



## Stevens Solar Home Tops DoE Solar Decathlon Competition



**S**tevens Institute of Technology's resilient, net-zero-energy solar home secured top honors at the U.S. Department of Energy's international Solar Decathlon 2015 competition in Irvine, California in October, edging out more than a dozen competing teams.

Conceived and built by a student team, Stevens' **SURE** (Sustainable + REsilient) **HOUSE** entry is designed to rebound from a hurricane-force storm event and was lauded by judges for unique design, construction and sustainability.

"This incredible victory is the culmination of a two-year journey and a testament to the hard work, commitment and ingenuity of the Stevens Solar Decathlon team," said Stevens President Nariman Farvardin. "Their participation in this competition embodies the Stevens ethos to leverage science and technology education to confront

some of society's biggest challenges." "This project was about creating a real, livable residence for families in coastal communities who will be hardest-hit by the effects of climate change," added A.J. Elliott, a team member and graduate student in the university's Product Architecture and Engineering program.

Built with fiber-composite materials repurposed from the boatbuilding industry, **SURE HOUSE** consumes 90 percent less energy than a similar conventional home and can charge a hybrid vehicle; during a power outage, it can become a hub of emergency power for surrounding homes. Hurricane-resilient innovations include special folding shutters that act as a defensive barrier during storms.

The competition featured entrants from five nations across three continents.

**Our design provides a blueprint for the construction of homes that can endure extreme weather and epitomizes the principles of sustainable living.**



**Stevens placed first in 7 of the 10 competition categories**

- Engineering
- Architecture
- Market Appeal
- Home Life
- Communications
- Appliances
- Commuting



### INSIDE THIS ISSUE:



**2** Stevens Pioneers New Learning Tech



**2** Goldman Sachs Chief Investment Officer Speaks at Stevens



**3** The Exponential Impact of Technical Innovation



## Virtually Possible Stevens Pioneers New Learning Tech

Boeing, NASA and Sikorsky deployed a virtual learning environment ahead of the curve. Now, so has Stevens.

In August, Stevens became one of just a handful of U.S. universities to begin successfully delivering complex graphics and STEM software packages from a private cloud, in real time, to users campus-wide operating across multiple platforms. The university also pioneered enterprise-wide use, rolling the system out to all Stevens disciplines and programs simultaneously.

The new Stevens Virtual Learning Environment (Stevens VLE) stores, automatically updates and delivers more than 50 software applications and packages from the cloud, pushing them to students, faculty and staff instantly upon request.

The Stevens VLE is always on and available, on or off campus, via cable, broadband, wireless and cellular networks on any Windows, iOS or Android computer or device, explains David Dodd, Stevens' chief information officer and vice president for information technology.

"This is reshaping the ways we teach and learn on this campus," says Dodd. "Stevens students, faculty and researchers are all able to quickly access a wide range of technical, graphics, computational and other programs in Stevens' private cloud, without purchasing expensive licenses or full-feature computers."

Packages and languages currently available to the Stevens community include R, MatLab, Visual Studio, Java and SOLIDWORKS, as well as the entire Microsoft Office and Adobe Creative Cloud suites. That list will continue to expand.

"This new technology enhances the student and faculty experience, controls our computing infrastructure costs and frees up vital resources for more strategic purposes," added Dodd. "It is truly a win-win."

## Goldman Sachs Chief Investment Officer Speaks On Quantitative Finance, Emerging Markets

**S**harmin Mossavar-Rahmani, chief investment officer for the Private Wealth Management Group at Goldman Sachs, visited Stevens in early October to discuss "The Art and Science

of Quantitative Tools in Investment Management" as part of the university's President's Distinguished Lecture Series. Her message: new tools and technologies being deployed →



## Student Diabetes App Gains National Attention, Support

As U.S. diabetes diagnoses soar, a former Stevens student startup promises to revolutionize care of the disease through technology — and one of the nation's leading digital health accelerators is guiding and mentoring the product's liftoff.

Embrace, the product of senior-year research by Stevens graduates Justin Williams '15, Bryan Bonnet '15 and Nishant Panchal '15, is a software application that monitors blood sugar, activity, mood, sleep and other metrics from various sources, then updates patients, physicians and caregivers with personalized recommendations to help plan and improve care regimens for the patients. The application works on most phones, tablets and other devices.

The trio's startup, Data Minded Solutions, recently relocated to Spartanburg, South Carolina to be mentored and guided by The Iron Yard, one of the nation's premier digital health accelerators. In exchange for a small stake in the enterprise, Iron Yard provides seed funding, legal and financial advice and office space.

Data Minded Solutions was selected from among hundreds of applicants for a coveted slot in the accelerator group. A second Data Minded Solutions app, tailored for congestive heart failure patients, is now also in the works.

**Stevens ranks #20 among  
230 U.S. engineering universities  
for % of tenured and tenure-track  
women faculty.**

Source: The American Society of Engineering Education (ASEE), 2014 ASEE Profiles of Engineering and Engineering Technology Colleges

**#10**

**Highest Alumni  
Mid-Career Salaries**

Source: PayScale 2015-16 College Salary Report

**#48**

**Best-Value  
College in U.S.**

Source: MONEY's Best Colleges 2015

across the financial industry are extremely powerful, and can remove emotional biases from decisions. Yet these tools also carry limitations, she added, citing the examples of emerging markets and the 2008 global financial crisis; investors, concluded Mossavar-Rahmani, should employ a blend of both art and science when utilizing them.

Former CIA Director Michael Hayden will visit Stevens to deliver the next President's Distinguished Lecture in March 2016.



Stevens' men's volleyball team secured the university's first NCAA team title in April, sweeping defending national champions Springfield College 3-0 to take the Division III crown.

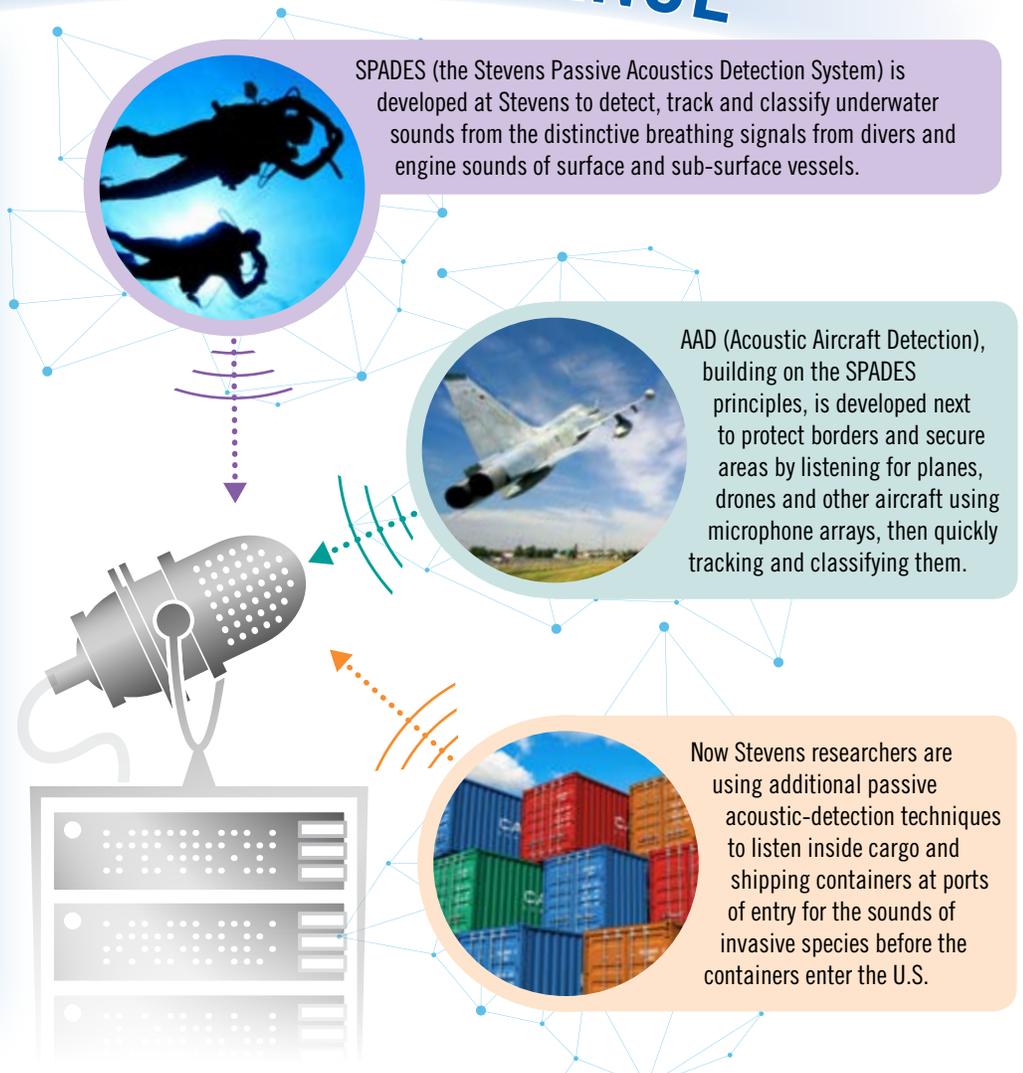
## THE SOUNDS OF SCIENCE

### From one great idea, many life-changing applications.

Stevens researchers understand the exponential impact of technical innovation. That's why we continue extending the practical application of newly developed technologies into novel solutions across a wide array of disciplines.

Case in point: Stevens' patented passive acoustic-detection technology, SPADES, began with the concept of listening underwater in a new way to identify potential threats that might be of interest to military and law enforcement organizations.

Once SPADES was perfected, Stevens researchers — listening again, this time to the needs of government and industry — created new variations of the technology that will address challenges in border and agricultural security.



SPADES (the Stevens Passive Acoustics Detection System) is developed at Stevens to detect, track and classify underwater sounds from the distinctive breathing signals from divers and engine sounds of surface and sub-surface vessels.

AAD (Acoustic Aircraft Detection), building on the SPADES principles, is developed next to protect borders and secure areas by listening for planes, drones and other aircraft using microphone arrays, then quickly tracking and classifying them.

Now Stevens researchers are using additional passive acoustic-detection techniques to listen inside cargo and shipping containers at ports of entry for the sounds of invasive species before the containers enter the U.S.

**top 50**

### Colleges That Launch Careers

Source: The Princeton Review, *Colleges That Create Futures: 50 Schools That Launch Careers By Going Beyond the Classroom*

**#17**

### in Entrepreneurship

Source: Affordable Schools, *50 Most Entrepreneurial Schools in America 2015*

**#17**

### Lowest Net Cost of A Degree

Source: MONEY, *25 Colleges That Can Land You a 6-Figure Career Without Grad School*

# ABOUT STEVENS

Stevens Institute of Technology, *The Innovation University*®, is a premier, private research university in Hoboken, N.J. Within the university's four schools, more than 6,300 undergraduate and graduate students collaborate with more than 350 faculty members to advance the frontiers of science and leverage technology to confront global challenges. Stevens is home to three national research centers of excellence, as well as joint research programs focused on critical industries such as healthcare, energy, finance, defense, maritime security, STEM education and coastal sustainability. The university is consistently ranked among the nation's elite for return on investment for students, career services programs and mid-career salaries of alumni.



**STEVENS**  
INSTITUTE of TECHNOLOGY  
THE INNOVATION UNIVERSITY®

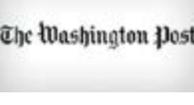
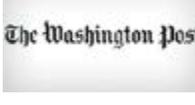
Division of Communications & Marketing  
1 Castle Point Terrace  
Hoboken, NJ 07030

PRESORTED  
NON-PROFIT  
US POSTAGE  
**PAID**  
SOUTH HACKENSACK, NJ  
PERMIT 981

## FEEDBACK ABOUT TECHNOTES?

Email [technotes@stevens.edu](mailto:technotes@stevens.edu)

## Stevens in the News: Recent Highlights

	World's Best Solar Homes: See 14 Inspiring Student Designs	10/19/2015		Debris Clues: Are They Searching for MH370 in the Right Place?	7/30/2015
	Missing Cargo Ship Highlights Vulnerability of Aging U.S. Fleet	10/14/2015		The Internet of Things Won't Be Ignored	7/14/2015
	Sandy's Surge Inspires 'World's Toughest Home'	10/1/2015		MONEY Ranks Stevens 48th in U.S. for Best Colleges	7/13/2015
	The Top 10 Engineering Colleges in the U.S.	8/28/2015		Traders of the Future	6/23/2015
	New Student-Designed Super-Resilient Home is Beach House of Flooded Future	8/12/2015		What is This Thing Called STEM?	6/11/2015
	The Man Who Saved Kyoto from the Atomic Bomb	8/9/2015		Monitor Can Detect Early Problems on Bridges	6/4/2015
	Nagasaki: The Last Bomb	8/7/2015		Preaching to the Converted	5/29/2015
	How the Hiroshima Bombing Is Taught Around the World	8/6/2015		What the Future of Science Education Should Look Like	4/20/2015
	The 7 Most Common Mistakes First-Time Entrepreneurs Make	7/31/2015		30 Years of .com	3/13/2015