 percent of China's gross domestic product, according to estimates by the investment bank UBS.

In recent months, at least 90 business executives from Wenzhou, a one-hour flight south of Shanghai, have disappeared because of mounting debts and impending bankruptcies, according to a local government report.

This has raised concerns that private business may be losing steam — while exposing the high-risk, unregulated financial system on which so many of the nation's small and mediumsize businesses have come to depend.

—David Barboza, The New York Times

Wall Street protesters clean up, hope to avoid eviction

By Anemona Hartocollis THE NEW YORK TIMES

NEW YORK — Young people in

knit hats and jeans scurried around Thursday wielding brooms and trash bags, moving mountains of sleeping bags, backpacks and jackets out of

By cleaning up Zuccotti Park on their own, they were trying to persuade the park's owner, Brookfield Properties, to back down from its plan to send in cleanup crews Friday morning and begin to enforce new rules on the use of the park that would end the Occupy Wall Street protest, at least in its current form.

But as the day wore on, it seemed that the protesters' efforts to placate Brookfield might, in the end, not matter, and all sides were girding for a Friday showdown. The police said they were ready to step in if the company asked for help in removing protesters or enforcing the new rules, while protesters planned to form a human chain around the park and, using Facebook and Twitter, called on sympathizers to join them.

Some protesters saw the cleanup as tantamount to an eviction notice, and they vowed to stand their ground, even if it meant being arrested. "This is a public park privately held — I don't even understand what that means," Travis Nogle, a 32-year-old protester and "earthship builder" from San Francisco said as he changed his shoes and prepared to pitch in with the cleanup. 'We have a constitutional right to protest."

Zuccotti Park, a plaza that takes up an entire downtown block, is owned and maintained by Brookfield but open to the public. While the police have confronted and arrested demonstrators during marches in the streets and on the Brooklyn Bridge, they have largely left the Zuccotti Park protests untouched, allowing the people there to camp out around the clock while ringing the park with barricades and dozens of officers.

But in a letter to the police commissioner, Raymond W. Kelly, this week, the company's chief executive, Richard B. Clark, said that sleeping protesters were blocking walkways "at all hours of the day and night." The letter said there had been neighborhood complaints of

"lewdness, groping, drinking and drug use" and that the company had not been able to perform its daily maintenance.

"We fully support the rights of free speech and assembly," he wrote, "but the matter in which the protesters are occupying the park violates the law, violates the rules of the park, deprives the community of its rights of quiet enjoyment to the park, and creates health and public safety issues that need to be addressed immediately."

The company circulated a notice in the park Thursday explaining its plan: It would clean a third of the park at a time, allowing protesters to return to each section once the job was done. More important, however, was the company's vow to enforce new rules that it imposed after the protest began about a month ago, which seem aimed at the very essence of the occupation: no camping, no tents, no tarps, no sleeping bags, no lying on the ground or on benches, and no storage of personal property on the ground or walkways "which unreasonably interferes with the use of such areas by others," the company said in its notice.

Drone strike in Pakistan kills Haqqani commander

By Scott Shane

THE NEW YORK TIMES

WASHINGTON — A CIA drone strike Thursday killed a high-level commander in the Haqqani network, the militant group that has been the largest killer of U.S. troops in Afghanistan, U.S. officials said.

The officials said they had confirmed the death of Janbaz Zadran, who has often been described as the third-ranking leader of the Haqqani network, near Miram Shah in North Waziristan, part of Pakistan's tribal

"His death in Miram Shah makes him the most senior Haqqani leader in Pakistan to be taken off the battlefield," said a U.S. official, who spoke on the condition of anonymity about the nominally secret drone program.

Two missiles hit a house and a vehicle, killing Zadran and three other people, according to Pakistani officials and local news reports. A second drone strike in South Waziristan killed three people, the officials said.

Zadran, also known as Jamil, was an important link between Haqqani fighters in Afghanistan, who are allied with the Taliban, and the network's hub in Miram Shah, where it has established a sort of ministate that includes tax collectors, courts and schools to train Islamic fighters. He was the chief organizer of the supply chain across the border for weapons and other goods, according to experts on the network.

Zadran served as a top aide to Sirajuddin Haqqani, the network's operational commander and the son of the group's patriarch, Jalaluddin Haqqani. In the 1980s, the elder Haqqani was part of a coalition of Islamist militias, backed by the CIA, that fought the Soviet army in Afghanistan; in recent years, however, his group has become a major target for the agency's campaign of strikes using missiles fired from

A study last year by the New America Foundation, a Washington research group, said Zadran was in charge of Haqqani network finances as well as weapons acquisition. While not an experienced military leader, he came from the Haqqanis' home village of Srani in Paktia province in Afghanistan and was among their most trusted deputies, the study said.

Brian Fishman, a counterterrorism expert and one of the authors of the New America paper, said that while the drone strikes in Pakistan had been quite effective against al-Qaida, whose leaders are mainly non-Pakistanis, they may be less devastating for a group like the Haqqani network.

The Haqqanis have deep local roots, so they just have a deeper bench," Fishman said.

WEATHER

Seasonable weekend to follow soggy Friday

By Austin DiOrio STAFF METEOROLOGIST

Today looks to be a wet and gloomy Friday. A large low pressure system centered over Michigan will pull warm, moist air from the Atlantic Ocean into the New England region. Significant rainfall is possible as thunderstorms will be embedded within the rain bands.

After the storm departs into Canada, clear skies will

filter into Cambridge. Contrary to the summerlike conditions last weekend, temperatures will be very seasonable this time around with highs in the mid 60s. Although the temperatures will be comfortable, it will be quite breezy due to the proximity of the strong low pressure system. Still, this weekend looks to be a winner. Enjoy this weather while you can. We all know what winter in Cambridge can bring.

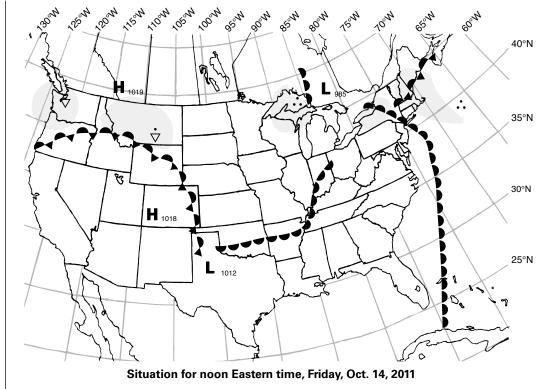
Extended Forecast

Today: Rain with thunderstorms possible. High 70°F. Upwards of 1 inch of rain possible. Winds SE at 5-10 mph. Tonight: Showers coming to an end around midnight. Low

Tomorrow: Mostly sunny and windy. High 67°F. Winds SW at 15-20 mph. Low 48°F.

Sunday: Mostly sunny. High 63°F. Low 50°F.

Monday: Sun and clouds. Highs in the mid 60s. Lows in the



Weather Systems	Weather Fronts	Precipitation Symbols			Other Symbols	
			Snow	Rain		Fog
High Pressure	Trough	Showers	*	$\dot{\nabla}$	-	
Low Pressure	Warm Front	Light	*	-	17	Thunderstorm
Low Hessure	▲▲▲▲ Cold Front		-	_		Haze
8 Hurricane	Cold From	Moderate	**	••		piled by MIT
3 minicane	Stationary Front	Heavy	.*.	·		orology Staff

Friday, October 14, 2011

Dennis Ritchie, programming trailblazer, dies at 70

By Steve Lohr
THE NEW YORK TIMES

Dennis M. Ritchie, who helped shape the modern digital era by creating software tools that power everything from search engines like Google to smartphones, was found dead Wednesday at his home in Berkeley Heights, N.J. He was 70.

Ritchie, who lived alone, had been in frail health in recent years after treatment for prostate cancer and heart disease, said his brother Bill.

In the late 1960s and early '70s, working at Bell Labs, Ritchie made a pair of lasting contributions to computer science. He was the principal designer of the C programming language and co-developer of the Unix operating system, working closely

with Ken Thompson, his longtime Bell Labs collaborator. The C programming language, a shorthand of words, numbers and punctuation, is still widely used today, and successors like C++ and Java build on the ideas, rules and grammar that Ritchie designed. The Unix operating system has similarly had a rich and enduring impact. Its free, open-source variant Linux powers many of the world's data centers, like those at Google and Amazon, and its technology serves as the foundation of operating systems, like Apple's iOS, in consumer computing devices.

"The tools that Dennis built — and their direct descendants — run pretty much everything today," said Brian Kernighan, a computer scientist at Princeton University who

worked with Ritchie at Bell Labs.

Those tools were more than inventive bundles of computer code. The C language and Unix reflected a point of view, a different philosophy of computing than what had come before. In the late '60s and early '70s, minicomputers were moving into companies and universities — smaller and at a fraction of the price of hulking mainframes.

Minicomputers represented a step in the democratization of computing, and Unix and C were designed to open up computing to more people and collaborative working styles. Ritchie, Thompson, and their Bell Labs colleagues were making not merely software but, as Ritchie once put it, "a system around which fellowship can form."

Massachusetts clears big hurdle in approval of casinos

By Jess Bidgood

THE NEW YORK TIMES

BOSTON — The Massachusetts Senate passed a bill Thursday that would legalize casino gambling, paving the way for three resort-style casinos and one slots parlor in the state.

Past attempts to legalize casino gambling failed, but the idea gained popularity recently as the recession tempered the state's economic growth. The Senate bill passed 24-14 after days of debate. Last month, the state's House passed a bill allowing

the same number of gambling establishments. Some differences remain, but they are expected to be resolved in a conference committee of the Democratic-controlled Legislature, and Gov. Deval Patrick has indicated he will sign the final legislation.

Last year, a gambling measure failed when Patrick and the House speaker, Robert A. DeLeo, disagreed on the number of slots parlors. The new legislation emerged after months of closed-door negotiations involving Patrick, DeLeo, and Senate President Therese Murray.

Scott Harshbarger, a former state

attorney general who is now president of the anti-casino group Citizens for a Stronger Massachusetts, criticized what he said was too much secrecy.

"This was just a classic, Massachusetts, behind-closed-doors power play by the special interests and lobbyists and casino owners," Harshbarger said. "Only the public interest lost."

Supporters promote casino gambling as a major job creator, saying it will drive industry growth in construction, service and tourism.

Fund chief Rajaratnam sentenced to 11 years for insider trading

NEW YORK — The fallen hedge fund billionaire Raj Rajaratnam received the longest prison sentence ever for insider trading on Thursday, capping an aggressive government campaign that has ensnared dozens and may help deter the illegal use of confidential information on Wall Street.

Judge Richard J. Holwell of Federal District Court in Manhattan sentenced Rajaratnam, 54, the former head of the Galleon Group hedge fund, to 11 years in prison. A jury convicted Rajaratnam of securities fraud and conspiracy in May.

"Insider trading is an assault on the free markets," said Holwell, who also imposed a \$10 million fine and ordered Rajaratnam to forfeit \$53.8 million in ill-gotten profits. "His crimes reflect a virus in our business culture that needs to be eradicated."

The sentence was a watershed moment in a two-year push by federal prosecutors. Over that period, Preet S. Bharara, the United States attorney in Manhattan, has brought charges against 54 people with insider trading crimes. Of those, 50 have been either pleaded guilty or have been convicted at trial. Three others' situations are pending, and the fourth is a fugitive.

—Peter Lattman, The New York Times

French criminal charges against Strauss-Kahn dropped

PARIS — For the second time this year, Dominique Strauss-Kahn escaped criminal charges of attempted rape, despite what prosecutors here said was evidence of sexual assault, ending months of scandal that have tarnished a political career that once seemed destined to lead to the French presidency.

There was evidence from Strauss-Kahn's own testimony of sexual assault in a 2003 encounter with a French writer and novelist, Tristane Banon, the prosecutor said in a statement, but given a three-year statute of limitations on that charge, no case would be brought.

"Facts that could be qualified as sexual assault have been acknowledged," the statement said.

The decision of the prosecutor was no surprise, given the age of the case and the difficulty of finding physical evidence so long after the event

But once more, as in this summer's case in New York involving a hotel housekeeper, Strauss-Kahn has escaped a criminal trial on sexual charges. In the New York case, criminal charges of attempted rape were dropped in August because of doubts about the credibility of his accuser, Nafissatou Diallo, who had lied in other instances of sworn testimony.

In some sense, Strauss-Kahn, 62, appears to be lucky. But he has been personally chastened and humiliated in a very public fashion, and his political career has been derailed by the charges.

—Steven Erlanger and Maia De La Baume, The New York Times

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EDITORIAL

How The Tech works

Why (and how) do we print a paper twice weekly?

For many of our readers, The Tech might be something of an enigma. The paper we publish twice a week is readily and freely available on campus, of course, but rarely will our readers get a real sense of the process behind those issues just by reading them. Since *The* Tech is MIT's only remaining newspaper, and because the community (and world) depends on our work to learn about MIT, we feel it is our obligation to explain what we do and why we do

All newspapers — from college publications to The New York Times aspire to serve their readership with the interesting, important, and relevant truth. The idea of journalism is to sort right from wrong and fact from rumor, and to do it for the things that really matter. Readers look to newspapers to help them make decisions - who to vote for, what policy to support, where to spend money, and so

The Tech's role at MIT is just that. Simply put, we seek to inform the MIT community.

But to do so is challenging. Not only must The Tech sort fact from fiction on a campus where there is plenty of both — but we must also judge what is important enough to cover. Given a finite amount of reporters, editors, and time, not every story will make the cut. On top of that, our paper is a volunteer organization, and all of our volunteers also happen to be busy MIT students.

So how do Tech reporters and editors put together a story? When we decide something is worth writing about (a decision that is often influenced by reader feedback), reporters go out and ask questions. Most stories have at least two sides; we seek to talk to as

many people as we need to in order to present our readers with all relevant perspectives. Those people are most often MIT students, faculty, and staff, but occasionally our reporting takes us beyond the campus borders.

Alongside editors, Tech reporters synthesize the facts they collect into a coherent story. Some of what we learn in the course of interviews turns out to be irrelevant to a story. Other things turn out to be more important than we'd originally thought, and we may go back for a second or third interview. The road from idea to article is rarely linear.

All newspapers aspire to serve their readership with the interesting and relevant truth.

"Balance" or "bias" are always tricky things. How can we ensure that a reporter has not inadvertently missed an important perspective? Worse, what if *The Tech* feels pressure to cover some stories and ignore others because of motivators that have nothing to do with the content of the story itself?

It is impossible to completely, fully, without-a-doubt divest ourselves of sources of bias. However, *The Tech* has several measures in place to maximize objectivity.

First, and most importantly, our newspaper is a financially-independent organization. We do not accept money from MIT or student governments to operate. The Tech's revenues

come from advertising and donations. We are free to cover issues in the community without fear of financial retribution.

Second, we make every effort to assign reporters to stories in which they have no personal stake. It is important to us that our reporting not be influenced, even inadvertently, by a reporter's personal feelings or interests. In addition, every article will see several rounds of editing before finally going to print.

Third, we maintain editorial separation between the news and opinion sections of our newspaper. News reporters do not also write opinion columns, or vice versa. Only in the opinion section (starting on page 4) will you find statements like "MIT should ..." or "This policy is bad because" If the page is marked with the word "opinion" along the side, you are not reading objective reporting, you are reading someone's personal

"Editorials" - which are labelled as such - represent the official opinion of the newspaper and are written by the Editorial Board. Editorials allow The Tech to take a stand on issues of local or national importance.

In addition to serving the community, The Tech also upholds a mission to educate our staff on matters of writing, photography, design, and journalism. To achieve our educational and journalistic missions, we want feedback from you. Community members are always welcome to engage with us through email (general@tech.mit. edu will reach our executive board) or telephone (617-253-1541), or by visiting our office on the fourth floor of the Student Center (W20-483).

LETTERS TO THE EDITOR

Mischaracterizing facts defeats argument legal system

Ryan Normandin's opinion article last week, "Why moving farther right is so wrong," was as intellectually dishonest as it was insulting.

Normandin routinely misrepresented facts. Two misled individuals, out of a group of over 5,500 spectators, booed at a gay soldier's question at the third Republican debate. These two individuals somehow justified Normandin's characterization of "the audience excitedly took part in booing."

When the audience cheered a talking point on protecting individual freedom of choice in medical practice, Normandin once again took a shot at the audience by calling the response "[cheering] that the uninsured should be left to die." These are just two of the many misrepresentations in an opinion article saturated with untruths.

When trying to make a point, I would encourage Normandin to remain intellectually honest. It is almost painful to read articles such as his, where disregarding fact is the very basis of your opinion.

Adam Edelman '14

Three cheers for the

I just finished reading last Friday's column "Why moving farther right is so wrong" and I felt compelled to write in to voice my opinion. Normandin wrote about "disgusting" responses from the audience of the GOP debates. He was referring to cheers from the audience that occurred when Brian Williams and Rick Perry were speaking about the use of the death penalty. Normandin said, "Regardless of your stance on the death penalty, there is no excuse for celebrating the death of a human being."

It is here that I disagree. Instead of using the word "disgusting" to describe the cheers of republican voters, I would use the word to describe the individuals upon which the death penalty is enacted. I believe there are certain people in this world who act in ways that require their removal from society. These people include murderers and rapists. If a person is convicted by a jury and sentenced to death, all through due process, then I endorse the state-sponsored killing of that person. Do

I celebrate it? That might be a stretch. Am I happy that a murderer is no longer alive? Absolutely. Would I cheer for the legal system working properly and keeping me safe by removing disgusting individuals from society? Yes. Would I cheer for Perry and his use of the death penalty in order to kill convicts sentenced to death? Yes.

When the United States killed Osama bin Laden, I celebrated enthusiastically. Granted, his crimes are more well known and wider in scope than most executed in Texas, but I believe the principle is the same. Let me be clear; I am not happy that individuals commit the crimes that they do. I am deeply saddened when I hear atrocious stories behind some of these death penalty cases. However, I am happy that the offenders are rightfully punished. I wish that people put to death in Texas had never committed the crimes they did, and I wish that there was no need to consider taking someone's life as punishment. But some people leave us no choice.

Overall, the article was good. I might t agree with it, but it was well written and argues a believable point.

Keep up the good work guys.

Owen Rees '14

OPINION POLICY

Editorials are the official opinion of The Tech. They are written by the Editorial Board, which consists of Chairman Joseph Maurer, Editor in Chief Ethan A. Solomon, Managing Editor Connor Kirschbaum, Executive Editor Aislyn Schalck, and Opinion Editors Nina Sinatra and Ryan Normandin.

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

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

Letters, columns, and cartoons must bear the authors' signatures, addresses, and phone numbers. Unsigned letters will not be accepted. The Tech reserves the right to edit or

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

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

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FRIDAY, OCTOBER 14, 2011 THE TECH 5

Government is a crappy venture capitalist Solyndra deserves more credit than the media is giving it, but not much

By Keith Yost STAFF COLUMNIST

Solyndra deserves more credit than the media is giving it. But not much.

Any discussion of the Obama administration's ill-fated decision to loan more than half a billion dollars to Solyndra, the now-bankrupt solar cell manufacturer, needs to begin with the obvious: the prospects for solar power competing economically as a source of grid power are virtually

The cost of a solar panel system is usually quoted in dollars per watt-peak (peak watts being the output of the system under optimum natural lighting). After compensating for a few factors, primarily the difference between peak wattage and average wattage (the sun does not shine 24 hours per day), a \$1/Wp photovoltaic system is roughly cost competitive with a \$4000 per kilowatt-capacity nuclear plant (a plausible nuclear price tag which is, under some analyses, almost cost competitive with natural gas or coal).

To put that in perspective: the cheapest photovoltaics we have today cost \$4-\$6/ Wp. Even the best of the world's solar panel makers (which in my humble opinion, is the U.S's own First Solar), will be very lucky to reach \$1/Wp for just their cells in the next two decades. And should they even reach this goal, they have little hope to reduce the balance of system costs associated with solar. Between the inverter, the labor to install the panels, and all the other ancillary costs, the price one pays on top of the cells themselves for a working photovoltaic collector come to \$1.50-\$2/Wp. In the final tally, even if you give away all of the components of a solar system for free, just the labor to mount the panels and wire them together is often enough to make solar more costly than natural gas.

And so, even if there were magical leaps and bounds in the technology of solar panel manufacturers, some cost components of solar power are going to remain and likely ruin whatever hopeful notions of cost parity that the industry might entertain.

In a paradoxical way, these reasons for why solar power is a pipe dream are also the same reasons why Solyndra deserves more credit than it has gotten. No evolutionary process is going to push solar past the threshold of grid parity - to make solar power work, we need a crazy, long-shot gamble, and Solyndra was just that sort of insane moon shot. Here are the things Solyndra got right:

Firstly, Solyndra avoided the use of silicon in its cells. Polysilicon production uses mature, energy-intensive technologies that are unlikely to make any significant improvements over the next half-century. Even with sizable gains in wafer cutting technology (thinner silicon wafers mean less material per cell), polysilicon is like the labor to mount panels — a large enough and intractable enough cost to sink solar's long-term prospects. By using thin-film technologies rather than silicon, Solyndra dodged one of the least manageable cost hurdles in the PV industry.

Secondly, Solvndra aimed for high efficiency cells. All else being equal, a panel which captures 24 percent of incident light is going to cost half as much to install, per watt-peak, as a panel which is only 12 percent efficient. This is one of the few ways in which that obstinate dollar of installation labor can be reduced.

And finally, Solyndra hoped to manufacture solar cells in a different form-factor - a cylinder instead of the typical flat panels. This strikes me as lunacy, but at least it indicates Solyndra understood the significance of the challenge facing PV. The cylindrical design, they hoped, would mean less wind shear on the solar collectors and thus reduced mounting needs and lower balance of system costs.

Therefore, as pessimistic as I am about the prospects of photovoltaics, I don't see the main lesson to be gleaned here as government making bad technology bets. Yes, the technology didn't pan out (Solyndra's solar cells cost about \$3 more than their competition), but that's the nature of taking risk; as far as solar technology gambles go, Solyndra was probably the brightest one the government could have made.

And still, the story of Solyndra confirms the view of Larry Summers, that "gov is a crappy VC." It might be splitting hairs to make this distinction, but while Solyndra might have been the best technology bet in the solar industry, it was one of the worst business bets to be had.

While Solyndra might have been the best technology bet in the solar industry, it was one of the worst business bets to be had.

Solyndra's business management was abysmal — at every level of the company, workers were complaining about huge money wasting. And the timing of the company was terrible. A glut of polysilicon production, the global recession, and the end of hugely generous solar subsidies in Spain meant that Solyndra's venture was doomed even if the technological gambles paid off.

These are not, as the White House claims, unknowable downsides. These were factors that the federal government had ample time to consider as it made its loan decision. The decision to make the loan to Solyndra came after the Spanish decision to slash their subsidies - and well after the global recession had hit. And the glut in polysilicon was obvious to anyone with even a passing interest in the industry. In 2009, I estimated that just four incumbent firms — firms whose capitalized plants could manufacture polysilicon at \$20-30 per kg — could supply the world's entire foreseeable demand. Today, the price for polysilicon is at roughly \$44/kg - as old contracts expire and are re-negotiated, that price should plummet even further.

I was not alone in my assessment — it's hard to find any market analysts from 2008 onwards who had anything upbeat to say about polysilicon prices. In fact, the market's outlook on the entire solar manufacturing chain was dismal — the value of solar companies was almost wholly determined by their amount of cash on hand. Their capital, their inventory, their technology and expertise were all worthless; and why not? They were worthless before the crash too, it's just that governments were more willing to throw away taxpayer monies on worthless products before the recession hit.

That the government could step into this grim scene and so confidently misread it, going so far as to have President Obama make Solyndra the poster child for loan guarantees, demonstrates how truly terrible the government is at picking winners. Even absent any cronyism or corruption (which may still yet surface in the Solyndra case), the government is simply bad at investing taxpayer money in business

As Obama makes the media rounds, he is claiming that he has no regrets about his decision to dump \$535 million into a failing enterprise. But he should — both the loan guarantee program, as well as the specific decision to loan money to Solyndra, are

GETTING OUT OF THE RED

Legalize it

For a moment, ignore the question of whether, as a matter of principle, marijuana should be legal or illegal. What would be the net improvement of U.S. public finances if the drug were legalized and taxed?

To determine how much additional revenue would be created by legalization, the first step is to judge how large the U.S. market for marijuana is. These estimates vary widely, but both demandand supply-side analyses of the U.S. marijuana market put it in the area of roughly \$40 billion in transactions per year.

The second step is to estimate how this market would change in response to legalization and taxation. This is a little bit trickier. One could expect that if marijuana were legalized, there would be two effects on supply and demand: first, production costs would fall icantly, increasing supply; and second, by removing the threat of incarceration, consumption of the product would be more attractive, increasing demand. If the experience of the Netherlands is indicative, prices for marijuana would be reduced by half were legalization to occur. From a demand-side perspective, one might expect the quantity consumed to increase as if the price had fallen by another 20 percent.

If these assumptions are correct, and the government ended prohibition and then levied an excise tax on marijuana equal to 60 percent of the end retail value (an exclusive tax rate of 150 percent), then consumption of marijuana would remain unchanged relative to the status quo. Suppliers would sell the drug at half of the pre-legalization price and receive \$20 billion, the government would apply taxes and collect \$30 billion, and the end price to the consumer would rise, but any loss of demand would be offset by the

demand increase from decriminalization. This is a high tax rate, but not so high as to invite a resumption of black market activity in Europe, many countries tax cigarettes at an exclusive rate of 300 percent, and little black market activity exists.

New revenues are not the only budgetary effect of ending prohibition. In addition, legalization would end significant outlays on law enforcement and incarceration. Jeffrey Miron PhD '84, an economist at Harvard, has studied the budgetary effects of mari-

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juana prohibition and estimated the federal and state savings from the legalization of marijuana to be \$13.7 billion annually. This is consistent with California's experience with decriminalization - a reform which has reduced its marijuana law enforcement costs by 75 percent.

Assuming a further three percent annual growth rate in tax revenues and enforcement costavoidance, the total savings over a 10-year window from legalizing marijuana come to an even \$500

It is tempting to ignore the principle of marijuana legality altogether. After all, the above scenario does not increase total consumption of marijuana from its present state, it merely extracts rents from those involved in the market and returns them to the taxpayer at large. In a sense, it is moot if one sees a legitimate public interest in reducing marijuana use — with high but achievable tax rates, the government could discourage marijuana to the same extent that prohibition does and save itself half a trillion dollars to

And yet, to not bring up the principles behind legalization would be to give the anti-prohibi-

MIT overall

Pew Research

20

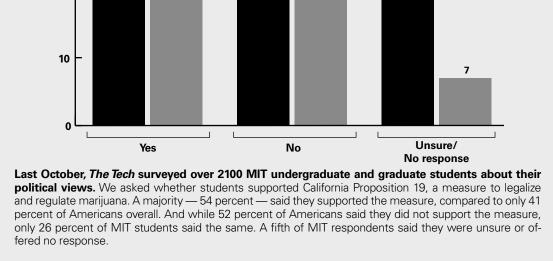
tion movement short shrift. It goes against the American character to deny a fellow man his right to the pursuit of happiness. When we do make such laws, we typically do so under one of two circumstances. The first is when one man's pursuit of happiness conflicts with another's right to life, liberty, or that same pursuit. No matter how much happiness you might obtain from it, the law cannot accommodate your hobby of stabbing people or burning down others' houses without trampling the rights of others.

The second is when society does not believe a person has the necessary mental faculties to make an informed, rational choice for themselves. For example, we deny a multitude of rights to minors, many on the grounds that minors have not reached the level of maturity necessary to act in their own self-interest. Due to the addictive nature of cocaine, as well as the considerable risk of harm that it creates, it would be fair to conclude that there is no age at which a human being has matured to use the drug with rational self-interest, and hence a justification exists for its continuing prohibition.

Neither circumstance applies to marijuana. Marijuana consumption does not interfere with the rights of others, nor is it so harmful or addictive a drug that one could rule out individuals using it out of enlightened self-interest. Like hot dog eating or white water rafting, marijuana consumption should be counted among those activities in which society trusts the individual to make a trade-off between the joys of the activity and its physical risks.

In principal and in practice, the prohibition of marijuana is selfdestructive. This country would be uniformly better off if marijuana was legalized and taxed.

Action: Legalize marijuana and tax it at an exclusive rate of 150 percent. **10-year savings**: \$500 billion.



-Keith Yost

How hot is the cup of tea? Tea Party thoughts at MIT

By Haldun Anil
STAFF COLUMNIST

The Tea Party is a very hot topic in American politics nowadays. This is especially evident in our publication, as a number of my colleagues at *The Tech* have published articles discussing the position of the party regularly. Depending on with whom you bring up the issue, however, it seems that opinions vary largely between Democrats and Republicans. When you add major media outlets and the Tea Party themselves into the mix, you're left with a huge number of diverse views.

This got me thinking: what's the feeling on MIT's campus? In an effort to find out, I asked Prof. Carlos Diaz-Rosillo of the Department of Political Science whether it was possible to have a small debate on the situation of the Tea Party so I could have a chance to hear what the students' ideas were. Happily, he agreed to help me out by moderating such a discussion in his class, 17.20 (Introduction to the American Political Process).

Diaz-Rosillo's first question was, "What effect do you think that the Tea Party's having on US politics today?" This very forthright question met a swift response from the students who said that the Tea Party serves as a major force that has begun polarizing the Capitol. Indeed, I agree

that this is a valid point, as one of the major implications of the existence of the Party is that legislators as well as the American people are more aware of the growing chasm forming between the parties. If nothing else, the Tea Party significantly exacerbates this situation by accelerating polarization on the Hill.

As the discussion continued, the students' divergence of opinions became more apparent. Some believed that the Tea Party is acting as an effective force, while others believe that it's a brief stint that has been generating a lot of noise and will start to die off soon. They also attribute this eventual possibility to the fact that the Tea "Party" is not actually a party like the two major ones and that it doesn't have the staying power to live on. Others, including myself, define it as a movement that has been gaining momentum the past few years and has been energizing the conservative base. And it is certainly an important goal to get people out to vote. Democratic turnout, after all, is how Barack Obama overcame his adversary in the '08

As the discussion went on, it was noted that the Tea Party itself was not as large as people seemed to believe and, besides identifying very strongly with the Party, many supporters don't actually participate in its activities. This led to the widespread real-

ization in the classroom that a large portion of voters are oblivious to complicated issues such as federal spending cuts, taxation, and deficit reduction and that, despite supporting the Party, they don't really understand what is being said.

Additionally, many voters are driven not necessarily by what is in their best interest, but by showmanship and preexisting prejudice toward all sides. Let's be honest here: most of the people who vote know next to nothing about the people that they claim to be supporting and vote because something caused them to identify with a particular party. It may be their families, a single issue in which they're deeply invested, or something else. While voting for someone because they care about solving a problem that you want resolved is a good starting point, it's ultimately an inadequate reason.

The class also noted that energizing the conservative base could, if not done carefully, be playing with fire. It might scare away potential moderates that may have otherwise been interested in voting for the conservative side, but fear what their representatives could be capable of should they assume the Oval Office.

Finally, Diaz-Rosillo wanted to have a vote to see what the numbers are in terms of support, disapproval, and apathy for the Tea Unsure
13%

Other
11%

Democratic Party
48%

Tea Party 2%
Socialist Party
9%

Libertarian
Party

A *Tech* survey of over 2100 MIT undergraduates and graduate students conducted last year showed that only 2 percent of MIT students felt the Tea Party best represented their views. The overwhelming plurality of students — 48 percent — felt best aligned with the Democrats. Even the Green Party, with 4 percent, took a greater share than the Tea Party.

Green

Party

Party. When asked if they thought that the Party's emergence was a good thing, eight hands were raised. Fifteen hands were raised in disagreement with the Party's activities, and three people simply did not care.

While the Tea Party's presence

may be good to stir some things up, stirring a pot and overheating its contents are hardly the same thing. The Tea Party needs to understand that overheating your tea may eventually lead to burning it. And who likes drinking burnt tea?



CORRECTIONS

Because of a production error, the SMBC comic run last Friday transposed the ordering of the last two pairs of frames. The female character's declaration of the ease of avoidance of "clingy guys" should come after the male character's statement of his inability to eat a brick, not before. The comic is reprinted in the correct order on p. 12 of this issue.



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FRIDAY, OCTOBER 14, 2011 THE TECH 7

Black smoke covers Cambridge

On Wednesday afternoon, large plumes of black smoke billowed from the MIT Power Plant after a water feed pump stopped functioning at the plant. The smoke lasted for two

MIT Power Plant Director Randall D. Preston said that the black smoke resulted from a failure in the oil atomization process. Atomization, the process of forcing oil into small droplets before it is burned, relies on high pressure steam, which is produced by water boilers. However, when the water feed pump failed at the plant on Wednesday, the boilers did not have enough water to produce the necessary steam to allow for atomization to take place.

As a result, the unatomized oil burned and released a thick black smoke into the air. Workers at the plant reacted quickly, fixing the water pump and stabilizing steam pressure to normal levels. The plant remained functional despite the incident.

The MIT Power Plant usually runs on gas, but began burning oil last Tuesday while its gas burning system underwent renovation.

According to Preston, burning oil is not ideal because it costs three times as much as

The plant finished the improvements on Wednesday and is now back to burning gas.

-Rob McQueen



Ruth D. Abrams '14, Elana Ben-Akiva '15, Noa Ghersin '14, Benjamin Z. Niewood '15, Elisabeth L. Rosen '14, Sarah J. Toledano '15, and Inbar S. Yamin '15 decorated the MIT Sukkah on Tuesday night. The Sukkah will be on Kresge Oval until Oct. 18.

45% of MIT students on dining

Plan more popular with freshmen than upperclassmen

Dining, from Page 1

them, or 25 percent, chose to opt-up to a more expensive plan. And out of the 258 students who opted-in but were not required to enroll in any plan at all, 173 were freshmen and 88 upperclassmen. In other words, 38 percent of freshmen and 3.8 percent of upperclassmen who were eligible to opt-in chose to do so.

The Tech reported last month that them to use a set number of meals per the implementation of House Dining did not appear to substantially affect upperclassman dormitory transfer rates or dormitory popularity in the freshman adjustment lottery.

Overall, the "Any" category of dining plans is the most popular, with 930 students — 49 percent of those enrolled in a plan — choosing a plan that allows

week for any combination of breakfasts, brunches, lunches, or dinners. About 30 percent of students in a dining plan chose "basic," which offers a set number of breakfasts and dinners. Twenty-three percent are enrolled in "19 Full," House Dining's most expensive plan, which affords all 19 breakfast, brunch, lunch, and dinner meals per week.

The biggest threat to depression is your awareness of it.

Serious depression is MOST dangerous when it goes unrecognized. That's why it's

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8 THE TECH FRIDAY, OCTOBER 14, 2011

MIT World Hunger club forges local partnerships *Planning collaboration with Harvard Hunger initiative for spring banquet, other events*

Hunger Week, from Page 1

issues and how to volunteer for the

Money raised during the week will be split equally between Pine Street Inn, a local homeless shelter, and Doctors Without Borders for a project specifically targeting malnutrition in the Horn of Africa. Sherry Fu '14, MFWH club head, emphasized that the club is as committed to relief close to home as it is to visible global causes. She reminds students that they can make an impact on local hunger problems, which are often overshadowed by "bigger" issues.

During Hunger Week, MFWH will also initiate its year-long project of selling nutrition bars from Two Degrees Food, a for-profit company committed to reducing child hunger. Club members will be giving out samples and holding preliminary sales at the Hunger Week booth.. For every bar sold, Two Degrees donates a nutrition medically-formulated pack to a malnourished child. The nutrition packs are manufactured in their distribution area to minimize transport costs and create local jobs. Thus far, the packs have treated severe or chronic malnutrition at 95 percent success rates and are endorsed by the World Health Organization.

The club is as committed to relief close to home as it is to visible global causes.

Professor Abhijit Banerjee, founder of the Jameel Poverty Action Lab, will give a lecture next Thursday evening on problems regarding conventional thinking about hunger. He will offer solutions to such pitfalls as skepticism about the ability to provide aid and being patronizing toward the ones helped. Banerjee agrees with MFWH's overall approach to the issue by raising awareness around campus.

"First I think you have [the] responsibility of learning what's out there - that a huge amount of energy, resources, are wasted because people are ... fighting in the wrong direction," Banerjee said.

Though it is a new club, MFWH has already reached out to collaborate with other campus organizations to spread word about its cause. Challah for Hunger will donate its profits from next week's sale to MFWH, and Amnesty International will share and promote the Hunger Week booth.

"Our solidarity and teamwork toward a common goal will ... generate the potential for a very successful fundraiser," Fu said.

Off campus, the club has al-

ready established an extensive network with local restaurants, non-profit organizations, food companies, and similar groups in other schools, Mao said. Current sponsors include Flour, Clover, J.P. Licks, and Upper Crust, all of which are frequented by MIT students and have the potential to generate good publicity for MFWH.

'At MIT we have the technology and the resources to truly make an impact'

—Laura R. Stilwell '14

MFWH is particularly eager to work with nearby group Harvard Hunger Initiative to organize a Hunger Banquet in the spring. At the event, students will be assigned social classes in proportion to the world's population and eat their class' respective meals. The banquet offers an opportunity to experience global economic stratification firsthand.

Although MFWH is just one of the large host of student groups that also focus on global development, it has already received positive feedback from the community, noted Emma F. Broderick '14 after canvassing local businesses. The Upper Crust in Harvard Square, for example, offered to cater MFWH's screening of Seeds of Hunger next Tuesday for free.

"At MIT we have the technology and the resources to truly make an impact ... what we need is the manpower and the energy of the entire student body," said Laura R. Stilwell '14, one of the organizers of Hunger

Hunger Week T-shirts and raffle tickets will be on-sale in Lobby 10 starting Monday next week. To help out or learn more about MFWH, email mfwh_exec@mit.

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MIT's Foreign Languages and Literatures invites undergraduates to apply for the January Scholars in France program.

21F.314 is a 6-unit subject, conducted entirely in French, and will allow up to 14 students to experience two weeks of cultural immersion in Paris during IAP 2012, January 9-23.

Application deadline is October 18, 2011.

For more information and application forms, go to web.mit.edu/jsf or to FL&L's main office (14N-305).



INTERVIEW

On YouTube, musicianship, and guitars

A conversation with Andy McKee

By Jeff Z. Chen
STAFF WRITER

Andy McKee is one of the best fingerstyle guitarists in America, currently signed onto the Razor & Tie record label. He is famous for achieving over 40 million views on YouTube to date for his signature song, "Drifting." McKee is currently on the Guitar Masters tour, along with fellow fingerstyle players Antoine Dufour and Stephen Bennett. I sat down with him to chat about the tour, being a guitarist, and life in general.

The Tech: First of all, I must confess, I am a huge fan. And if I could receive autographs over the phone somehow I would totally ask for one right now.

Andy McKee: Haha, great!

TT: Can you talk a little bit about the Guitar Masters tour, where you guys are at the moment, what's coming up, and generally just cool stuff that's been going on during the tour?

AM: We're just getting started today, in Colorado Springs, and touring through the Midwest and later the Northeast. I'm touring with Antoine Dufour and Stephen Bennett. We'll be doing individual sets and collabs.

'To legitimize yourself as a musician, and to be compelling, you have to perform in front of people.'

TT: You were on Candyrat Records before switching to Razor & Tie. Did you leave on good terms?

AM: Yep, I was one of the first guys signed onto the label, and the label owner Rob Poland told me, "if ever you want to move to bigger and better things, let me know." And we're on great terms still. In the future I may work independently, since it's not difficult to do self promotion, especially online.

TT: There was a Guitar Masters tour last year as well?

AM: Yeah, it was me and Eric Johnson, who was one of my first influences. I met him when I was

TT: Back when you started you wanted to play hard rock and metal, correct?

AM: Yeah, I loved Metallica, Pantera, Iron Maiden, so on. My first guitar was a nylon string classical, and it was pretty tough trying to play "Enter Sandman" on it. I got an electric shortly after that and learned a lot of metal. When I was 16 I met Preston Reed, who was just an amazing solo acoustic guitarist and inspired me to go on that route.

TT: What's a group or artist without a guitar player that has influenced your playing in some wav?

AM: One of my favorite musicians is Bruce Hornsby, the pianist. I also like Björk and Imogen Heap. Sometimes at home I'll experiment with electronic music.

TT: How much music theory do you have under your belt, and general technical musical education?

AM: I used to teach guitar lessons as a living, and personally I didn't have much formal training, just a year and a half of lessons on electric. When I got an acoustic, I really just went off on my own, learned scales and chord construction, and so on. When I go to write, I often experiment with alternate tunings and different layouts on fretboard, and I don't usually bother learning the scales for all of them. Usually I'll just place riffs and melodic ideas on top of it.

TT: What do you think is the future of musicians, YouTube-wise? Will there be more professional musicians cropping up? Do you think it damages the professionalism of a musician if they are a YouTube star?

AM: I think YouTube is a great idea for upstart musicians, but I can see the point, why it may be construed as illegitimate. To legitimize yourself as a musician, and to be compelling, you have to go out and do shows, and perform in front of people. It means so much more to be able to be playing in front of your fans and audience, really makes a difference in your career.

TT: Did you start off doing booked shows or open mics?

AM: I started off playing in coffee shops in Topeka, Kansas, where I grew up. Later I had a few successful competitions in finger-style, got invited to Taiwan, Japan, England. Really loved getting out there and playing around the world.

TT: Favorite city?

AM: My favorite show was at Glasgow, Scotland. The crowd was incredible, and funny to hear everyone chanting my name in the middle of the concert!

TT: So there's a YouTube video out there of you, Sungha Jung and Tommy Emmanuel jamming to "Ebon Coast." Crazy?

AM: Last year we were all invited to perform in Bangkok, and the guy that organized it thought it'd be cool if we all sat down and played together. And Sungha knew a few of my songs, including "Ebon Coast," so we did a few rehearsals and recorded it.

TT: If you had a second life and were not a guitarist, what would you be?

AM: Funny that you ask that, because I have a song on Joyland, "My Life As a CPA," that kind of jokingly explores that. I think if I could choose, I'd like to be a video game programmer, because I'm kind of a video game fanatic.

TT: Favorite game?

AM: Elder Scrolls. I just got an Alienware in anticipation for Skyrim.

'You need to have an emotional interaction when you hear music; you can't help but become a musician.'

TT: Do you have any advice for budding guitarists, especially those who are writing their own music?

AM: You have to have a real connection with music, and what music means to you. You need to have an emotional interaction when you hear music; as someone said, you can't help but become a musician. I listen to a lot of my favorite musicians, learn their songs, use my ear a lot to figure everything out, to recognize intervals and chords. If you can develop your ear learning songs from other musicians, that'll be very useful. It's hard to say what makes a good composer. Definitely takes practice, and spending a lot of time learning from other guys.

TT: What's in the future?

AM: I'm doing GMT until mid-November. I just had my first son, so enjoying staying at home a bit, taking the rest of the year off. Later on, more gigs with Eric Johnson. I have material I've started work on, and I'd like to have an album out by next year.

Andy McKee and the GMT come to Boston Oct. 28 at Showcase Live.



Fingerstyle guitarist Andy McKee performs in Boston on Oct. 28.

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10 THE TECH FRIDAY, OCTOBER 14, 2011



By Angelique Nehmzow STAFF WRITER

It is quite an ambitious project to create a 24-hour film. More ambitious yet is to create one without main characters, without a plot, and which comprises entirely of scenes involving clocks from other films. Yet that is precisely what Christian Marclay has done — and very effectively, too.

The Clock, by spanning much of cinematic history, reveals something of our deep emotional attachment to time. It is a film made of thousands of clips spliced together, each one of which contains a reference to the time, either verbally or, more usually, in the form of some clock or watch. The clips are chronologically ordered and the film's looped screening is timed precisely so that each

minute shown on screen corresponds to the local time of the viewer. Thus, the film itself becomes a timepiece.

Marclay seamlessly weaves together scenes ranging from students taking an exam to an assassination at a wedding. You might jump as someone is electrocuted while de-misting a bathroom mirror, or laugh as a wristwatch is "baptized" by Robin Williams in a diner. You might recognize famous actors such as Johnny Depp and Judi Dench, or well-known films like *Big Daddy* and *The Lives of Others*. There are clips in black and white, some in French, and some from sci-fi films and Westerns. With Marclay's background as a musician, the audio of the film is also skillfully edited; for example, the chugging of a drink in one scene is impeccably timed to the impatient pen-tapping of Sandra Bullock in the next.

The clips in *The Clock* are like teasers, and viewing a never-ending cascade of them is surprisingly neither confusing nor exasperating. It is not like walking into a movie theater late and strug-

gling to figure out what's happening. Instead, it's more like watching exciting trailers. There are hints that a complex web of hidden subplots exists, which you are relieved from needing to know about.

Marclay and six assistants spent 21 years creating the nearly \$500,000 film which was recently co-acquired by the MFA and the National Gallery of Canada. Both galleries cannot exhibit the film at the same time, but a shared purchase was encouraged given that only six editions of the artwork exist, and that this arrangement will allow more people to see it. So far, *The Clock* has garnered such success that the MFA has extended its exhibition to Dec. 31.

And with good reason. I myself went to the MFA to see another exhibit, but thought I might as well take five minutes to check out *The Clock*. Forty-five minutes later, I was dragging myself away. It truly is quite a unique and unusual experience. Ironically — even though I was constantly being reminded of it — I found that, while watching it, I forgot the passing of time.

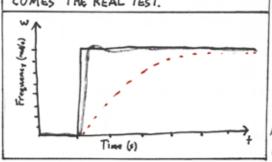




FRIDAY, OCTOBER 14, 2011
THE TECH 11

Help Desk by Michael Benitez

HOURS OF WORK HAVE LEAD TO THIS, THE PERFECT COMPENSATOR FOR THIS MOTOR. I'VE GOT A LEAD TO ADD PHASE MARGIN AND IMPROVE STABILITY PLUS A LAG TO KNOCK OUT STEADY-STATE ERROR. IT WORKS DELIGHTFULLY IN MATLAB, NOW COMES THE REAL TEST.























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Commissioner of
U.S. Customs and
Border Protection

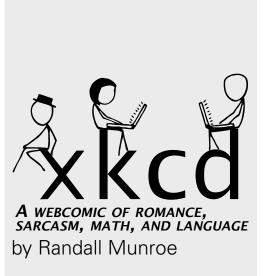


Chappell Lawson
Associate Professor of
Political Science at MIT,
Director of MISTI





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[962] The Corliss Resolution

THE FERMI PARADOX:
PLANETS ARE SO COMMON
THAT LIFE SHOULD BE,
TWO SO WHERE IS IT?





IT'S JUST THAT
IT TAKES LONGER
TO DEVELOP SPACE
COLONIZATION

THAN IT DOES

TO INVENT AN

ACTIVITY

MORE FUN
THAN SURVIVAL.

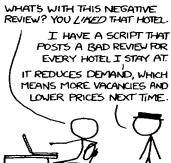
HOLY CRAP.

I DON'T CARE HOW
DANGEROUS IT 15.
I HAVE TO TRY IT.

·βuιλ

And no avian society ever develops space travel because it's impossible to focus on calculus when you could be outside

[958] Hotels





WHAT IF THE PLACE SUCKS?

YOU PUNISH COMPANIES YOU LIKE!

THE ODDS OF MY REVIEW PUTTING A HOTEL OUT OF BUSINESS ARE NEGLICIBLE.

IF WE ALL DID THAT, THE SYSTEM WOULD COLLAPSE!

DOESN'T AFFECT MY LOGIC.

TRAGEDY OF THE COMMONS.

THAT'S NOT EVEN THE TRAGEDY OF THE COMMONS ANYMORE. THAT'S THE TRAGEDY OF YOU'RE A DICK.

IF YOU'RE QUICK WITH A KNIFE, YOU'LL FIND THE INVISIBLE HAND IS MADE OF DELICIOUS INVISIBLE MEAT.

Rating: 1/5. Room filled to brim with semen, and when front desk clerk opened mouth to talk, bedbugs poured out.

No Mouth Disease



by Jerry Holkins and Mike Krahulik







Sudoku

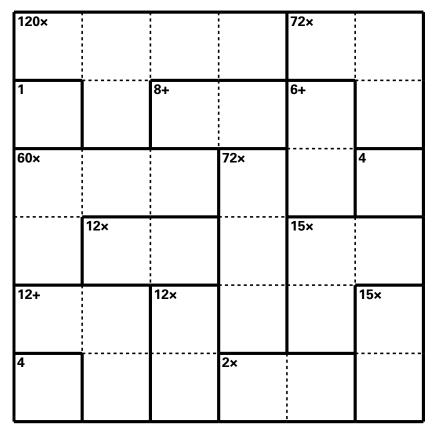
Solution, page18

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

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 18



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.

FRIDAY, OCTOBER 14, 2011



Dilbert by Scott Adams















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Crossword Puzzle

ACROSS

- 1 Abstention periods
- 6 Period on the job
- 11 QB's pursuit
- 14 Bandleader Shaw
- 15 Listens to
- 16 Day's end, in poems
- 17 Start of a quip 20 Rugged ridges
- 21 Ticket details
- 22 Pindar product
- 23 "Bellefleur" author
- 26 Removed moisture 28 Caution
- 30 Strained
- 32 Paul Anka's "__ Beso"
- 33 Curvy letters
- 35 Dining option
- 38 Part 2 of quip
- 41 Ice cream option 44 Supporting group
- 48 Dolphin Marino 49 Honest!
- 52 Cartographic speck
- 53 Big name in rap

- 56 Actress Berger
- 58 Avoirdupois unit
- 59 Arledge of ABC sports
- 61 Fidel of Cuba
- 63 End of quip
- 67 Shoshone
- 68 Old newspaper sections
- 69 Church officer
- 70 Dropout's doc.
- 71 Missouri River feeder
- 72 Luges

DOWN

- 1 CAB's successor
- 2 Fleet groups
- 3 Intense lookers
- 4 Fork part
- 5 Melee
- 6 California peak
- 7 __ up (excited)
- 8 Descartes' conclusion
- 9 Italian monks
- 10 Clicked one's tongue
- 11 More irritable
- 12 Hardest to penetrate

- 13 Winter ATV, __-Cat
- 18 Warm up
- 19 Musician's pride
- 22 Be obligated
- 24 Case in point
- 25 Actress Ward
- 27 Buck lover
- 29 Headline material
- 31 N. or S. state
- 34 As written: Lat. 36 Pau pronoun
- 37 Vino region
- 39 Nol of Cambodia 40 Writer Anita
- 41 Unmatched
- 42 Tell the tale
- 43 Funded
- 45 Spanning
- 46 Bowled over 47 Marsh
- 50 Cut into
- 51 Greek letters
- 54 Rogers of oaters
- 55 Latin American January 57 Grate deposit
- 60 Aphrodite's child
- 62 Renowned archer
- 63 Loutish fellow
- 64 Amtrak stop
- 65 Overeater 66 Grads-to-be

14 THE TECH FRIDAY, OCTOBER 14, 2011

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Hackers dressed the Alchemist in the likeness of Steve Jobs on Monday. There was also an Apple logo hack in Lobby 7 the same day — all in honor of the recently deceased visionary.



Danielle Marie '14 scattered leaves on the runway as she showed off an outfit from Free People at KATwalk. KATwalk, hosted by Kappa Alpha Theta, took place in Walker Memorial on Monday night.

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Friday, October 14, 2011
The Tech 15

OPERA results face intense scientific scrutiny

MIT physics professors say that results should be questioned, but exposure is valuable

Neutrinos, from Page 1

only a few hours before the light did (neutrinos leave the dying star before visible light from the explosion).

Every supernova is accompanied by production and emission of a massive quantity of neutrinos. Physicists can calculate the relative time between when the neutrinos are emitted and when in other parts, which is why it's hard to isolate this neutrino 'disease' in this small sector," Wilczek said.

But no one is claiming that the European researchers were careless. On the contrary, Wilczek believes that all of the scientists are "competent, professional experimenters who have been wrestling with this for months and can't make this go away."

"I'm not claiming they've done

'It's premature, to say the least, to speculate wildly about the implications, either theoretically or technologically.'

—Frank Wilczek NOBEL LAUREATE

the light is emitted from the explosion. If OPERA's results are correct, however, the neutrinos should have travelled faster and arrived a few years before the light.

Hughes and Wilczek both guess that scientists will most likely approach the neutrino announcement with a variety of new experiments and do tests with different baselines.

"I would say there's a 98 percent chance this is a systematic error," Hughes said.

Scientists note that other predictions of special relativity are valid, and that these neutrinos might be something "special and weird"

"Within the theoretical framework, we have been very successful

it wrong, I'm saying that it needs looking at very carefully," added Hughes. "There's a big difference between precision and accuracy — you can measure with precision

What if it's true?

a very inaccurate result."

If it is true that neutrinos can travel faster than the speed of light, fascinating new lines of inquiry could open. One theory is that these speedy neutrinos could be a crack in the universe that reveals extra dimensions in high energies.

"If this were correct, our GPS wouldn't work," Hughes said of the navigation technology that relies on relativistic principles.

"It's premature, to say the least, to speculate wildly about the implications, either theoretically or technologically," said Wilczek.

Talk in the media about traveling in time or having causal loops were a misunderstanding of relativity. "If there's any limiting speed, even if it's not the speed of light, one would not be able to close the loop from the future to the past," Wilczek added.

Although he is doubtful of the results, Hughes does not have any criticism of OPERA's report itself. "The paper is very clear — they say they're throwing [this discovery] out there for further testing. Their paper is very careful and pretty conservative."

He found it "irresponsible," however, that the authors held a press conference immediately after their accidental discovery. In fact, some of the researchers who were part of OPERA actually removed their names from the paper because they found the analysis to be too preliminary to be able to release the results in such a manner.

"This is one of the few things that reveals the tension that was going on within the experiment," Hughes pointed out.

Public reaction

The fact that this story has made a huge appearance in headlines over the past few weeks does not surprise Hughes, but he is worried that after it dies down, any future and possibly contradictory discoveries will not have as large an impact in the media.

"No headline will say, 'Oops, we goofed.' ... My concern is that this potentially big splash will not be compensated for by correction," said Hughes.

Physics student Asher C. Kaboth G also noted that "It's harder for the general public to understand the little details ... it's difficult to explain." Those who do not know much about special relativity might have misconceptions about what these results mean and their possible implications, he said

Conrad did not like the way

"It's harder for the general public to understand the little details ... it's difficult to explain."

> —Asher C. Kaboth GRADUATE STUDENT

some physicists reacted to the news. "Way up there in the responses I don't like [is], 'If it doesn't fit my theory, it must be wrong.' That's not okay to tell people."

She said that if neutrinos really do travel faster than the speed of light, it breaks current theories and scientists will have to construct new ones.

"There's a difference between us saying what nature will do and nature telling us what it does," Conrad said. "When you find a violation, you have to find a way to put it in the perspective of other data."

Despite concerns, the neutrino results have been a great teaching opportunity for many professors. In Hughes's 8.033 (Relativity) class, he discussed the concept of the experiment in lecture and asked students to think carefully about whether they believed that neutrinos could travel faster than the speed of light.

"In the hands of someone who can discuss this well, and the ears of students open to listening, it's a great topic," Hughes said.

Conrad also brought up the subject in her 8.02 (Electricity and Magnetism) class and asked her students to answer questions like "If this result is proven wrong, what does this say about science? Does science ever get it right?" Her opinion is that things go wrong in science all the time, but the beauty is that one discovery leads to the next, and we continue to change what we know about the world.

Wilczek agreed that on the whole, it's a good thing that people are noticing current research in physics, and that there is exposure of the scientific process. "There's something about Einstein and space that even after all these years has a certain magic because it's so profound and unexplained," he said

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Hybrid & electric cars gain traction in fuel economy

Automakers attempt to meet high mileage goals without making significant sacrifices

By Bill Vlasic
THE NEW YORK TIMES

The formula for better fuel economy in cars has long been a simple equation: The smaller the vehicle, the farther it goes on a gallon of gas.

Fuel-conscious consumers have been forced to make trade-offs. More size and interior room translated into heavier vehicles and larger engines and increasingly expensive trips to the pump. Saving on gasoline meant choosing narrower, shorter and less powerful vehicles, whether it was a compact pickup truck or a little sedan with a token back seat and minimal creature comforts.

But a quiet revolution has been taking place in the design studios and engineering centers of the world's major automakers, one that is allowing drivers to select vehicles in virtually every market segment without compromising on fuel economy.

It's all happening under the hood, where improvements in engine technology are turning gas-guzzlers into relative fuel-sippers, yet still delivering the horsepower, acceleration and utility that U.S. consumers crave.

Government mileage regulations will force automakers to produce fleets that average 54.5 miles per gallon by 2025, nearly double the current standard.

And while that target seems lofty, the car companies are steadily inching toward the goal by improving the mileage achieved by traditional gas engines as well as introducing more hybrid and electric models.

"The average car in 2025 will get the kind of mileage that today's Toyota Prius hybrid gets, but we're not talking about some futuristic technology," said Dan Becker, director of the Safe Climate Campaign, a Washington organization that promotes efforts to mitigate global warming. "Most of the changes will be invisible to the consumers and achieved with better engines, transmissions and aerodynamics."

The U.S. auto industry has endured a rough ride in recent years. The economic crisis in 2008 pushed the Detroit automakers to the brink of insolvency. Sales withered, and the car companies were forced to slash unsustainable costs and payrolls. General Motors and Chrysler were forced to seek government aid and go through bankruptcy to survive

But Detroit emerged from the recession leaner, more competitive and intensely focused on delivering cars and trucks that are fun to drive and practical to own, but also cheaper to fill up, with gas prices that have hovered around \$4 a gallon.

Consumers are discovering cars that meet their needs without busting their budgets on fuel. Bradley Herring, an engineer from Dubuque, Iowa, was recently in the market for a roomy, family-size sedan with the fuel economy of a compact car.

He found exactly what he wanted in, of all places, a Buick showroom. The GM brand has historically offered larger vehicles with cushy rides and mediocre fuel economy. But by choosing a Buick LaCrosse with a small, four-cylinder engine equipped with a direct-injection system, Herring got the space and comfort of a bigger car with a combined city and highway mileage of nearly 25 mpg.

"I didn't have to downsize to a compact car to get decent mileage," he said. "I'm saving about \$15 a week on gas with a full-size sedan that runs on regular gas. It's not going to make or break me, but every little bit

helps

Direct-injection technology pushes fuel into the combustion chambers of a traditional engine to create more horsepower at greater efficiency, resulting in better fuel economy and lower emissions. While hardly an automotive breakthrough, the system allows consumers like Herring to enjoy improved mileage without compromising on

"Buying a compact car would have been a big step down from the sedans I'm used to," he said. "Now I'm able to get pretty good mileage and still have the space I need."

Fuel economy is among the chief considerations for consumers looking for a new vehicle, according to the auto research website Edmunds.

"It's one of the most important factors that people consider when buying a new car," said Jeremy Anwyl, the chief executive of Edmunds. "But they want to make as few tradeoffs as possible, whether it's the size of the vehicle or the price."

Several new models entering the market will broaden the choices for drivers weary of rising fuel costs. Toyota is expanding its Prius hybrid line with a wider, more spacious version, and introducing a new generation of its top-selling Camry sedan. General Motors is rolling out a U.S.-made subcompact, the Chevrolet Sonic, that it hopes will captivate younger buyers with a sticker price under \$15,000. Hyundai has a sporty, compact car, the Veloster, on tap that will get nearly 40 mpg.

But it's not just small and midsize cars that are grabbing the interest of mileage-sensitive consumers. GM, for example, is marketing a new electronic system, called eAssist, that improves the fuel economy of its larger sedans. Ford Motor Co. has won raves for its EcoBoost technology, which employs direct injection and turbocharging to improve fuel efficiency in a variety of vehicles.

Ford executives have been pleasantly surprised at the success of the EcoBoost version of its F-Series fullsize pickup, the best-selling vehicle in America. "The company felt we could change minds about V-6s in trucks if we delivered fuel economy without sacrificing performance," said a Ford spokesman, Said Deep.

Still, skeptics wondered whether truck buyers would choose a pickup with a six-cylinder engine rather than the traditional V-8. But the F-Series equipped with the 3.5-liter EcoBoost engine now accounts for about 40 percent of Ford's F-Series sales, proving that even stalwart pickup owners will downsize their engines to shave fuel costs.

One such convert is Thomas Beattie of Chandler, Ariz., who bought an F-150 with an EcoBoost V-6 engine in May. Beattie wanted a rugged truck that could go off-road on camping trips with his 5-year-old daughter, but burn less fuel on long drives

The EcoBoost engine improves fuel economy by about 10 percent over the conventional V-8. Beattie proudly compared the mileage of his metallic-blue F-150 to that of oldermodel large sport utility vehicles like the Chevrolet Suburban.

"All those Suburbans are getting between 10 and 13 miles to a gallon," he said. "But I can set my cruise control to 70 miles an hour and get between 20 and 28 miles per gallon on the highway in my pickup."

The recent increase in future fuel-economy standards is setting the stage for the next leap forward in pickups — a hybrid truck. Ford and

Toyota recently announced plans to jointly develop a hybrid gas-electric system for trucks and large SUVs.

Hybrids will be an integral part of the industry's plan to meet the stringent new fuel-economy regulations. Only a small percentage of drivers have embraced hybrid technology, but attitudes are changing as carmakers install hybrid systems in a wider variety of models.

"The hybrid is slowly becoming a mainstream technology," said Becker of Safe Climate Campaign. "I suspect there are some people who will never be comfortable with them, but their numbers are growing fewer and fewer."

Becker also estimated that allelectric vehicles would compose about 5 percent of new-vehicle sales by 2025. "The automakers are going to need that number to reach the overall fleet average," he said.

The market for electric cars remains questionable. Nissan's electric Leaf has gotten off to a slower-than-expected start since being introduced last year, although its debut was hampered somewhat by problems related to the tsunami in Japan. GM has taken a deliberately patient approach in its rollout of the Chevrolet Volt, a plug-in hybrid electric sedan that runs primarily on battery power but has a small gasoline engine so it can recharge on the fly.

The Volt gets the equivalent of 93 mpg in fully electric mode, but at a price of more than \$40,000. Even with a \$7,500 federal tax credit, the car is pushing the limits of consumer acceptance because of its high cost.

"There is clearly a curve on which consumers are willing to pay for better fuel efficiency," Anwyl said. "At some point, the improvements in technology cost more than people are able to justify."

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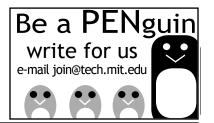
THE TECH 17 FRIDAY, OCTOBER 14, 2011



A Mechanical Engineering student launches an "angry bird" at targets downrange on Killian Court Friday afternoon. The energetic event was the culmination of several weeks' worth of designing and building in 2.009 (The Product Engineering Process).

Solution to Crossword





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CHALLENGED or BANNED in 2010-2011

The Absolutely True Diary of a Part 1 mm.

Anderson, Laurie Halse. Speak
Baker, Larry. The Flaminge Rising
Baskin, Julia; Lindsey Newman, Sophie Pollitt-Cohen,
and Courtney Toombs.

The Notebook Girls: Four Friends, One Diary, Real Life

Ann.

Extremely Loud and Incredibly Close.

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2011 as reported in the Newsletter on Intellectual Freedom from May 2010–May 2011.

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18 THE TECH FRIDAY, OCTOBER 14, 2011

As online education rises, financial aid fraud grows

Inspector general and universities employ stricter measures to investigate fraud rings

By Tamar Lewin

While serving nine months in a South Carolina prison on forgery charges, Michelle N. Owens capitalized on the explosion in online higher education to tap into a new — and highly lucrative — way to profit from fake documents.

Using information she gathered as she handled paperwork in the prison's education department, Owens filed applications for admission and financial aid to Webster University's distance-learning programs on behalf of 23 unknowing inmates.

The applicants were admitted and granted the \$467,500 in requested aid, including \$124,821 for books, transportation and living expenses — though of course their room and board was provided by the state. The aid was sent in the form of debit cards to the residential South Carolina address Owens supplied.

An alert employee at Webster in St. Louis, which has campuses overseas and on dozens of United States military bases, eventually noticed an unusual number of applicants from the same address in Florence, S.C. Owens, 36, who continued to make fraudulent applications to Webster for more than a year after she was released from Leath Correctional Institution in 2008, was sentenced Sept. 29 to 51 months in federal prison and ordered to pay \$128,852 in restitution.

She is one of 215 participants in 42 financial aid fraud rings who have been convicted since 2005 and ordered to pay \$7.5 million in restitution and fines, according to a new report by the Department of Education's Office of the Inspector

Canara

But those numbers do not reflect the scale of the fraud rings, the report said, since often the ringleaders are the only ones prosecuted.

With the huge expansion of online college courses, financial aid scams have become a serious problem.

As of Aug. 1, the inspector general had opened 100 investigations into distance-education fraud involving thousands of suspects; such crimes now make up about 17 percent of the agency's open cases, and investigators are working on 49 new complaints, scrambling to keep up.

As of Aug. 1, the inspector general had opened 100 investigations into distance-education fraud

"Because of the sheer volume of referrals, finite resources, and other external limitations," the report said, "we cannot investigate all of the referrals we receive concerning distance-education fraud rings."

The rings generally seek federal aid for "straw students" who have no intention of pursuing an education — or, as in Owens' scheme, are unaware of the application. The aid is sent to the college, which takes the portion covering the initial tuition and fees, and then "refunds" the excess to the student to cover other expenses such as books, transportation and room and board.

Some rings involve vast cad-

res of foot soldiers, many of them lacking a high school diploma, recruited with the understanding that they will keep a portion of the aid money and kick back the rest to the ringleader.

Until 2005, colleges could not participate in federal aid programs if more than half their students were enrolled in what were then known as "correspondence" or "telecommunications" courses. For online courses — but not correspondence courses — the 50 percent rule was eliminated in 2005.

By now, the vast majority of colleges and universities offer online courses, and some huge commercial institutions have hundreds of thousands of online students. Amid tough economic times, an increasing number of these students are actually what are known as "Pell-runners" — people who disappear as soon as they receive the proceeds of their Pell grants or student loans.

Kathleen S. Tighe, the inspector general, suggested that colleges clamp down on identity verification and that Congress and the Education Department to rethink whether online students, mostly working adults, should be eligible for the same federal aid to cover living expenses as students who attend on-campus programs.

"Without that money there would be significantly less incentive for this particular scam," Tighe noted. "We'll do the best we can with our resources to investigate the allegations we receive, but there are actions that can be taken to help reduce the appeal of this quick-cash-for-little-effort scam."

Community colleges have been especially vulnerable to fraud rings, because of their open en-

rollment and low tuition, which leaves room for substantial excess

At Rio Salado College, an online community college in Arizona, 64 people were convicted in a \$538,000 scheme that unraveled after an employee in Rio Salado's financial aid office noticed similar handwriting on several applications. The ringleader, Trenda Halton, a student who pleaded guilty last year, worked with several accomplices who recruited "straw students" to apply for Pell grants and loans.

Halton signed into their online classes to meet Rio Salado's attendance requirements, then took a cut of \$500 to \$1,000 once the aid money came through.

The ringleader worked with several accomplices who recruited 'straw students'

(Rio Salado has a business partnership with The New York Times Co. to offer courses through the company's online education program.)

Pursuing so many people in an individual ring is rare, though.

"It is unlikely that such a robust effort to prosecute all participants in such a large investigation will be repeated in the future," said the inspector general's report.

In a similar case two years ago, American River College, a community college in Sacramento, found dozens of people with the same address enrolled in the same courses, all of whom were then either withdrawing or failing. The ringleader pleaded guilty to fraudulently applying for federal financial aid for more than 60 people, and, in May, as a result, he was sentenced to five years and 10 months in prison, and ordered to pay \$234,515.

The biggest fraud, along with

the most significant efforts to combat it, seems to have occurred at Axia College, a two-year program of the University of Phoenix, the nation's largest for-profit institution. Officials there have identified — and referred to the inspector general — some 750 rings involving 15,000 people.

Axia, which enrolls about 150,000 students, and the University of Phoenix's parent company, the Apollo Group, have four employees working full time to identify fraud and expose Pell-runners. "We have been able to construct a pretty thick net that is very difficult for these criminals to penetrate," said James Berg, the Apollo Group's chief ethics and compliance officer.

Apollo monitors and records the vast majority of calls from potential students, he said, and has what he called an "intense identity verification process" if any red flags are raised.

The company is also on the lookout for multiple applications from the same computer network address, often a tip-off to a fraud ring.

Last year, Apollo introduced a required three-week orientation in hopes of weeding out students likely to drop out. Axia's new enrollment has since dropped by about half; Berg said the orientation had also cut down sharply on fraud.

"Fraud ringleaders, operating on behalf of several students, have to maintain the appearance that they're all participating in orientation, and that's just too much work for the ringleader," Berg said.

"We've heard back from ringleaders that the University of Phoenix is making it too difficult for us. And since the beginning of 2011, on a monthly basis, we have seen a decrease in the number of fraud rings we are flagging. I think with all the cases we've referred to law enforcement, word has gotten out that this is not a smart thing to try



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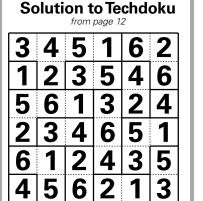
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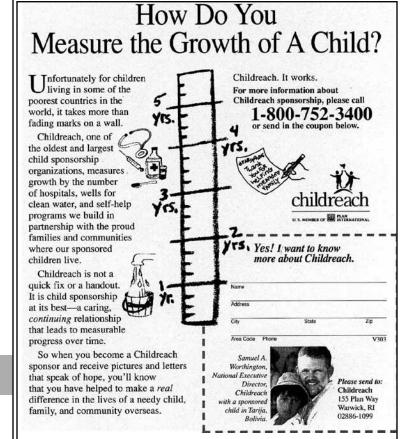
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Solution to Sudoku



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UPCOMING HOME EVENTS

Friday, Oct. 14

Rifle vs. Wentworth Women's Volleyball vs. Williams College

5 p.m., duPont Range 7:30 p.m., Rockwell Cage

Saturday, Oct. 15

Rifle vs. Wentworth Men's Soccer vs. Coast Guard Women's Volleyball vs. W. New England U. Men's Water Polo vs. Connecticut College Field Hockey vs. Mount Holyoke Men's Tennis vs. Amherst College Women's Volleyball vs. Umass Boston Women's Football vs. W. New England U. Men's Water Polo vs. St. Francis College

Sunday, Oct. 16

Men's Water Polo vs. Mercyhurst College

9 a.m., duPont Range 10 a.m., Steinbrenner Stadium 11 a.m., Rockwell Cage 12 p.m., Z-Center Pool 1 p.m., Jack Barry Field 1 p.m., duPont Courts 2 p.m., Rockwell Cage 2 p.m., Steinbrenner Stadium

1 p.m., Z-Center Pool

8 p.m., Z-Center Pool

SPORTS SHORT

Tennis finishes NEWMAC strong with Wheaton College win

MIT's women's tennis team finished off a fine NEWMAC conference season Monday as the No. 22 Engineers took a 6-3 win at Wheaton College. MIT picked up key wins in all three doubles matches as it ran its record to 6-2 overall and 6-1 in the NEWMAC.

MIT put in a strong effort in doubles play, which turned out to be a deciding factor in the outcome of the match. In the split of the singles matches MIT picked up victories at Nos. 2, 4 and 5 to secure the win.

Wheaton picked up its first point of the day at the No. 1 position. The other two matches turned out to be the most closely contested of the match, with both going the Lyons way.

MIT will play at the NEWITT Tournament that will be hosted by Amherst College on Oct. 14-16 before moving on to play in the NEWMAC Tournament Oct. 22-23. The Engineers will be the number two seed in the tournament.

-Phil Hess, DAPER staff

ATHLETE OF THE WEEK: ERIKA LEE '12

The art of kicking people

Senior inspired by 'a bad martial arts movie'

By Katie Bodner

Nearly 12 years ago, Erika Lee '12 became infatuated with a "bad" martial arts movie and began training at a local taekwondo place near her home

in California. Today, Lee boasts a second degree black belt, appearances in international competitions, and a love for electrical engineering and computer science. This senior is quite the star of the MIT Sport Taekwondo Club, and also serves as

treasurer and instructor for the team this year.

Lee's journey over the years has been exhilarating and challenging. Back home, she practiced more of a traditional style of taekwondo and stuck with the sport throughout high school. At MIT, she knew she wanted to continue the sport, and tried out multiple taekwondo clubs before eventually sticking with the sport club, which practices a more competitive style.

These competitions have become a way of life for Lee, as MIT competes in the Eastern Collegiate Taekwondo Conference (ECTC), which holds five tournaments per year. MIT is hosting the first tournament of the year on Oct. 22 at the Johnson Athletics Center track. In the past, tournaments have been held at Cornell, Princeton, and West Point. Two major events take place during the tournaments: sparring and forms. In sparring, two people, usually in red or blue, fight against each other and try to score points by hitting each other in the head protector. In forms, a group usually executes a set of choreographed movements that must be done correctly.

A major highlight of Lee's career has been traveling to Shenzhen, China this past August for the World University Games. Lee competed in the women's team division with Rene R. Chen '07 and Carissa Fu, a Princeton graduate. They performed Taeguek 8 and Koryo and showed a strong performance in the semifinals. In the end, they finished 9th, falling just shy of the finals by one place and 0.08 points overall.

Lee also competed at the National Collegiate Taekwondo Championships in Davis, CA from

April 9-10, 2011 and placed second in black belt sparring and first in the women's team competition in the U.S. Collegiate Poomsae Team Trials.

A seasoned athlete, Lee is rarely one to boast about herself. Instead, she recalls that some of her favorite memories from competing in the ECTC have been watching the growth of her peers. "It makes me so happy to see my teammates compete and do well, when they train so hard. We have a very close league ... like a family," Lee said.

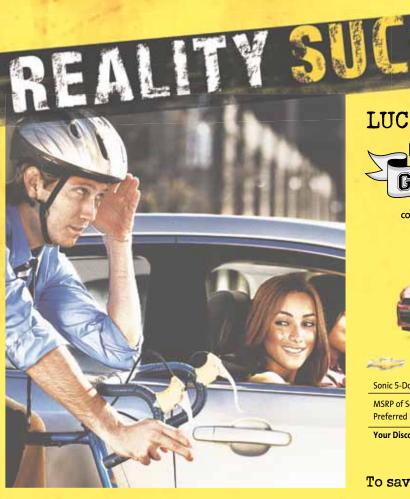
Another defining moment of Lee's ECTC experience was during her sophomore year at MIT, a time when she said that taekwondo really clicked for her. She began to see the sport in a different way and learned how to approach sparring better. Lee's competitive nature came out when describing "winning a match against an opponent who was definitely technically more advanced than

According to Lee's bio, she likes to 'play video games, eat things, and kick people.

Outside of Taekwondo, Lee is very involved in her Course 6 coursework. According to her biography on the MIT Sport Taekwondo Club web page, she likes to "play video games, eat things, and kick

Lee says that the club sport is extremely timeconsuming, but she greatly enjoys spending time with the team - no other activity at MIT fit the same way. As team captain last year, Lee was very involved with leadership and executive decisions and has since helped out with training seminars. She loves working with the new members and watching them excel at competition. As Lee said, "Taekwondo is my home at MIT."

Erika Lee and the MIT Sport Taekwondo Club train twice per week, on Fridays and Sundays, and are preparing for their first tournament of the year on Oct. 22. The club also holds physical education classes on Mondays and Wednesdays.



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