

SPECIAL SUPPLEMENT TO THE BOSTON GLOBE



11 IDEAS FROM BOSTON 2014

Boston Globe columnist Scott Kirsner, one of two co-hosts for IDEAS UMass Boston 2014, opened with a story that embodies the region's innovation history. Visiting a biotech incubator in Cambridge, Kirsner noticed two plaques commemorating the history of the old brick building. This building was once the office and laboratory of Polaroid founder Edwin Land; before that, it was the site where Thomas Watson received the first long-distance phone call from Alexander Graham Bell.

"That kind of experience is the essence of IDEAS Boston, and innovation in Boston," Kirsner said. "It surrounds us every day, layer upon layer of experiments and failures and breakthroughs and patents and demonstrations — and then ideally IPOs and Nobel prizes at the end of all that."

AT THE UNIVERSITY OF MASSACHUSETTS BOSTON



Clockwise from top left, co-moderators Sacha Pfeiffer and Scott Kirsner, and Chancellor J. Keith Motley.

Kirsner and Sacha Pfeiffer, host of WBUR's All Things Considered, were co-moderators for this year's tenth anniversary of IDEAS UMass Boston, a conference that brings together innovators and leading thinkers from the worlds of science, business, technology, and the arts.

This year's presenters included a national security expert, a former candidate for Boston mayor, and an experimental theater troupe working to bring the "teaching hospital" model to the stage.

Chancellor J. Keith Motley opened the conference by celebrating the brainpower on the dais and in the audience.

"At IDEAS UMass Boston, our speakers have disparate interests, but share a transcendental quality of innovation, and they use their innovation to serve others," Motley said. "Today's speakers value access to information, thinking ahead of their times, creativity, and real-world applications for their ideas. These values are our values."

John Barros, chief of economic development for the city of Boston, also welcomed the crowd, offering a vision for creating avenues of opportunity for all.

"We are sitting in a city that was actually the cradle of the new idea called America," he said. "We need to continue to be the hub of new ideas."

Those who experienced IDEAS UMass Boston would agree. For those who missed it, here are the day's highlights.

1 "My platform is the arts—it's what I know, it's what I can do, and it's how I reach young impressionable minds."

Ashleigh Gordon, Violist and Social Change Advocate

As a child, Ashleigh Gordon had an insatiable curiosity about her background and her family history. Her family's roots in Jamaica and their frequent visits back to the island grounded her, and gave her a hunger to learn about other cultures. From there, she said, she developed respect and tolerance for other people—traits she is eager to help instill in children today.

"Our children need to have a sense of urgency and desire to be culturally curious," she said. "Social change relies on cultural curiosity, and it starts with our kids."

Gordon's medium of choice to teach cultural curiosity is her art: the music she creates with her viola, Rhonda. Working with Rhonda—and pianist Anthony Green—she has created a concert and education series for children, called



Castle of Our Skins, which teaches them about black artistry and leadership through music.

Gordon gave the IDEAS UMass Boston audience a demonstration of a Castle of Our Skins performance, asking them to harken back to their fourth- and fifth-grade selves and to participate in her lesson on legendary figures in African-American history.

On Gordon's instructions, as she played her viola, the audience chanted the name of activist Angela Davis, snapped their fingers in time to a poem on composer Ed Bland, and rubbed their hands together as if tilling soil in an homage to George Washington Carver.

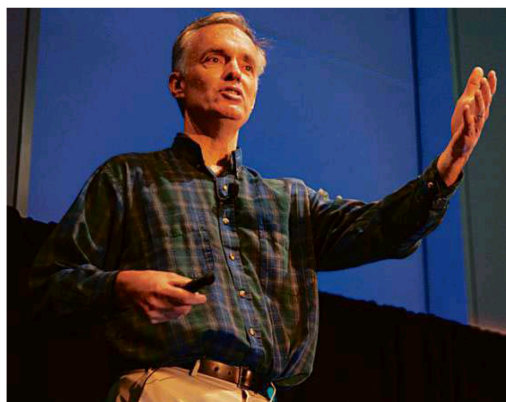
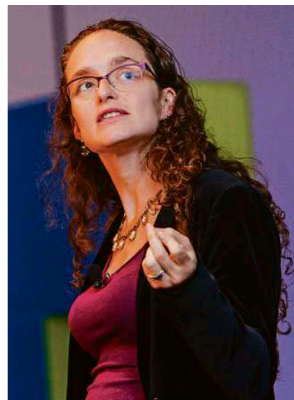
"Our skin and the stories that are woven in our skin are something to celebrate," Gordon said. "And our platform of choice is the arts."

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IDEAS UMass Boston speakers, clockwise from top left: Ashleigh Gordon, Rebecca Saxe, James Collins and Juliette Kayyem.

Saxe scanned the brains of Arabs and Israelis, and later Democrats and Republicans on the eve of the 2012 election. She hopes to learn how people might come to understand the motivations of those who hold opposing views.



2 "Why do we think that people we disagree with aren't just wrong, but crazy?"

Rebecca Saxe, Neuroscientist

Grace visits a chemical factory with her friend. Her friend asks her to fix her a cup of coffee. Grace sees a box filled with a white substance that looks like sugar. Grace puts the powder into the coffee, which her friend drinks. It turns out the white substance was poison, and Grace's friend dies. How much moral blame does Grace deserve? What if Grace had seen a "poison" label on the box? How much blame would she deserve then?

This is the type of story that MIT neuroscientist Rebecca Saxe tells her research subjects to learn about how we think about other people's thoughts. It turns out that human beings are particularly talented at placing ourselves in someone else's shoes and imagining what they might be thinking. In the case of Grace and the chemical factory, we believe we can tell if Grace made an honest mistake, or intentionally poisoned her friend.

Ten years ago, Saxe's groundbreaking research uncovered a specific part of the brain that is devoted to theory of mind. Today, she's taking that research a step further.

"Why do we think that people we disagree with aren't just wrong, but crazy?" Saxe asked. To answer that question, Saxe scanned the brains of Arabs and Israelis, and later Democrats and Republicans on the eve of the 2012 election. She hopes to learn how people might come to understand the motivations of those who hold opposing views.

Saxe pointed out that sitting in a room, sharing knowledge in a public forum, is a uniquely human activity. "Our capacity for social cognition is one of the most remarkable things about the human brain," she said.

3 Juliette Kayyem encourages Americans to focus on the "home" in "homeland security," as a way of being resilient in a crisis.

Juliette Kayyem, Homeland Security Expert

Since the 9-11 terrorist attacks, the American public has heard the phrase "Never again" uttered by presidents, politicians, and media pundits. Juliette Kayyem, who most recently served as assistant secretary for intergovernmental affairs at the Department of Homeland Security, said those two words have permanently confused the public's idea of homeland security.

"Never again"—it is as vague as it is damaging," Kayyem said. "No government ought to guarantee perfect security, because no government can actually provide it."

Kayyem would much rather everyone adopt the motto "Stuff happens." As she showed the audience photographs of disease strains, terrorists, and natural disasters, Kayyem emphasized the importance of being prepared at home. She asked the audience if they had enough food in their pantries to last them 72 hours after a crisis. She asked how many people have copies of their birth certificates, and who had contingency plans on how to get home (without a cell phone) if the transportation system fails. Taking steps to become more resilient as an individual makes the nation more resilient in turn, Kayyem said.

"Keeping calm is not enough in a world of lone-wolf terrorists, cyber attacks from anonymous sources, and outbreaks," she said. "Never again" cannot help when global warming inevitably strikes us again. What can help is when we focus our efforts on bouncing back after these things occur."

Kayyem said bad things happen, but if we can learn from them, we can perform better in the aftermath of the next challenge. Each time that happens, citizens are less likely to feel completely disrupted or traumatized.

4 "Are they going to make something that's dangerous—a Franken-microbe?"

James Collins, Medical Innovator

James Collins returned to the stage at IDEAS UMass Boston 2014, a decade after he was one of the speakers at the inaugural conference. In the intervening years, synthetic biology, Collins' area of study, has made advances that sound almost like science fiction.

Collins, a professor of biomedical engineering and medicine at Boston University, applies the principles of electrical engineering to biology. His work envisions a future in which scientists can "program" lab-generated cells to fight diseases and make repairs in the human body.

"This is the dominant theme in synthetic biology right now—can we rewrite these organisms to do different functions?" Collins asked.

Engineered cells are able to react to what they encounter in the body. Collins' team is hard at work on a process to create cells that can detect markers of cholera and kill the disease, which sickens more than 3 million people each year.

"We realized you could do this in molecular biology. Just as an engineer would go find the parts for a switch, we realized you could do that by finding parts that would be biological in nature—it might be a gene or a bit of DNA, or some other element inside cells. And we could put these together and get them to function inside living cells," he said.

The trailblazing nature of Collins' work means outsiders are sometimes nervous. "Do they really know what they're doing?" they ask. "Are they going to make something that's dangerous—a Franken-microbe? Will I make something that will escape and God forbid, eat Fenway Park?"

Collins believes that the benefits of synthetic biology research will outweigh the risks.

5 "Who invented pronouns? Cause if I could just get my hands on them..."

Company One, Theater Troupe

When faced with limited resources in a competitive arts environment, some theater troupes might play it safe, perform old favorites, try to draw the "usual" theater crowd. Not Company One.

Founded in 1998 by Clark University graduates as an island camp off Portland, Maine, Company One Theatre is now in residence at Boston Center of the Arts and celebrating its 16th season as a "theater for the people," existing on the intersection between art and social change. Their productions engage audiences with critical issues.

"We have an audience that is 55 percent under the age of 35, and 35 percent people of color," said Ilana Brownstein, director of new work at Company One. "But let's not fool ourselves, that's not good enough."

Company One's latest production, *The Displaced Hindu Gods Trilogy*, exemplifies Brownstein's mission. Through humor and drama, each protagonist in the three coming-of-age stories gains a greater understanding of their "fluid identities and place in the world."



Clockwise from top left, speakers Ilana Brownstein of Company One, Robert Hildreth, Sarah Oktay and Ashley Stanley.

Aila Peck performed an excerpt from the first part of the trilogy: *Brahmanji: A One Hijra Stand-Up Comedy Show*. Peck plays "B," an Indian-American intersex youth, struggling with identity, desire, and some nosy relatives.

"Who invented pronouns? Cause if I could just get my hands on them..." began B's monologue, which included confessional diary readings and impressions of family members. There were a lot of laughs, but behind every one of B's funny anecdotes was a real question about gender and culture.

Brownstein told the IDEAS audience that she hopes Boston will devote more space and resources to the arts, so that inventive theater can continue to grow.

6 "Savings is not only a monetary account, it's a psychological account."

Robert Hildreth, Education Reformer

In Canada, half of low-income families depend on a national savings program as their primary way to finance college. Robert Hildreth would like to see such a program in the United States.

"We have a national student loan program, but we don't have a national savings program. We spend so much time trying to force the interest rates on loans down that we never think about bringing the interest rate on savings up," Hildreth said.

In his IDEAS talk, Hildreth cited a 2013 Center for Social Development study that finds a student with just \$500 in a college savings account is three times more likely to go to college and four times more likely to graduate than a child without those savings. Hildreth says 34 percent of low-income families save for college, but the average total is about \$3,742—only 3 percent of the typical tuition at a four-year private school.

"That would take one helluva summer job to make up that gap," Hildreth said, referring to a time when college tuition and fees could be largely covered by summer jobs.

Following a career in finance, Hildreth created a matched savings program that encouraged low-income families to save toward higher education. This idea became the basis for FUEL Education, which has helped the families of more than 700 students from Boston, Chelsea, and Lynn save more than \$600,000 toward their educations.

Hildreth said the government can stimulate saving for college, even among lower income

populations. For a national program to be successful, Hildreth said motivation, money, and incentives are needed. The motivation is there: A Gallup survey finds low-income families are more motivated to save than higher-income families, and 95 percent are motivated to go to college. And incentives are becoming more common. In Maine, newborns get \$500 in a savings account.

7 "Instead of wasting over 100 billion pounds of food a year, we need to start looking at food differently."

Ashley Stanley, Food Rescue Activist

Ashley Stanley was sitting in a restaurant when the thought first occurred to her: What happens to all the food we waste? It's a thought most of us have had at one point or another while sitting down to dinner or shopping at the grocery store.

It was that thought that led the Boston native to found Lovin' Spoonfuls in 2010. The organization picks up wholesome, fresh food that would otherwise be thrown away from grocery stores, produce wholesalers, farms and farmers markets, and gives it to community nonprofits that feed Greater Boston's hungry. Stanley and her team have distributed over 1.5 million pounds of fresh, healthy food to those in need.

The figures Stanley provided to the crowd were bleak — while over 100 billion pounds of food is wasted every year, almost 50 million Americans are classified as "food insecure," meaning they don't know where their next meal will come from. It also costs \$1 billion to incinerate food. "If you fill the Rose Bowl every day, which is almost a 100,000-seat stadium, and set it on fire, that's the rate we waste food," Stanley said.

Stanley called hunger "the most preventable problem" of our lives. She believes that through mobilization and a connection of resources that this country can begin to address the growing food gap. So much production goes into food preparation these days, she said. Food has become a glamorous commodity, with television networks and glossy magazines dedicated to it. Stanley said that now we have to focus on the other end of production—on what happens to the leftovers.

8 "Kids are smart, they're not scared, they know a lot — and they want to know more."

Sarah Oktay, Coastal Preservationist

If there is environmental work to be done on Nantucket, Sarah Oktay is sure to be there, bringing a scientific perspective to policy discussions and community gatherings. As director of UMass Boston's Nantucket Field Station, Oktay might jump on a boat to collect water samples, speak to the yacht club about safe septic system practices, and end the day working with a youth group to collect data on horseshoe crabs.

Oktay said her success in bringing scientists and community members together on Nantucket has only happened because she has taken some big risks. "I work with some unusual suspects," Oktay said. "Kids are smart, they're not scared, they know a lot — and they want to know more. Not enough scientists look at K-12 for partnerships."

At the Nantucket Field Station, Oktay has invited the Grace Grossman Inner City Youth Collaborative to collect real data on beach erosion and biodiversity. The students aren't just learning about science for science's sake—the information that students collect is useful to professional scientists and policymakers in Massachusetts.

Oktay also thinks scientists can work with activist groups to collect data. She now collaborates with actor Mark Ruffalo's charity, Water Defense. Oktay showed the audience what looked like a big pink Koosh ball. The ball's foam "tentacles" are specially designed to absorb oil, pesticides, and anything else that might contaminate Nantucket's water. With the help of Water Defense, Oktay's team will be able to test water quality all over Nantucket and across the country.

Oktay can't imagine working in a lab, hidden from the world. "When people see that I'm involved, they become involved," Oktay said.

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IDEAS UMass Boston speakers, clockwise from left: Charlotte Golar Richie, Nathan Nunn and Naureen Meraj.



"Why is it that when kids play 'Call of Duty,' they tend to learn more about World War II than they do in history class? It's immersive. They are experiencing it."

9 "My job is to make Massachusetts a safe and equal place."

Charlotte Golar Richie, Political Trailblazer

The only woman in the 2013 mayoral race in Boston, a former state representative for the 5th Suffolk District in Massachusetts, a board member of YouthBuild USA, and currently one of three commissioners for the Massachusetts Commission Against Discrimination, Charlotte Golar Richie has had an interesting route to success. She described her journey as less a path or a linear climb than a jungle gym.

On a jungle gym, Golar Richie told the IDEAS UMass Boston audience, "you have to use your brain and figure out your footing, and you need the physical strength and stamina to swing yourself up and keep climbing."

Golar Richie described her years in the Peace Corps, stationed in a rural school in Kenya. The experience instilled in her the values she has carried throughout her career in public service. For the first time, she said, she recognized the necessity of the infrastructure and resources many Americans take for granted. She learned how to take care of herself—and she also learned the value of caring for one's neighbors. After realizing that she could collect rainwater in basins for her daily water needs, she applied for a grant from the U.S. Embassy in Kenya so that her village could collect rainwater on a larger scale.

With that experience, "I learned how to advocate," she said. Golar Richie said advocacy is still vital for Boston's underserved populations.

"You might think racism is over," she said. "You might wonder: Is discrimination still an issue? ... It's confusing because we've made a lot of gains. But I can assure you we have some ways to go."

10 "We need to link the past to the present."

Nathan Nunn, Economist

How do attitudes about women's role in the work force and politics relate to the type of agriculture techniques that were used thousands of years ago?

Nathan Nunn, a professor of economics at Harvard University who looks at the long-term impact of historic events on current economic development, set out to test the 1970 hypothesis of Danish economist Ester Boserup.

Boserup argued that men have an advantage in societies where a plough was pulled by either an individual or an animal, a process that requires more physical labor. Women saw more equality in societies where handheld tools like the hoe and digging stick were used to overturn soil.

Nunn found Boserup's findings to be valid. "You see that if there is a plough, women are doing less of everything, including harvesting, crop tending, and planting. And this was super surprising to me: You don't find that they're doing more of anything," Nunn said.

Nunn found that in 2000, there was a greater share of women-owned companies and women in political positions in the societies that historically used hoes instead of ploughs. When asked whether men or women should be favored

for jobs when work is scarce, people whose parents came from plough societies were more likely to say men should get preference.

"The extreme differences between views about women in the Middle East versus Western Europe versus the U.S. versus Africa, they have some systematic pattern and there is some logic to the differences we observe today," Nunn said. "I think there's a lot of things about the world today that if we look back in time, we can better understand if we look at history and evolutionary forces."

11 "If we continue to teach our kids to live in isolation, we're not going to continue to thrive."

Naureen Meraj, Gamification Expert

Naureen Meraj started using gamification—the practice of applying aspects of games like engagement and competition to real-world processes—for behavior modification and reinforcement in an effort to cultivate a more productive and innovative work environment at NTT DATA Inc. Her Gamified eLearning platform won the 2014 CLO Learning in Practice Award for achievement in business impact.

Meraj, a former guidance counselor, has also used gamification to help students address social issues.

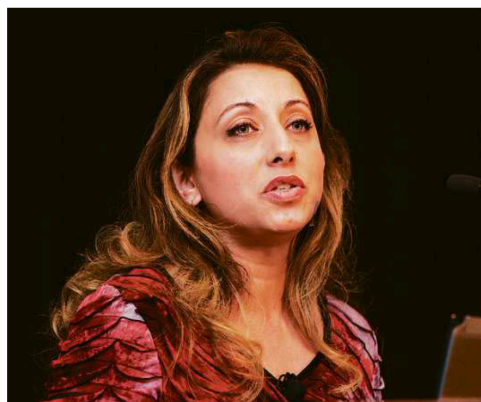
"Why is it that when kids play 'Call of Duty,' they tend to learn more about World War II than they do in history class? It's immersive. They are experiencing it, and it has the three important gamification elements: competition, progression, and recognition," Meraj said.

To prepare young people to live in a global, interconnected society, Meraj created an initiative for West Boylston Junior-Senior High School called MAPS (Multicultural Awareness Program for Students), aligning games with classroom assignments.

"Their participation resulted in extra-credit points or a half-letter grade in class or exemption from homework, but what they really got out of this experience was a much deeper sense of appreciation and understanding of the world than they would have had from a textbook rundown of dry historical facts," Meraj said.

Meraj's idea: Use gamification in classrooms across the country, challenging one another to come up with effective experiences that create global citizens. She says the same approach can be used to address such topics as health and wellness, financial security, and policy change.

"By tapping into our innate desire to compete, to grow, to be recognized for accomplishments, we really can play to learn, and play to win," she said.



IDEAS UMass Boston Honors Innovators

In celebration of IDEAS UMass Boston's tenth anniversary, Chancellor J. Keith Motley presented awards at Wednesday's event to honor the innovators who have helped the conference thrive over the last decade.

First up was James Collins, biomedical expert and professor at Boston University, who received the Distinguished Alumni Award. Collins was one of the first-ever speakers at IDEAS Boston when the conference debuted in 2004. Much has changed in the 10 years since, but Collins' research on synthetic biology is as relevant as ever.

The Award for Longstanding Commitment and Service was presented to Al Larkin, former executive vice president of The Boston Globe and one of the

founders of IDEAS Boston, and Kathy Plazak, the conference director for IDEAS since 2006.

Both Larkin and Plazak have been instrumental in the development of the annual conference, and its transition to UMass Boston.

Chancellor Motley also paid tribute to Mayor Thomas Menino, who was scheduled to attend to accept the Champion of Innovation award. Menino, a 1988 graduate of UMass Boston, was "a lion for our City of Boston," Motley said.

"His accomplishments over his more than 20 years in office transformed Boston into a hub for innovation, green development, young, smart, creative thinkers, small and large businesses, knowledge workers, and research," Motley said.



Chancellor J. Keith Motley presents the Award for Longstanding Commitment and Service to Al Larkin.



About IDEAS UMass Boston

Over the last 10 years, IDEAS UMass Boston has been bringing together leading-edge thinkers from a wide range of disciplines to promote innovation and contribute to the vitality and competitiveness of the greater Boston economy. Established in 2004 by *The Boston Globe*, IDEAS UMass Boston evolved into an independent nonprofit that, in 2010, moved to its current home at the University of Massachusetts Boston. IDEAS speakers inspire audiences, provide fertile ground for the exchange of ideas, and help build Boston's reputation as an innovation hub.

Read the mission and see the list of past speakers and topics at www.umb.edu/ideas.



Actress Aila Peck, of Company One theater troupe, performs an excerpt from the first part of the trilogy: *Brahman/i: A One Hijra Stand-Up Comedy Show*. Peck played "B," an Indian-American intersex youth, struggling with identity, desire, and some nosy relatives.



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