

# WHAT'S THE BIG IDEA?

**Creative Cornellians are coming up with inventive solutions to challenges large and small**

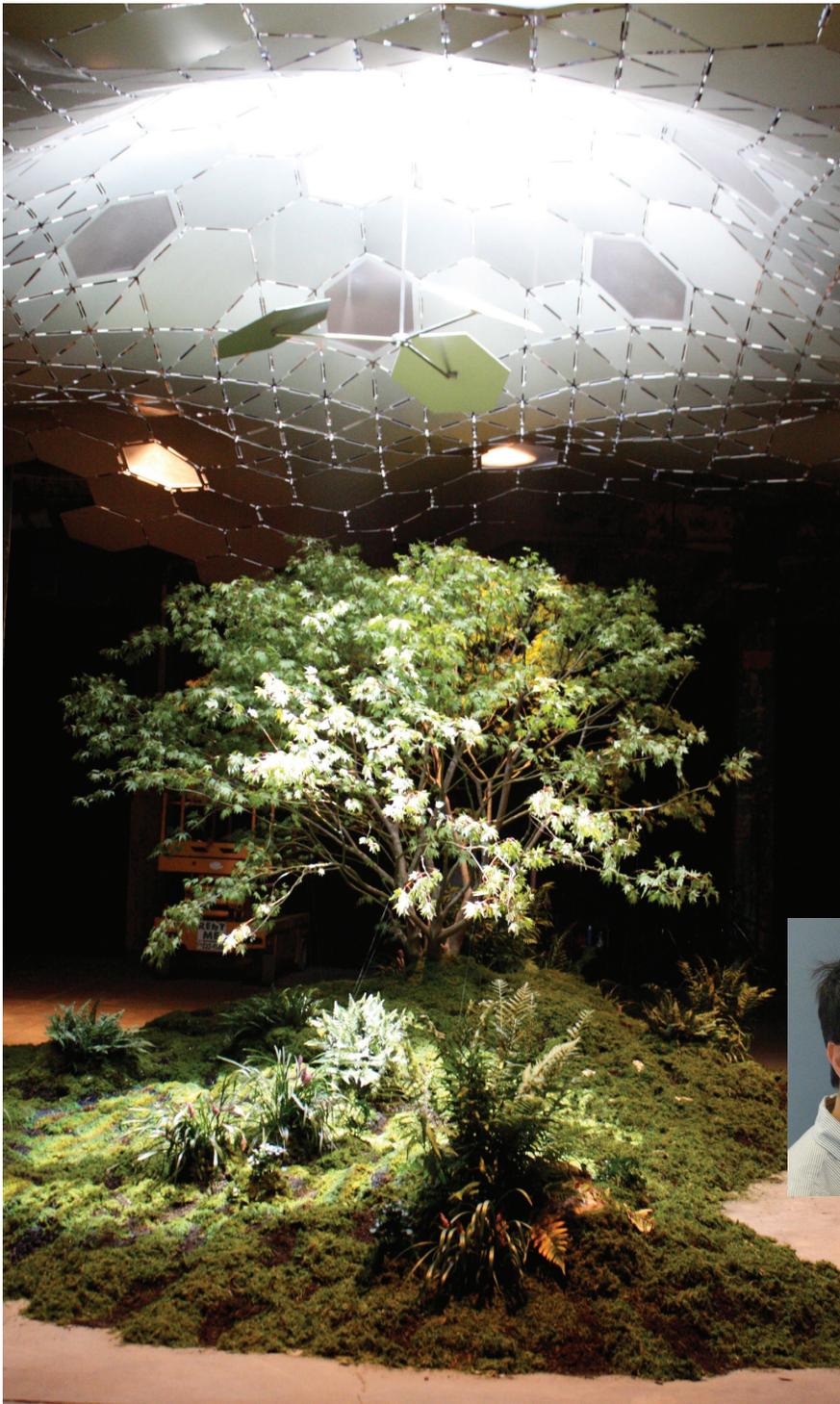
BY HEATHER SALERNO

Cornell has a deep legacy of innovation. It goes all the way back to founder Ezra, a farmer, mechanic, engineer, and inventor who in 1843 designed a device to bury telegraph wires (and then, when they proved to have defective insulation, built another machine to dig them up). Ezra's imagination and determination led him to become a key player in the American telegraph industry—which, in turn, provided him with the vast fortune he used to found his namesake institution.

That same creative, can-do spirit is still very much alive at Cornell—both on the Hill itself and among the many alumni pursuing ingenious solutions to problems large and small, weighty and whimsical. About 3,500 students are enrolled in some seventy entrepreneurship courses, with new classes and initiatives popping up year after year. From contests like the Big

Idea Competition—in which any undergraduate can win \$3,000 for one great notion—to the events that the Cornell Entrepreneur Network hosts for alumni around the globe, there are a multitude of opportunities to brainstorm, create, and connect. “It’s not that we’ve got one stand-alone thing that makes us unique,” says Tom Schryver ’93, MBA ’02, director of the Entrepreneurship and Innovation Institute at the Johnson School. “The whole environment supports people, helping to make their ideas real.”

These days, more Cornellians than ever are thinking outside the box—whether it’s a device dedicated to make surgery safer around the globe or a unique plan to create more urban green space. The alumni featured on these pages are pursuing a variety of fields—but like Ezra did more than a century and a half ago, they’re all striving to turn their visions into reality.



## illuminating Concept

### The Lowline

DAN BARASCH '99

Most people would look at an abandoned trolley station and see a cavernous wasteland. But Barasch, a former government major, sees a unique opportunity to “reclaim unused space for public good” by building the world’s first subterranean park on New York’s Lower East Side. He envisions a verdant acre of greenery, fueled by “remote skylight” technology that collects natural sunlight and directs it underground through fiber optic cables. A solar dome then distributes enough rays for grass, plants, and trees to grow. Last year, Barasch and his team raised more than \$223,000 from 2,500 supporters on Kickstarter to launch a model of

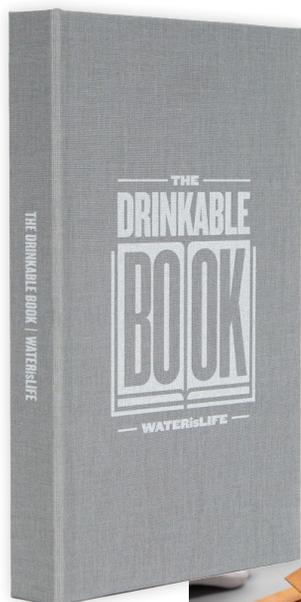


the proposed park—called Lowline Lab, in a nod to the popular High Line park on a former elevated rail line on Manhattan’s West Side—inside an old warehouse. Named one of *Time*’s “25 Best Inventions of 2015,” the flourishing lab now houses more than 3,000 plants and has

drawn about 60,000 visitors so far. Having received initial approval from the city in July, the project needs to raise an estimated \$70 million to build the actual park, with the hope of opening by 2021.

THE PROJECT’S MISSIONS INCLUDE ‘TESTING THE SOCIAL AND CULTURAL VALUE OF A YEAR-ROUND UNDERGROUND PARK.’



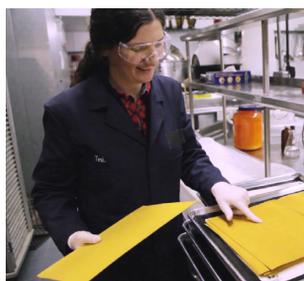


## A (Very) Portable Water Filter

### The Drinkable Book

Theresa Dankovich '03

The “book” originated as part of Dankovich’s doctoral thesis in chemistry at McGill University, and it has turned into a potentially life-saving tool for the 663 million people around the world without access to clean water. Included among *Time*’s “25 Best Inventions of 2015,” the book contains silver-coated pages that can kill deadly bacteria like cholera, typhoid, and *E. coli*. Each page—which acts like a filter and has been successfully tested in Bangladesh, Ghana, Tanzania, and five other



countries—is capable of purifying 100 liters of water, enough for one person for a month. Some of the filters are printed (using food grade ink) with information that educates about proper sanitation, such as keeping trash and feces away from water sources. “Our aim is to help the several million

people who would otherwise die each year from preventable water borne diseases,” says Dankovich, a former fiber science major in the College of Human Ecology. To improve and market this technology, she co-founded the nonprofit Folia Water; a recently launched fundraising campaign hopes to collect enough to produce and distribute thousands of books in Honduras, South Africa, and China. Dankovich, who was named one of *Fast Company*’s “Most Creative People in Business” earlier this year, also wants to design a slimmer version for short-term usage during natural disasters.

## Weather Proof

### RainCloud Umbrella Minder

Jeremy Blum '12, Meng '13

The former electrical and computer engineering major came up with this smart umbrella stand—which lights up when the forecast calls for rain—as an easy-to-build DIY project over a single weekend. It cost about \$130 in parts, such as miniature circuit boards and Internet-connected modules to link to online weather services. The stand can be customized to send an alert to your phone if you leave your house without an umbrella on a day when it’s supposed to pour. Blum has no plans to manufacture or market his creation; it’s a free, open-source design available online for anyone to download. (The instructions were even published in *Popular Mechanics*.) A one-man ideas lab, he has shared his designs for many other projects, including a glove that can steer a remote-controlled car using hand gestures. Last year, the *Wall Street Journal* wrote about a home-automation system that Blum constructed; it controls lights, curtains, and music in his San Francisco home. His YouTube tutorials, aimed at teaching people about science, have been viewed more than 12 million times.

“I get the most satisfaction out of designing something, documenting it, and then releasing the source code, instructions, and materials list so that others can build it,” he says. Currently, Blum is head of electrical engineering at Shaper, a handheld robotics startup.



‘THIS WAS SOMETHING THAT I OFTEN WISHED I HAD IN ITHACA.’





## Would You Care for a . . . Cricket?

### C-fu Foods

LEE CADESKY, MS '15

This food science alum was inspired to create C-fu—a tofu-like product made of various kinds of crushed insects—after writing a paper about mock crab meat for a food chemistry class. With C-fu's mild taste and a texture similar to ground beef, he says it's a healthy, eco-friendly meat replacement, since insects are packed with nutrients and use fewer farming resources than livestock. It also could help feed the world's growing population, which is expected to surpass 9 billion by 2050. The idea landed him in the finals of last year's Thought for Food competition, in which thousands of university students submitted projects addressing global hunger; he also took third place in 2015's Global Business Challenge. Since then, Cadesky has partnered with his brother Eli to bring C-fu to market. Even though bugs are regularly eaten in Asia and other parts of the world, the concept can be a hard sell. So they've teamed up with chefs to make tasty dishes with the product—including burgers, ice cream, and falafel—that have gotten positive reactions at trade shows and farmers markets. So far, the Toronto-based company has sold C-fu to several restaurants and retailers in the U.S. and Canada, and a \$9 Bolognese-style sauce (available in either cricket or mealworm varieties) is now available online at [www.onehopkitchen.com](http://www.onehopkitchen.com).



'PERHAPS SURPRISINGLY, WE'VE FOUND A LOT OF TRACTION WITH VEGETARIANS WHO SEE EATING INSECTS AS AN ETHICAL SOURCE OF NUTRIENTS.'

## Jewelry with a Mission

### Alma Sana

LAUREN BRAUN '11

In 2009, Braun was a summer intern at a public health clinic in Peru when she noticed young mothers were forgetting to bring their children for immunizations on time. "The reason moms came late was because they were handed a small paper reminder, which quickly got lost and the date forgotten," says Braun, a Human Ecology alum. So she designed a simple silicone bracelet to act as a kind of calendar. After a baby receives a shot, a nurse punches a hole through a symbol or number printed on the wristband that's related to the vaccine; this way, parents who are illiterate can still track the dates. With faculty encouragement, Braun became the first human development major in school history to earn a provisional patent as an undergrad. In 2012, she received a \$100,000 grant from the Bill & Melinda Gates Foundation to study her idea in Peru and Ecuador; since then her work has been recognized by the *New York Times* and *Forbes* (as a "30 Under 30 Social Entrepreneurs" nominee). Now, boosted by that initial study's positive results and interest from governments, NGOs, and pharma companies, her nonprofit—whose name means "healthy soul" in Spanish—hopes to introduce the bracelets soon in Nigeria, Afghanistan, and other countries.





## Horse Health

### Equine Design

CAITLIN PARRUCCI '15, MENG '16

Hydration is crucial for equine health, since low water consumption can lead to colic—the number-one cause of death in horses—and may indicate kidney failure or other problems. A product design class inspired Parrucci, a mechanical engineering major and member of the Big Red equestrian team, to create a device that attaches to a water bucket and measures how much a horse drinks throughout the day. That data is sent to a mobile app, allowing owners, barn managers, and trainers to monitor and analyze the information in real time. To further her concept, Parrucci took several business and entrepreneurship courses and joined Rev: Ithaca Startup Works to develop the first prototype. As a master's student last fall, she joined eLab, Cornell's business incubator, working with mentors that she describes as "invaluable." In April, Parrucci won Cornell's Student Business of the Year award, which came with a \$5,000 prize, and placed third in the New York Business Plan Competition, an annual contest hosted by SUNY Polytechnic Institute and Syracuse University that draws student teams from around the state. She's currently testing the device, with plans to send a beta product to various barns for feedback.



*'IT'S DIFFICULT TO KEEP TRACK OF YOUR HORSE'S WATER INTAKE WITH DIFFERENT PEOPLE FILLING AND REFILLING THE BUCKETS.'*

'OUR TARGET MARKET CONSISTS OF THE ONE MILLION QUADRIPLÉGICS AND FIVE MILLION OTHERS WITH MOBILITY IMPAIRMENTS IN THE U.S.'



## Independence through Technology

### Palette

SHAWN BRAMSON, MS '16  
 OLIVER HOFFMAN, MS '16  
 ROHIT JAIN, MS '16  
 DANIEL LEVINE '13, MS '16  
 JOANNA ZHANG, MS '16

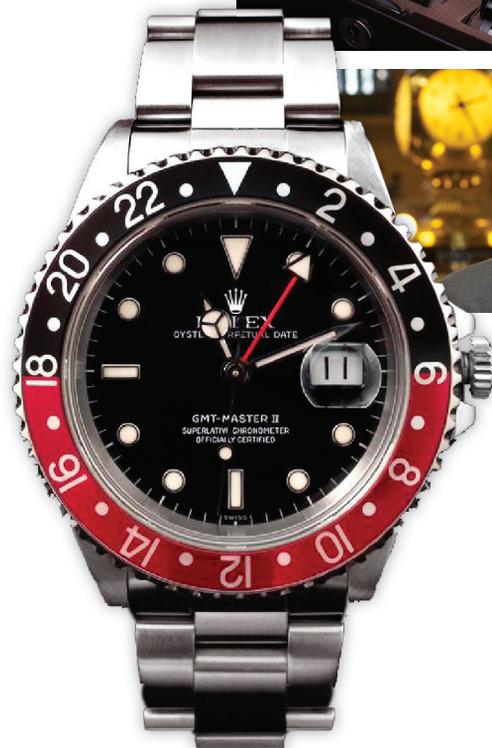
This group of recent graduates from Cornell Tech's Connective Media program is developing a wireless tool to help quadriplegics and other mobility impaired people live more independently. Palette is a tongue-controlled device that fits inside the mouth like a retainer, allowing the user to operate motorized wheelchairs and other equipment by sending Bluetooth signals to a mobile app the team designed. Right now, Hoffman says, similar machines are bulky, obtrusive, and expensive, while Palette is discreet and affordable—costing less than \$100 to make. Hoffman, Levine, and Bramson came up with the idea in a course on human-computer interaction, and by the end of the semester, they realized the project had potential. Jain and Zhang joined the team, and a Startup Studio class at the school helped them look at ways of turning Palette into a viable business (and provided funds to advance the prototype). Since graduating, the five have been working to improve Palette while pursuing or working at technology jobs in the New York City area.

## Timepiece After Timepiece

### Eleven James

RANDY BRANDOFF '98

This NYC-based subscription service has been called a "Netflix for high-end watches," offering consumers the chance to sport a different extravagant timepiece every few months. Eleven James offers four membership tiers, ranging from \$149 to \$799 a month, with brands that include Rolex, Cartier, IWC, Patek Philippe, and A. Lange & Sohne. (The most expensive models retail for \$40,000 and up.) Brandoff—a former applied economics and management major in CALS who cut his teeth in the luxury market at NetJets and Marquis Jet, which give members access to private planes—says the concept appeals to those who might not be able to afford to purchase such items outright, as well as collectors who want to wear a variety of watches for a fraction of the cost. Other enthusiasts, he says, like the ability "to try before you buy." Since its 2014 launch, the company has seen triple-digit annual growth and scored notable members like Mets pitcher Matt Harvey and NBA star Wes Matthews.



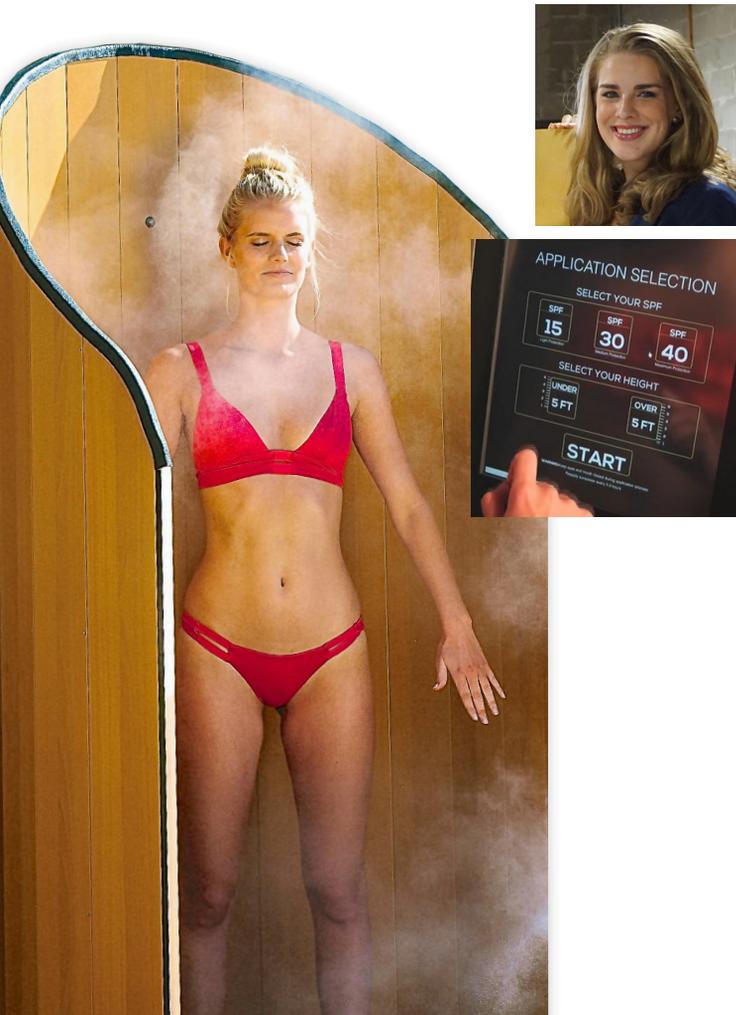
## SPF, PDQ

### SnappyScreen

KRISTEN MCCLELLAN '12

The ILR alum believes her invention can revolutionize the way we think about sunscreen—and perhaps reduce skin cancer—by making the application process easy, quick, and fun. SnappyScreen works much like a spray tan booth: step inside, select an SPF level (15, 30, or 40), and you'll be coated from head to toe in just ten seconds. So far, the machines have been installed at upscale hotels in Aruba, Florida, California, and Hawaii; the latest launched last winter at the Four Seasons in Beverly Hills. McClellan has always been entrepreneurial: at twelve, she was earning \$1,000 a week running a day camp in her backyard. As a Cornell freshman, she won second place at an elevator-pitch event with SnappyScreen, earning her a spot at the University's eLab business incubator program. Before graduation, she'd built three prototypes and given the system a test run at a Marriott resort and casino in Aruba. Her sister, Katelyn McClellan '08, has since joined as COO; Alex Woloshin '14 is chief technology officer. Says Kristen: "Every day we receive inquiries from cruise lines, luxury condos, summer camps, and public pools and beaches all over the world."

*'MY SISTER WAS NEVER THE BEST AT APPLYING SUNSCREEN AND ALWAYS ENDED UP WITH A SPLOTCHY SUNBURN. I THOUGHT TO MYSELF, THERE HAS TO BE A BETTER WAY.'*



## Safer Surgery, 'Anywhere'

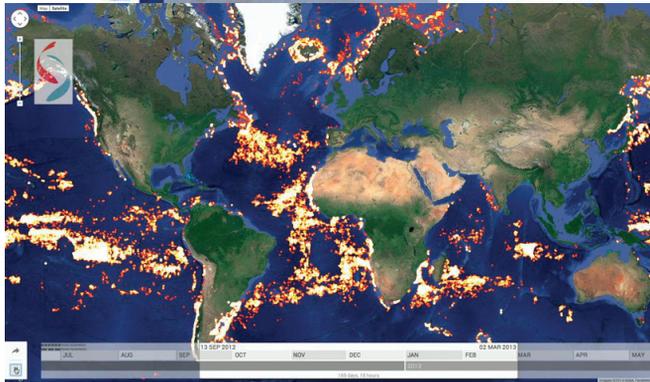
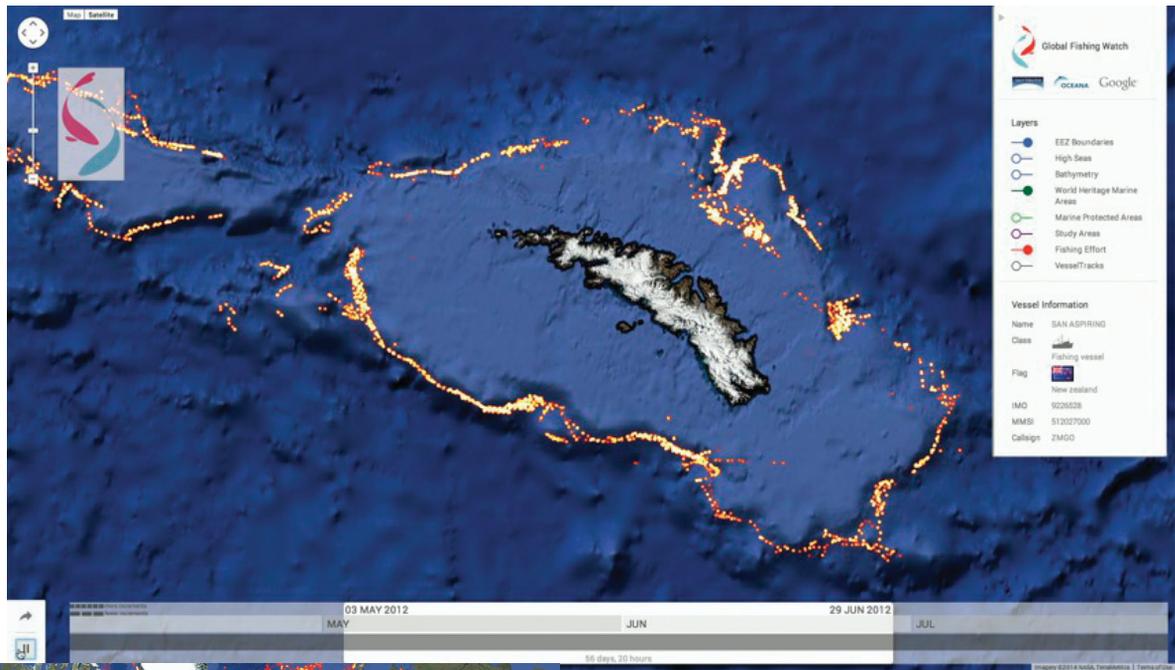
### Eniware

JAMES BERNSTEIN, MD '64

An estimated 5 billion people worldwide lack access to basic surgery, in part because doctors don't always have a way to properly sterilize medical instruments. But later this year, Bernstein's company—founded in 2011 and headquartered in Bethesda, Maryland—expects to launch the Eniware Portable Sterilizer. It uses no electricity, heat, or water, a key factor in places like disaster areas, refugee camps, field clinics, or even hospitals in impoverished nations, where these resources can be scarce or non-existent. The current standard at such facilities is disinfection, but Bernstein—a surgeon, internist, and medical entrepreneur—says scrubbing instruments with chemicals or boiling water isn't enough to eliminate all bacteria and viruses that can lead to post-operative infections. With Eniware, a rugged case contains cartridges of nitrogen dioxide that clean contaminated equipment, along with an internal scrubber that removes the gas before the unit can be opened. Costing less than \$2,000, it can sterilize one instrument set for \$2. The device, Bernstein says, "has the potential to change the way life-saving, health-preserving, and health-restoring essential surgery is performed globally."



*'IMPROVING ACCESS TO ESSENTIAL SURGERY HAS BECOME THE NEXT VITALLY IMPORTANT AREA OF FOCUS FOR GLOBAL PUBLIC HEALTH.'*



## The View from Above

### SkyTruth

JOHN AMOS '85

In the Nineties, Amos worked as a geologist for private companies, using satellite imagery to explore for oil, gas, and minerals. Those images also revealed something disturbing: evidence of environmental destruction. So in 2001, the engineering alum left the industry to found SkyTruth, a West Virginia nonprofit that uses remote sensing and digital mapping to expose the impact of mining, drilling, and other activities. After 2010's *Deepwater Horizon* explosion, SkyTruth used this technology to publicly challenge BP's inaccurate reports of the rate of oil spilling into the Gulf of Mexico. More recently, its Global Fishing Watch project has gained international attention. Currently in beta testing, this interactive Web tool—developed with Google and the conservation group Oceana—will allow the public to monitor commercial fishing around the world. The goal is to help put an end to overfishing, which harms ocean ecosystems. (Earlier this year, Leonardo DiCaprio donated \$6 million to support the project.) Amos hopes providing such visual information will motivate more people to protect the planet. "Seeing is believing," he says.

'IT'S ONE THING TO HEAR  
ACTIVISTS COMPLAIN ABOUT  
ENVIRONMENTAL DESTRUCTION;  
IT'S ANOTHER THING TO ACTUALLY  
SEE IT FOR YOURSELF.'

