

Criminal complaint sheds light on violence last week

Second marathon bombing suspect captured Friday and charged with WMD usage



MIT police officer Kevin O'Connor paid tribute to fellow officer Sean Collier in front of Building 32 on Friday, April 19, 2013. Collier was killed near this location the previous night by the Marathon bombing suspects.

By Leon Lin and Austin Hess
EDITORS

The surviving suspect in the Boston Marathon bombings was charged Monday with using a weapon of mass destruction resulting in death and malicious destruction of property by means of an explosive device resulting in death. According to a press release from U.S. Attorney General Eric Holder's office, the criminal complaint was filed in the U.S. District Court for the District of Massachusetts, and the charges carry a maximum penalty of death.

No charges related to the death of MIT police officer Sean A. Collier were presented at the time.

19-year-old Dzhokhar A. Tsarnaev, the suspect, was charged during a hearing in his hospital room, having regained consciousness since his arrest.

According to the court transcript, Tsarnaev was informed of his right to not incriminate himself and was assisted by William Fick from the federal public defender's office. Most of his answers came in

the form of nods due to a wound in his neck that inhibited speech. The federal magistrate found him mentally competent and scheduled another hearing for May 30.

Dzhokhar Tsarnaev and his brother Tamerlan Tsarnaev, 26, are believed to be responsible for last Monday's Boston Marathon bombings, which killed three people and injured more than 180 others, as well as the fatal shooting of Collier on campus Thursday night. The elder brother died after a shootout with the police early Friday morning.

The filed complaint revealed several new details about the case from the affidavit of FBI Special Agent Daniel R. Genck. According to Genck, persons closely resembling the Tsarnaev brothers were seen in several pieces of security footage leaving knapsacks on the ground. One of the two suspects is seen using his cellphone just seconds before the first explosion and is the only one in the crowd who does not turn his head

Resolution, Page 6

Haitian Prime Minister visits MIT

Agreement to 'teach in a language everyone can understand'

By Austin Hess
NEWS EDITOR

On Wednesday, the Prime Minister of Haiti, Laurent Lamothe, came to MIT to sign a letter of agreement with the Institute regarding a collaboration to develop STEM teaching materials in Creole, the language spoken by a majority of Haiti's citizens.

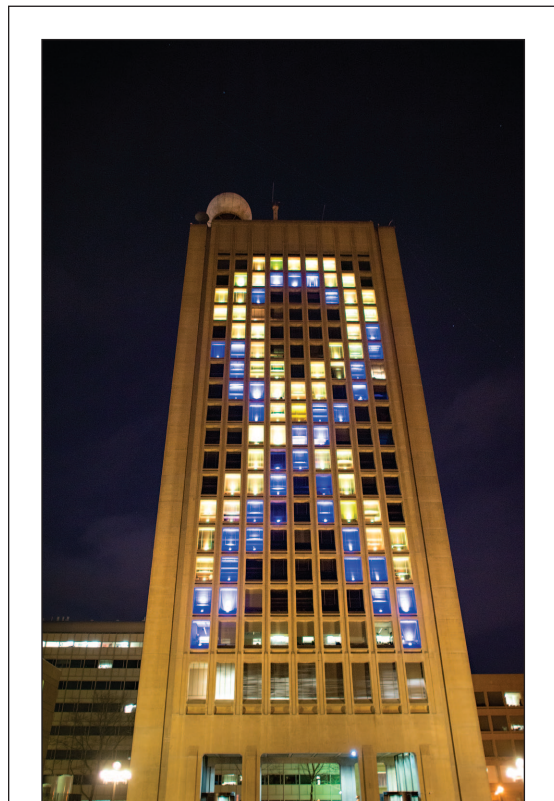
MIT Linguistics Professor Michel DeGraff, who is natively Haitian, leads the MIT Haiti Initiative, with Vijay Kumar, the director of the MIT Office of Educational Innovation and Technology. With the support of a National Science Foundation grant from 2012, MIT professors have been helping develop new resources, especially electronic ones, in the Creole (Kreyòl) language. Currently, the

vast majority of science, math, and technology teaching in Haiti is done in French, even though the language is only spoken by three percent of the population.

Professor Haynes R. Miller contributed from the Mathematics Department, working with translators since the fall. He said that he relayed

Haiti, Page 11

MIT remembers Officer Sean Collier, p.7



The Green Building at MIT was lit with a ribbon in the colors of the Boston Marathon on the night of April 20 in tribute to victims of the bombing.

Faculty Newsletter focuses on education

Task Force on Education; discussing how residential education could adapt

By Anne Cai
EDITOR IN CHIEF

With MIT's involvement in the online education sphere, it is no surprise that the role of MIT in the future of education has yet again taken the spotlight in a faculty newsletter. The March/April issue, published April 12, opens with an editorial on MITx: "One happy consequence [of MITx]

is unquestionable: we discuss how we teach more now than ever before."

As provost, L. Rafael Reif launched MITx in December 2011, and since becoming president of MIT in July 2012, he has made it clear that improving education features prominently on his agenda for the Institute. Reif's inaugural speech centered on MIT's role in the future of education, and in early February 2013, he announced the creation

of the Institute-Wide Task Force on the Future of MIT Education, co-chaired by Director of Digital Learning Sanjay Sarma and Executive Vice President and Treasurer Israel Ruiz. The task force was charged with proposing an "ecosystem" for innovation in education, recommending "possible experiments and pilot projects" to explore MIT's

Newsletter, Page 12

Recap of other news last week

New 6-7 MEng, biology GIR classes

Want more out of Course 7? You're in luck! At the faculty meeting last week, a Masters of Engineering Program (MEng) in Course 6-7 (Computer Science and Molecular Biology) was approved as well as two new classes — 7.015 and 7.016 — that fulfill the Biology General Institute Requirement. 7.015 is a more advanced introductory class for those who come in with a substantial background in biology, while 7.016 specializes in biochemistry. For more information, check out *The Tech's* prior coverage last week at <http://tech.mit.edu/V133/N19/biology.html>.

—Stan Gill

New GSC officers elected

MIT's graduate students will be represented this coming year in the Graduate Student Council's (GSC) officers-elect, who will take office in May: President Caleb J. Waugh, Vice President Alex Guo, Treasurer Parth Trivedi, and Secretary Chris D. Smith.

Waugh said that the group has outlined three major goals for the next year — rebranding the GSC and increasing its publicity efforts, tapping into the ideas and energy of students, and influencing developments in Kendall Square. See *The Tech's* prior coverage last week at <http://tech.mit.edu/V133/N19/gsc.html>.

—Bruno B. F. Faviero

IN SHORT

There will be a memorial service for Officer Sean Collier on Wednesday at noon on Briggs Field. It is open to law enforcement and the MIT community. The following streets will be closed: Mass. Ave. between Albany and Beacon St. starting at 7 a.m., Vassar between Audrey and Mass. Ave. at 6 a.m., and Memorial Drive between Mass. Ave. and the BU Bridge at 12 a.m.

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

EDITORIAL: STRENGTH IN COMMUNITY

Reflecting on the trying past week.

OPINION, p. 4

FROM A FRIEND: REMEMBERING SEAN COLLIER

Prof. David E. Housman remembers his fallen friend.

LETTERS, p. 4



BOSTON SUPPORT

The Prudential Tower was lit up Monday night in support of The One Fund Boston and those affected by the Boston Marathon bombing. PHOTO, p. 10

THE SECRET LIFE OF RESEARCHERS

Teaching plankton to kids — honing science communication skills.

CAMPUS LIFE, p. 13

SECTIONS

World & Nation . . . 2
Opinion 4
Fun Pages 5
Campus Life 13
Sports 16

Flights delayed amid budget-cut furloughs of air controllers

By Matthew L. Wald
and Jad Mouawad
THE NEW YORK TIMES

WASHINGTON — Flights were delayed by up to two hours across the country Monday, the first week-day that the nation's air traffic control system operated with 10 percent fewer controllers. Pilots, gate agents and others were quick to blame furloughs caused by mandatory across-the-board budget cuts, but the Federal Aviation Administration said it was too soon to assign blame.

The agency said in a statement, however, that "travelers can expect to see a wide range of delays that will change throughout the day depending on staffing and weather-related issues," and that there were special

"staffing challenges" at radar centers in New York, Dallas-Fort Worth, Jacksonville, Fla., and Los Angeles. At those centers, controllers had to space airplanes farther apart so that they would not have to take on more planes than they could manage.

The FAA said it would not have a firm count of how many delays were the result of air traffic control staffing until Tuesday.

The agency said the public can get a snapshot of overall delays at fly.faa.gov/flyfaa/usmap.jsp.

Delays piled up throughout Monday as the airlines, including US Airways, JetBlue and Delta, were forced to cancel some flights because of cutbacks. Shuttle flights between Washington and New York were running 60 to 90 minutes late.

But Southwest Airlines said it did not see any unusual delays.

Airline executives were furious over how the aviation agency handled the government-inflicted chaos, and privately said the agency was seeking to impose the maximum possible pain for passengers to make a political point. The airlines had hoped that Congress would intervene and restore some of the financing, but so far lawmakers have not acted to help the FAA.

The pilots' union, and trade groups representing large airlines and regional carriers, filed a suit Friday seeking to avert the furloughs. The FAA calculated that the furloughs would affect up to 6,700 flights a day. There are 30,000 to 35,000 commercial flights a day.

Syrian war spilling into Lebanon, rights group says

By Hania Mourtada
THE NEW YORK TIMES

BEIRUT — A Human Rights Watch report released Monday accused both the Syrian government and the insurgency of striking residential areas in neighboring Lebanon on several occasions and killing a number of its citizens. The cross-border attacks appeared to be largely indiscriminate and threatened to further destabilize the Syrian-Lebanese frontier, Human Rights Watch said.

While the Syrian government

and armed opposition groups have both said that their attacks on Lebanese villages were in retaliation for provocations, Human Rights Watch said it had not found any evidence of military targets when it visited the Lebanese villages that had been attacked.

"The nature of the rockets and launchers that appear to have been used, together with the lack of any evidence of military targets in the villages, strongly suggests these attacks were indiscriminate and therefore violate the laws of war," Human Rights Watch said in

a summary of the report.

Lebanon has officially adopted a policy of dissociation from the Syrian conflict, which has pitted the government of President Bashar Assad against a Sunni-dominated rebellion, but violence is beginning to spill over the border, intensifying sectarian tensions in Lebanon.

Insurgents and their sympathizers have accused Hezbollah, the Lebanese Shiite militant group that supports Assad, of sending fighters into the Syrian town of Qusayr in recent weeks.

Taliban abduct 11 civilians from downed helicopter

KABUL, Afghanistan — An emergency landing by a helicopter ferrying foreign engineers in eastern Afghanistan turned into a mass abduction by the Taliban, officials said on Monday, offering a stark reminder of the insurgents' continuing hold on large parts of the countryside.

The aircraft was forced down late Sunday because of a storm, according to the Afghan transport company that operated it, and it had to land in an area of Logar province, Mangal Khel, that is almost entirely controlled by the Taliban. Although Logar borders Kabul and has a large and mostly U.S. base near the province's capital, it also has a vast mountainous stretch that has become an insurgent haven, local officials said.

In all, 11 people were abducted, according to reports from the Turkish foreign ministry and Afghan government officials. They included eight Turkish engineers, one Afghan man and the two pilots of the Russian-made helicopter. One pilot was confirmed to be Russian; the other was either Russian or from Central Asia, but there were conflicting reports of his nationality.

"It's a lot of people to take hostage — a lot of civilians," said a senior Western official here, speaking on condition of anonymity. "It gives the Taliban bargaining chips, no question about that."

—Alissa J. Rubin, *The New York Times*

News Corp. agrees to settlement with shareholders

As News Corp. continues to negotiate settlements with victims of a phone-hacking scandal within its British newspaper division, its board Monday reached a \$139 million settlement with a group of U.S. shareholders. The group had asserted that News Corp.'s board — led by Rupert Murdoch, the chairman and chief executive — breached its fiduciary responsibility in handling the crisis in Britain. The lawsuit also asserted that the company had unethically paid \$670 million in 2011 to acquire Shine Group, the television production company of Murdoch's daughter, Elisabeth Murdoch.

The suit was filed by Amalgamated Bank, the largest union-owned bank in the United States, which handles large-scale labor and pension funds.

News Corp. will not pay any of the \$139 million settlement. Rather, the company will receive a payment from insurance that protects corporate boards from this type of litigation.

"We are proud of this historic settlement," Edward Grebow, president and chief executive of Amalgamated Bank, said in a statement. The bank's Longview Funds hold 455,343 Class A common shares of News Corp.

News Corp. indicated that the settlement would move it one step closer toward distancing itself from the hacking imbroglio that erupted in 2011.

—Amy Chozick, *The New York Times*

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Charges filed in federal court

Tsarnaev mentally competent, death max penalty

Resolution, from Page 1

or visibly react to the explosion; instead, he moves away calmly. Genck said he believes this suspect to be Dzhokhar.

At 8:45 p.m. on Friday, Tsarnaev had been taken into custody after an intense manhunt.

The complaint also said that one of the suspects said to the carjacking victim on Thursday, "Did you hear about the Boston explosion? I did that," and then forced the victim pick up the other suspect at gunpoint. The victim escaped after being forced to drive to a gas station. According to the filing, the victim's vehicle was then located in Watertown where the occupants engaged

police with guns and at least two small explosive devices. One of the two suspects, later identified as Tamerlan Tsarnaev, was killed during the incident.

Boston Police announced at 8:45 p.m. on Friday that Dzhokhar A. Tsarnaev, had been taken into custody after an intense manhunt, ending the threat to public safety. He was found with multiple gunshot wounds in a boat parked at a Watertown residence.

The complaint said that the FBI seized clothing from Dzhokhar Tsarnaev's dorm room at the University of Massachusetts at Dartmouth that matched the attire of the second suspect on the marathon security footage.

The complaint made no mention of the fatal shooting of Collier prior to the carjacking.

According to the *Boston Herald*, the spokesperson for the Middlesex District Attorney's Office said that Collier was not responding to

any incident before he was shot, contrary to previous reports. The office believes that he was "assassinated" by the bombing suspects.

According to MIT police chief John DiFava, MIT and Cambridge police officers paired up to patrol campus while Tsarnaev was still at large.

Most local colleges, including MIT, closed on Friday.

Most local colleges, including MIT, closed on Friday. A Cambridge alert shortly before 6:30 a.m. encouraged residents to stay home and businesses to close. Many streets and buildings were eerily empty. The emergency state at MIT was lifted at 9:24 p.m. after the capture of Dzhokhar Tsarnaev.

Joanna Kao contributed reporting.



DAVID DA HE—THE TECH

Police officers return to the Cambridge Police headquarters in East Cambridge after Friday's manhunt was over.

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MIT remembers Officer Sean Collier

By **Greg Steinbrecher**
STAFF REPORTER

At 2:50 p.m. Monday afternoon, the state of Massachusetts paused in silence in honor of fallen MIT Police Officer Sean Collier. At the same time, hundreds of people linked hands and formed a human chain on Vassar Street from the MIT Police Station to the memorial where Officer Collier was slain, outside the MIT Stata Center. Those attending formed a continuous chain stretching more

than eight-tenths of a mile, blocking traffic at the busy intersection with Massachusetts Avenue.

Before sunrise that morning, students honored Officer Collier in a fashion more uniquely MIT, installing four hacks across campus. An old campus police cruiser — part of an exhibit on hacking in the Stata Center — was decorated with hundreds of multicolored paper cranes. A banner emblazoned with an MIT Police badge, visible from Boston, was installed on the façade of Building 10 below

the Great Dome. A similar banner was hung in Lobby 7, including the words, “We remember and honor the fallen”. Finally, *Alchemist*, the sculpture of a thinking man in front of the Student Center, was outfitted with two more MIT Police badges, one proportionally large enough to be a shield, and one small.

While Monday held several planned events, the day was not unusual in its volume of support for the MIT Police Department and Officer Collier’s memory. Instead, it is indicative of that which has poured forth from the MIT community and beyond since Officer Collier’s passing.

Students react

Michele Pratusovich ’13, who made friends with Collier through his membership in the MIT Outing Club, stayed awake late Thursday night monitoring the events with friends. When they heard that the injured officer had passed away, they quickly began to worry that it had been Collier. Her concern increased when she noticed his absence from the MIT Police motorcade in honor of the officer early Friday morning (The fallen officer’s identity was not released until 10:19 a.m.). She began preparing a tumblr blog for others to share memories of Sean “just in case it turned out to be him” and released the link via email and Facebook as soon as his identity was confirmed. As of Monday evening the blog had received over 170 submissions and was still actively receiving them.

Even before the officers’ identity was revealed, Emily TenCate ’15 began organizing the “MIT Campus Police Breakfast Initiative” to purchase MIT Police Officers breakfast as thanks for their efforts and sacrifices. Any extra was intended to be donated to the fallen officer’s family. When Flour Bakery was informed of the destination of the breakfast Tencate was attempting to purchase, it instead donated the breakfast for the department, leaving the breakfast funds free. The effort had raised over \$5,000 by 6 p.m. on Friday, which was donated, at the request of Sean’s family, to the Jimmy Fund in his honor. Sean had been a longtime supporter of the Fund.

At 2:05 a.m. Friday morning, only minutes after it was confirmed that an MIT officer had been killed, Stephanie Birkhimer ’14 sent an email to her dormitory mailing list suggesting others join her the following day in wearing black to honor the fact that an MIT Police Officer had been killed. “I’m wearing black tomorrow in memory of the MIT officer who was killed tonight, and I invite you all to do the same. That could have easily been any one of us, and I’d like to show some respect to him for protecting us, and mourn the loss of a member of our community.”

The message spread amazingly quickly, with students from across campus pledging to join her. Even despite classes being cancelled Friday, many students reported wearing black around their dormitories.

The cause of honoring Officer Collier and thanking the MIT Police Department brought

students together across campus. Residents of McCormick Hall signed a card which was posted on the MIT Police Station’s window; some residents of mixed religions also gathered for a group prayer Friday afternoon. Students in Simmons printed out hundreds of pieces of paper, taping them together to form a giant MIT Police badge to hang in Simmons Dining. In Next Hall, a poster with paint handprints for the MIT Police was made in addition to numerous personal cards being written. At a party on Fifth East of East Campus, a bottle collected donations for the Jimmy Fund in Officer Collier’s honor. Flowers and messages gathered both outside the Stata Center and at the MIT Police station.

Collier remembered by colleagues

It was “in [Collier’s] DNA” to serve in law enforcement, DiFava told *The Tech*. In addition to his duties as an officer, Collier was involved in the Police Department’s IT operations, the MIT Outing Club, and a local homeless shelter.

“Collier was a very, very well-liked individual. Right now, everyone is very tired, but I’m afraid that when the tiredness wears off, it will hit us,” DiFava said. “He had a heck of a sense of humor. He was incredibly charismatic. He was very, very dedicated, very hardworking.”

DiFava said he was worried about the toll Collier’s death has taken on other MIT officers. “If students were to approach an officer and just say, ‘How are you doing today? We’re sorry about MIT officer Collier,’ that’d go a long, long way,” DiFava said.

Memorial Ceremony to be held Wednesday

MIT will hold a memorial ceremony for Officer Collier on Briggs Field Wednesday at noon. Several thousand police officers will be in attendance. Vice President Joe Biden will also attend, accompanied by his wife, Jill. According to the announcement, the event “will inevitably disrupt daily life on the west side of campus for some hours.” Details on how to attend are still forthcoming.

Ways to support

For those wishing to offer their condolences, MIT Police have created *officer179.mit.edu*. As mentioned earlier, memories of Officer Collier can be shared anonymously at <http://seancolliermemories.tumblr.com>. Finally, in the interests of preserving the events of the past few days, *The Tech* is collecting and displaying photographs of memorials and events at <http://rememberingsean.thetech.com>.

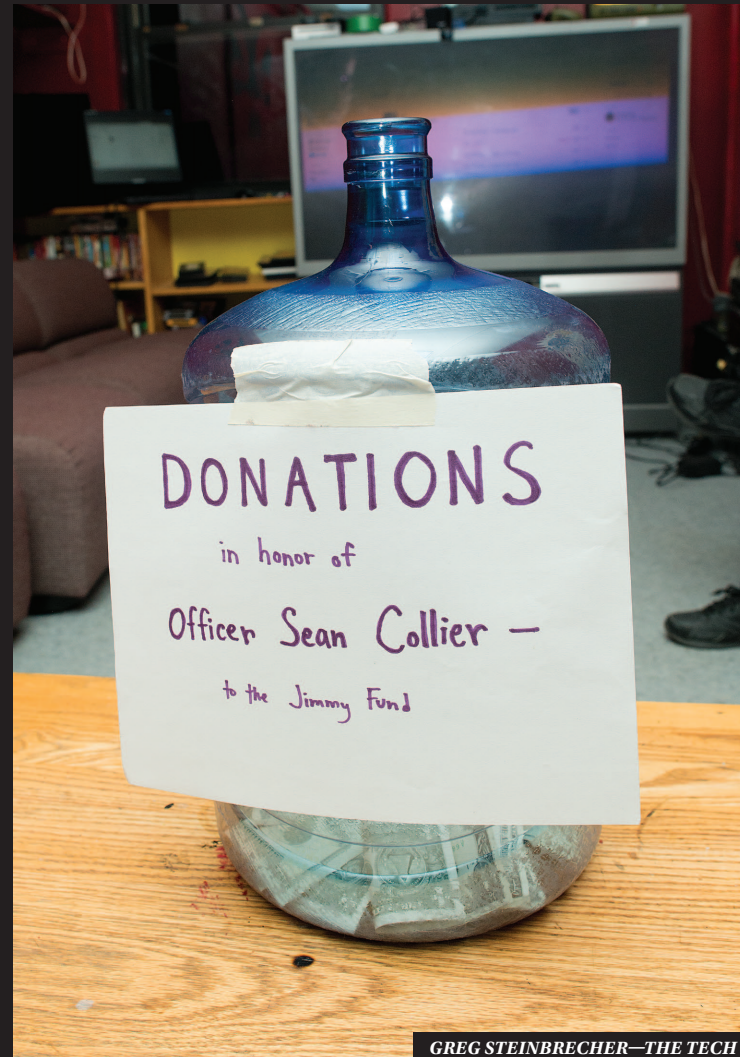
MIT has also established the Sean A. Collier Memorial Fund. According to the official description, “It will be used to establish a Collier Medal — to be awarded to individuals who demonstrate the values of Officer Collier — and other causes.” The officer’s family has also noted that Sean was a longtime supporter of the Jimmy Fund; donations can be made in his honor.

MIT will hold a memorial ceremony for Officer Collier on Briggs Field on Wednesday at noon.





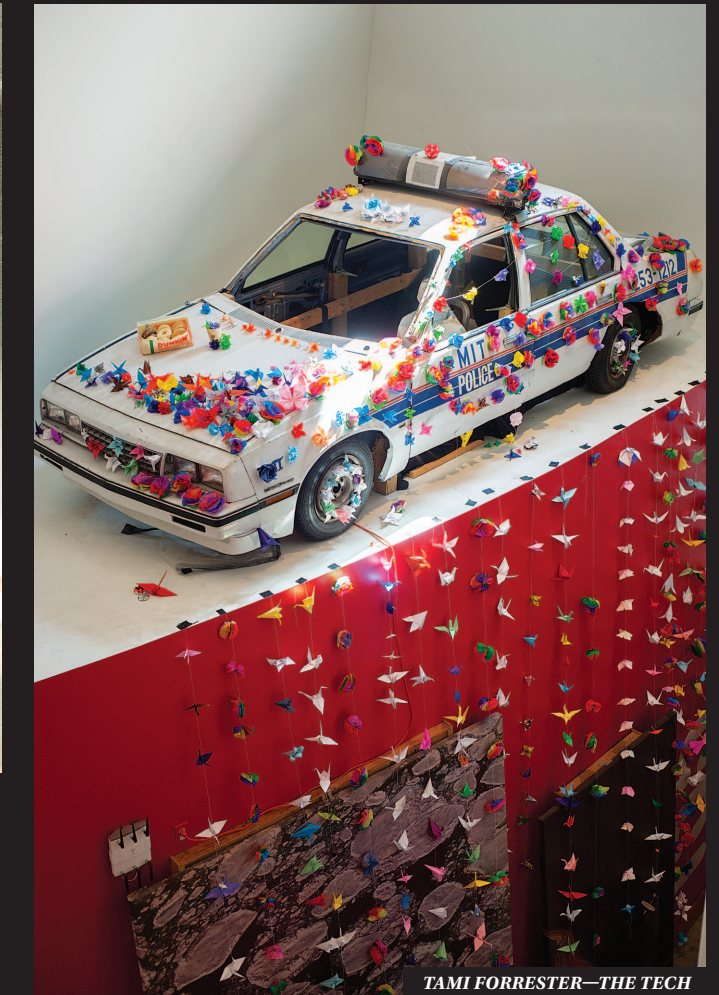
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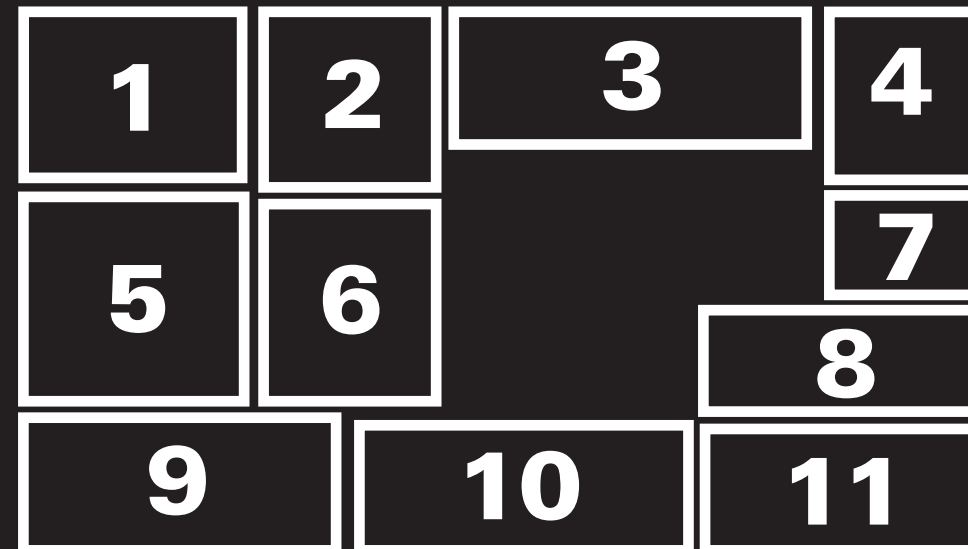
GREG STEINBRECHER—THE TECH



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Memorials to fallen officer

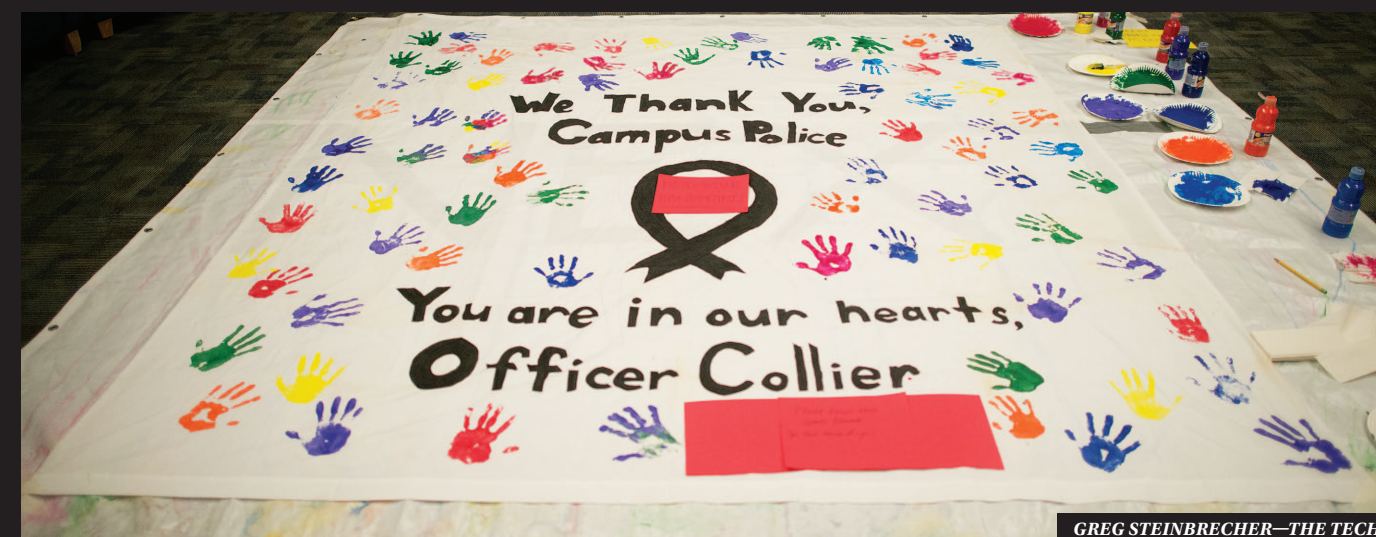
1. Hackers placed the MIT Police badge on both the shoulder and chest of The Alchemist on April 22, 2013 in memory of Sean Collier.
2. Residents of East Campus' Fifth East provided a donations bin during their party Saturday night. Proceeds went to the Jimmy Fund, of which Officer Collier was a longtime supporter.
3. A sign for Officer Collier adorns the window of the MIT Police Headquarters on Vassar Street.
4. Hundreds of paper cranes and origami flowers were draped on the MIT police cruiser in the Stata Center in honor of Officer Collier.
5. Students in Simmons Hall printed a gigantic MIT Police badge across hundreds of pieces of 8.5"x11" paper. The sheets were assembled and hung in Simmons Dining.
6. and 7. Hackers placed the MIT Police badge on the façade of Building 10 and hung a banner inside Lobby 7 in memory of Officer Collier.
8. A makeshift memorial to MIT Police Officer Collier was erected by a steady stream of visitors in front of Building 32 on Friday, April 19, 2013.
9. At 2:45 p.m. on Monday, April 22, members of the MIT community stood hand in hand forming a human chain along Vassar Street from the Collier memorial at Stata to the MIT Campus Police station for a statewide moment of silence at 2:50 p.m.
10. Residents of Next House left hand prints across a poster thanking the MIT Police Saturday night. Residents also wrote individual cards which were then delivered.
11. A large sign from the women of McCormick Hall joins many others at MIT Police Headquarters in thanking and remembering Officer Collier.



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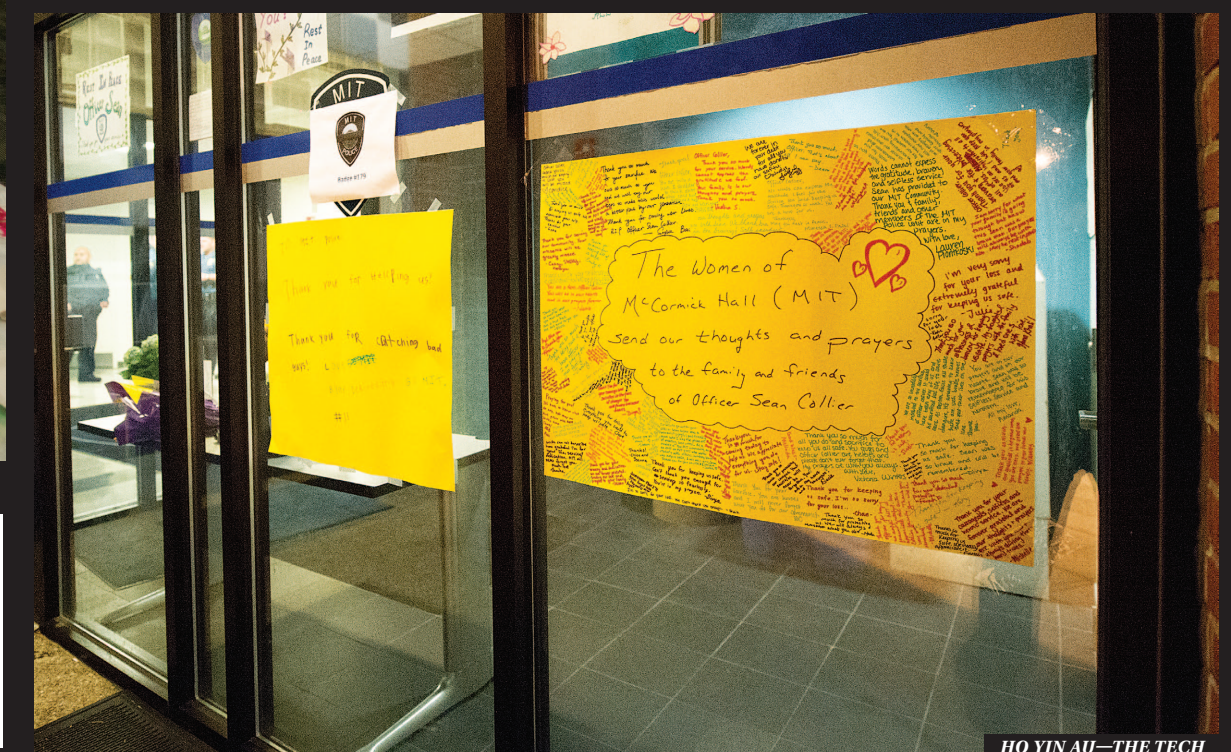
TAMI FORRESTER—THE TECH



GREG STEINBRECHER—THE TECH

The Tech is collecting photos of the many efforts to remember MIT police officer **Sean A. Collier**. Check out our gallery and submit yours:

<http://rememberingsean.thetech.com>



HO YIN AU—THE TECH

Prudential lit for Boston One Fund



JESSICA L. WASS—THE TECH

The Prudential Center was lit up on Monday evening for the Boston One Fund, the fund for the victims of the Boston Marathon Bombing.

Celebration following suspect's capture



VANESSA TREVINO—THE TECH

On Friday, April 19, following news that the second suspect in Monday's bombings had been captured, people, many students, gathered in the Boston Common to celebrate.

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Solution to Sudoku

from page 5

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

Solution to Techdoku

from page 5

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

Solution to Crossword

from page 5

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

Haitian PM visits MIT for education

Initiative attempts to develop education materials in Creole

Haiti, from Page 1

information to a translator for materials and “mathlet” applications to demonstrate concepts graphically, and these were later translated back to English to check for accuracy. Many times, he said, it was necessary to invent new terms in Creole when the language did not have a word for a certain mathematical concept. Peter Dourmashkin also participated in the collaboration on behalf of the Physics Department.

Michel DeGraff said that the project at MIT reached out to the Haitian government because they knew the government would have to be involved for the program to succeed in Haiti. According to DeGraff, “If each professor uses it with their own students and disseminates [the materials], the growth will be exponential.”

DeGraff knew that the government would have to get involved for the project to succeed.

Vijay Kumar said that the materials developed in the collaboration are meant to maximize learning gains for students. “We are replacing rote memorization with new techniques. We are generating new scientific terms where there were none before.”

DeGraff predicted that students who speak only Creole will be actively engaged in their learning within ten years.

During the ceremony on Wednesday, several people, including DeGraff and Prime Minister Lamothe, shared remarks about the collaboration. Lamothe remarked that in a country where 97 percent of the population speaks Creole, “we should embrace the language our people speak” and “teach in a language where everyone can understand.”

Lamothe said that his administration made education a top priority.

Lamothe said, “This administration has made education its top priority,” pointing out that new surcharges have been added to phone calls and money transfers to Haiti to raise money for public education. According to Lamothe, private school fees in Haiti are about \$220, but most families make less than \$800, meaning public education is of great importance.

“Haiti is moving forward,” concluded the Prime Minister. The dignitaries and members of the MIT-Haiti Initiative signed a letter of agreement in English, French, and Creole to mark the event following a lunch with other MIT administrators and faculty.

Coop Student Board of Directors Election Update

The following student Coop members are candidates for the Board of Directors for the 2013-2014 academic year.



www.thecoop.com



MIT Undergraduate Students:

Paige Finkelstein, 2014
Emma Kane, 2015
Josh Dunaway, 2014
Eric Ruleman, 2016

MIT Graduate Students:

Samuel Shaner, PhD, 2015

Harvard Undergraduate Students:

Joshua Zhang, 2014
Cody Dean, 2014
Madeleine Smith, 2016
Daniel Kramer, 2015
Monika Lutz, 2015

Harvard Graduate Students:

Oliver Hauser, PhD, 2015
Patrick Rich, PhD, 2015
Sneh Patel, MBA, 2014

Voting Deadline is April 25



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Sat 4/27 10 am
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How can campus learning change? *Evaluating roles of the faculty*

Newsletter, from Page 1

educational future, and evaluating MIT's financial model.

At Wednesday's faculty meeting, Sarma announced that the task force plans to have a preliminary report prepared by Fall 2013, releasing a final report the following Spring. With a group membership of approximately 50 faculty, staff, undergraduates, and graduate students, it is addressing Reif's charge with three working groups: MIT Education and Facilities for the Future, Global Implications of edX and the Opportunities It Creates, and A New Financial Model for Education. The task force's website future.mit.edu also features an Idea Bank, which has collected 147 ideas since April 2.

The education task force plans to have a preliminary report prepared by Fall 2013.

Under this broad umbrella of evaluating the Institute's education lies a question that hits closer to home, as phrased by Faculty Chair Samuel M. Allen in this faculty newsletter: "Should we be concerned about the long-term viability of MIT and other residential educational institutions," especially when "low-cost, high quality, online subjects become widely available"?

In attempting to answer this question, Allen looks back in the most recent faculty newsletter to a 1996-1998 task force, charged by then-President Charles M. Vest to evaluate student life and learning. This earlier learning task force deemed the foundation of an MIT education to rest on the "educational triad": academics, research, and community. "Extrapolating from the report of the Task Force," wrote Allen, "an online-only education will always be incomplete because it won't engage learners in two of the three components of the educational triad."

So how well does MIT, as it currently stands, fulfill the educational triad? MIT has already experimented with integrating MITx into classes, including 6.002, 3.091, and 8.01. As more MITx subjects are incorporated into residential learning, how can faculty roles change to add more value to the on-campus education?

Of the educational triad, research is one area that clearly lends itself better to a residential rather than online experience. Of graduating MIT seniors, 85 percent have conducted research guided by faculty members as a UROP (Undergraduate Research Opportunities Program) at some point in the undergraduate careers. However, in the intersection of academics and community, there is more room for improvement.

According to the 2011 undergraduate enrolled student survey, only 14.3 percent of seniors say that, at the end their undergraduate years, four or more faculty members know them well enough to provide a letter of recommendation. In reassessing residential education, Allen, Course 12 (EAPS) professor Timothy L. Grove, Dean of Undergraduate Education Daniel E. Hastings PhD '80, and Chancellor Eric Grimson PhD '80 proposed a resolution in the faculty newsletter that "every freshman should have a faculty member serving as a mentor or advisor." In last Wednesday's faculty meeting, undergraduates and faculty spoke in favor of the resolution as improving faculty support of students outside of the classroom.

In addition to evaluating how MIT's educational model could differentiate itself in light of MITx, how could MIT utilize what it learns through Reif's task force on education and ensuing adaptation? HST professor Nelson Yuan-Sheng Kiang and Course 16 professor Leon Trilling suggest another possibility in the faculty newsletter: "Should MIT Create a School of Education?"

Leon Lin contributed reporting.

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THE SECRET LIFE OF RESEARCHERS

The importance of adaptations

From the watery realm of plankton to grad students at the Cambridge Science Festival

By Alexis D. Fischer

"Did you know," I said to the eight-year-old boy in a Red Sox cap, "that about 50 percent of the oxygen in our atmosphere comes from the ocean by way of the tiny, drifting marine animals and plants called phytoplankton? So for every second breath you take, thank the plankton!"

He greeted me with a blank stare.

I tried again. "Have you ever seen the cartoon *Spongebob Squarepants*?"

"Of course," he said, seeming intrigued.

"Well, I'm sure you've heard of his arch nemesis, Plankton..."

Did either of these questions make you curious about plankton? Those were two of the most successful lures I used to attract young and old visitors to the booth "Making the Invisible Visible: The Secret, Bizarre, and Amazing World of Plankton" at the Cambridge Science Festival's Science Carnival on Saturday, April 13.

As terrestrial beings, feeling a connection with microscopic creatures that live in the ocean is challenging, especially if you don't study the ocean or live near one. My aim in running this booth was to bridge this gap by exposing the watery realm of plankton through a live microscope dem-

onstration, awesome video footage, and a crafts activity to design your own Super Plankton refrigerator magnet. Just as many visitors went home with a new appreciation for plankton and perhaps a Super Plankton magnet in hand, I went home with some great experience at putting my communication skills to the test.

Teaching kids forced me to distill my message down to the basics and really think about why it was important.

The other motivation for this festival booth was including science outreach in the activities of the Broader Impacts Group (BIG), a student-run organization based at the Woods Hole Oceanographic Institution and MIT. Formed in Spring 2012, BIG has produced a variety of science communication workshops, but organizing and executing a booth at the Cambridge Science Festival was our debut in further refining these communi-

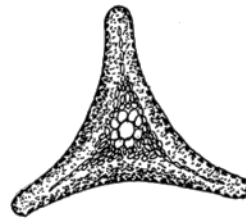
cation skills in a practical setting.

This event provided a great opportunity to apply some of the skills cultivated in BIG workshops in areas as diverse as public speaking, blogging, and radio broadcasting. These workshops have featured acclaimed communication professionals, including journalist and media producer Ari Daniel Shapiro, science writer John Bohannon, and communications professional Linda Pogue.

Seven graduate students from the MIT/WHOI (Woods Hole Oceanographic Institution) Joint Program and MIT Microbiology helped with the festival booth. While we were all armed with an arsenal of scientific knowledge about plankton, most of us had no prior experience with public outreach. No one really knew what they were getting into, and all of a sudden, after the carnival kickoff at noon, our booth was inundated with hoards of kids and their families.

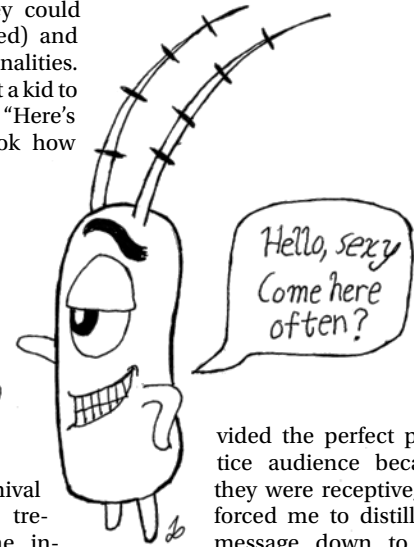
It quickly became clear what tactics worked, like referencing the cartoon *Spongebob Squarepants* for kids, and what did not. Was that a glimmer of understanding in someone's eyes? Because the audience was so diverse in age, education, and culture, the message had to be tailored to make it relevant for each new visitor to the booth.

One particularly effective way to connect with kids was using the GIANTmicrobes® plush toys of Copepod, Krill, Algae, Sea Sparkle, and Red Tide to illustrate food chain interactions. These toys made plankton more approachable because they could be handled (and cuddled) and had human-like personalities. This made it easy to direct a kid to the microscope and say, "Here's a real copepod and look how small it actually is!"



The Science Carnival left me exhausted yet tremendously fulfilled. The instant feedback I experienced of someone "getting" the concept I was trying to teach and then hopefully going home with a greater understanding of our oceans was so rewarding, yet absent in my day-to-day life as a researcher. Although I had lost a full Saturday from research (and then some from all the organizing), it felt as though I had gained

something bigger. The day was also a "test-drive" of the science communications skills I had been honing through lab meetings, conferences, workshops, and even family gatherings. Kids pro-



vided the perfect practice audience because they were receptive, yet forced me to distill my message down to the basics and really think about why it was important.

Despite our limited backgrounds in public outreach, it seemed like the BIG team pulled it off — one woman even gave us her business card and invited us to participate in an environmental high school career fair. Hopefully, this will be BIG's first step towards more education and outreach events.

EVENTS

APR. 23 – APR. 29

TUESDAY

(5:30 p.m. – 7:30 p.m.) Screening of *Emerging Thailand: The Spirit of Small Enterprise* and discussion with MIT economics professor Robert M. Townsend — E25-111

WEDNESDAY

(11:00 a.m. – 2:00 p.m.) MIT Parking and Transportation and Cambridge Bikes presents free bike repairs in conjunction with Earth Day — W20

(5:00 p.m. – 7:30 p.m.) Screening of *Pandora's Promise* and discussion with filmmaker Robert Stone — 34-101

THURSDAY

(11:00 p.m. – 1:00 p.m.) Choose to Reuse — 32 first floor

(7:15 p.m. – 9:30 p.m.) MISTI Foreign Film Night: *Volver* — 1-277

FRIDAY

(12:00 p.m. – 1:00 p.m.) 100 Years of Service: Snapshots of the MIT Women's League (refreshments provided) — 10-340

(4:00 p.m. – 6:30 p.m.) Earth Week film screening: *Chasing Ice* (refreshments provided) — 6-120

SATURDAY

(8:00 a.m. – 10:00 a.m.) Reverend Freakchild performs live on WMBR's Lost Highway program — 88.1 FM

(7:00 p.m. – 10:00 p.m.) Songkran Festival hosted by Thai Students at MIT (TSMIT), \$1 per food ticket — W20-306

SUNDAY

(7:00 a.m. – 8:00 p.m.) Skydiving trip hosted by MIT Skydiving Club — Skydive Pepperell

(5:00 p.m. – 6:00 p.m.) Ohms Spring Concert: COhmmencement — 10-250

MONDAY

(5:00 p.m. – 8:00 p.m.) MIT Fashion Event sponsored by the Martin Trust Center, featuring fashion startups and industry experts (free tickets on eventbrite) — E51-115

Send your campus events to events@tech.mit.edu.

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Heat expected to sweep the Milwaukee Bucks

Indiana Pacers and Chicago Bulls both expected to advance to second round as well

By Austin Osborne,
Nick Lopez,
and Nidharshan
Anandasivam

SPORTS STAFF

(1) Miami Heat vs. (8) Milwaukee Bucks

Milwaukee Bucks point guard Brandon Jennings predicted that his team would defeat LeBron James and the Heat in six games. Jennings may be a little too optimistic, however. I would be incredibly surprised, as would many NBA fans, if the Bucks even prove to be more than a slight bump on the Heat's road to the Finals. Milwaukee doesn't have anyone to guard Dwyane Wade or LeBron, and they will thoroughly dominate the entire series. Although Larry Sanders has been playing outstandingly for the Bucks this season, he, Jennings, and Monta Ellis will not be able to keep up with the speed and quickness of Miami. Among all the potentially great matchups in the first round, this is definitely not one. The Heat should win easily.

Prediction: Heat in 4

—Austin Osborne

The Miami Heat are the top team in the NBA and for a good reason. LeBron James has been his usual dominant self on pace to claim his fourth MVP award in five years. Accompanied by All-Stars Dwyane Wade and Chris Bosh, who are top ten talents in the NBA, many have already crowned the Heat as this year's champions. The only way I see this not being a sweep is if for some reason or another, the Big Three come out complacent; however, with Jennings's recent comments, I doubt this will happen. Look for LeBron and company to crush the Bucks in blow-out fashion on an easy trip to the second round.

Prediction: Heat in 4

—Nick Lopez

(2) New York Knicks vs. (7) Boston Celtics

While the Celtics enter this series as a 7th seed, don't let that fool you. They have a legitimate chance to win this series against the Knicks and they will make it one of the most competitive match-ups of the 1st round. Even without Rajon Rondo, Boston has enough talent in Paul Pierce, Kevin Garnett and Jeff Green to compete with any team in the league. Avery Bradley will do his best to fill in for Rondo, and he should be serviceable for the playoffs. He plays outstanding perimeter defense, so the Knicks' J.R. Smith will struggle to take over games the way he has so far this season. The key to the series will be how well Jeff Green and Brandon Bass can hold Carmelo Anthony. Anthony was the league's leading scorer this season, so they simply cannot allow him to score at will if they want to have a chance. With all that said, in a Game 7, loser-goes-home situation, I have to bet on the veterans every time.

Prediction: Celtics in 7

—Austin Osborne

The Celtics are playing well without their superstar Rajon Rondo. Game 1 was close until the end, when Carmelo Anthony continued his scoring display while the Celtics missed their late fourth quarter shots. The Celtics should be able to win some nail-biters in Boston, but the Knicks' scoring will be too difficult to keep up with. Knicks shooting guard JR Smith should heat up from behind the arc in the next couple of games, and Tyson Chandler and Kenyon Martin will dominate on the defensive end. Paul Pierce went 1/7 from three in Game 1, and his shooting will improve, but that will only be enough to win a couple of games against the second-seeded Knicks.

Prediction: Knicks in 6

—Nidharshan Anandasivam

(3) Indiana Pacers vs. (6) Atlanta Hawks

This match-up was more intriguing three weeks ago, before Atlanta began to come apart at the seams. The Hawks are led by explosive power forward Josh Smith and center Al Horford, but they don't have much else. Their offseason signing of Lou Williams won't help them in this series, as he tore his ACL earlier this season. This really hurts their scoring output and they'll need all the offense that they can get against the stout Indiana defense. Paul George has emerged into a legitimate NBA superstar this season, so the loss of Danny Granger won't be as detrimental to their success as one may think. Although Roy Hibbert has regressed from his All-Star season of last year, he will still be a defensive force down low and make it difficult for Smith and Horford to make a meaningful impact in the series. Indiana shouldn't have a problem advancing to Round 2.

Prediction: Pacers in 4

—Austin Osborne

(4) Brooklyn Nets vs. (5) Chicago Bulls

This will definitely be one of the closer series, even without Derrick Rose. Chicago is famous for their incredibly tough brand of defense and Brooklyn made waves in the offseason with the acquisition of shooting guard Joe Johnson and Portland swingman Gerald Wallace. The team didn't quite reach their lofty preseason expectations, although they did have a quite successful season. Depending on how perennial All-Star Deron Williams plays this series, the Nets could definitely be upset by the Bulls. They should struggle to score, especially after the emergence of Chicago forward Jimmy Butler. Butler has proven to be instrumental in Chicago's defensive success, and he should be a key in the series. The Bulls also need Joa-

kim Noah on the floor to contain Nets' center Brook Lopez. The games should be low scoring and competitive, but Chicago's defense should prove to be too much, and they'll pull off the upset.

Prediction: Bulls in 6

—Austin Osborne

The Brooklyn Nets blew out the Chicago Bulls in Game 1, thanks to a combined scoring effort from point guard Deron Williams, shooting guard Joe Johnson, and center Brook Lopez. The Bulls defense gave up too many easy points in the paint, as Brooklyn's starting five tore them apart with their penetration offense. The Bulls' defense should improve as the series progresses and they figure out how to defend Brook Lopez in the paint as a team. Although the Bulls don't expect Derrick Rose to play anytime soon, Luol Deng and Nate Robinson could step up to boost their scoring. Deng scored only 6 in 38 minutes of play, going 3/11 in Game 1, and he will improve during the series. Bulls forward Joakim Noah is hindered by his foot injury (plantar fasciitis), but the Bulls should still be able to win this series in 7. After all, during the regular season, this Bulls team managed to beat the Miami Heat to end their 27-game win streak, and the New York Knicks to end their 13-game win streak.

Prediction: Bulls in 7

—Nidharshan Anandasivam

(1) Oklahoma City Thunder vs. (8) Houston Rockets

Even though it is a battle of a top seeded team against an 8th seed, Houston should challenge the Thunder and make the series competitive. James Harden is now the face of the Rockets and he provides a dynamic scorer beside Omer Asik's dominant post defense. Jeremy Lin has had a good year for Houston, and Chan-

ler Parsons has emerged as a dangerous player on both sides of the ball. OKC will create huge match-up problems however, as outside of Asik, the Rockets don't have much to speak of on defense. They will struggle trying to stop Kevin Durant, Russell Westbrook and Kevin Martin, which will prove to be their demise.

Prediction: Thunder in 5

—Austin Osborne

This series has arguably the best storyline of all the first round match-ups, with All-Star James Harden facing off against the team that traded him 5 months ago. Because of that, everyone will be waiting to see how Harden responds in this series. Oklahoma City is the top team in the West and rightfully so. They have one of the greatest players in the NBA in Kevin Durant, and another top ten talent in point guard Russell Westbrook. The Rockets, on the other hand, were not expected to make the playoffs in many preseason predictions, but have performed well beyond even the most generous of predictions. They are young, and for many of them, this will be their first playoff appearance with a prominent role on the team. Harden will be spectacular this series, but one spectacular player cannot beat one spectacular team. I believe the Rockets will steal one game from the Thunder, a game in which Harden goes off for 40-50 points; however the Thunder will ultimately prove to be too much for the young Rockets to handle.

Prediction: Thunder in 5

—Nick Lopez

(2) San Antonio Spurs vs. (7) Los Angeles Lakers

The San Antonio Spurs lost to the Bryant-less Los Angeles Lakers in one of the final games of the regular season. But during this game, post-proficient Pau Gasol managed to score 17 points and gather 20 re-

NBA, Page 15



EMERGING THAILAND: THE SPIRIT OF SMALL ENTERPRISE

Documentary Screening & Discussion

with

ROBERT M. TOWNSEND

MIT Professor of Economics



6:00 pm April 23 at E25-111 MIT
With preceding reception at 5:30 pm

For more than 15 years, Townsend and his team surveyed Thailand's villages, towns, and neighborhoods—and the economies within. Please join us to explore the spirit and dynamism of the Thai people and learn from discoveries that will change your perspective on developing countries worldwide. Refreshments will be provided at the reception.

UPCOMING HOME EVENTS

Tuesday, April 23

Baseball vs. Wheaton College
3:30 p.m., Briggs Field

Men's Tennis vs. Brandeis University
4 p.m., DuPont Tennis Courts

Wednesday, April 24

Softball vs. WPI
3 p.m., Briggs Field

Baseball vs. Fisher College
4 p.m., Briggs Field

Softball vs. WPI
5 p.m., Briggs Field

Men's Lacrosse vs. Wheaton College
7 p.m., Steinbrenner Stadium

Thursday, April 25

Sailing vs. Midweek Invitational
4 p.m., Charles River

Baseball vs. UMass Boston
4 p.m., Briggs Field

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