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## NCIIA announces new global education program at Clinton Global Initiative

At the Clinton Global Initiative in New York on September 23rd, NCIIA announced the launch of the Global Innovation Initiative (GII), a program designed to address critical problems in the developing world—access to healthcare, clean water, affordable energy, communications—in environmentally and economically sustainable ways.

The heart of the problem GII is addressing is this: about 90% of the world's research and design targets the needs of the richest 10% of the world's population. At the same time, research has shown that the lives of poor people can be improved by providing them with access to technologies that they can use to create businesses, build wealth, and gain access to services like healthcare and education.

The challenge is changing decades'-old design practices and mindsets to deliver products to the people who need them most. This isn't easy, but we believe we can move toward that goal in part with the help of university students. We want to change the way in which these young people are prepared for their working lives.

Through GII, NCIIA and its partners will build a network of over 100 universities whose faculty and students will participate in training, curriculum sharing, and the exchanging of ideas and best practices. This network will train and support the next generation of STEM innovators and entrepreneurs, with

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## Raising the bar

After fourteen years of innovative education in US colleges and universities, NCIIA is raising the bar, helping facilitate change in higher education with several new and growing initiatives.

First and foremost is the Global Innovation Initiative (GII), announced at the Clinton Global Initiative conference in September. GII is a new NCIIA program designed to address critical problems in the developing world—access to healthcare, clean water, affordable energy, communications—in environmentally and economically sustainable ways. Read the article to the left for more information, or head to [www.nciia.org/globalinnovation](http://www.nciia.org/globalinnovation).

Continuing the focus on technologies that meet critical world problems, the article on page 2 spotlights two NCIIA E-Teams that are working toward bringing people up out of poverty and saving lives in the process. Greenlight Planet is selling sturdy, inexpensive solar lanterns in India and China, and OneBreath is developing a portable, low-cost ventilator for emergency situations.

Next year's Annual Conference, *Open 2011*, focuses directly on action and impact. We are continuing our full track of workshops during the conference focused on high impact, actionable outcomes that attendees can use to inform and improve their teaching. Members from Stanford Technology Venture Program's Roundtable on Entrepreneurship Education (REE) conferences will present at the conference, discussing issues facing faculty who teach technology entrepreneurship in universities around the world. Visit [www.nciia.org/network/conference/2011](http://www.nciia.org/network/conference/2011) to find out more about *Open 2011*.

Lastly, I want to call your attention to the upcoming deadlines for our Advanced E-Team and Course & Program grants. The next deadline for both is **December 3rd, 2010**. Don't miss out on the chance to strengthen invention, innovation, and entrepreneurship education at your institution through curricular development and support for the work of E-Teams.

Sincerely,



Phil Weilerstein,  
Executive Director

## Two E-Teams with social missions having success

### Greenlight Planet and OneBreath making strides

On the heels of our announcement of the Global Innovation Initiative (see page 1), we're highlighting two E-Teams with social missions who are having success in developing technologies for the poor. These teams are engaging in exactly the kind of activity that GII wants to scale up: they're addressing critical problems in healthcare and clean, affordable energy, simultaneously saving lives and bringing people up out of poverty.

#### Greenlight Planet

Getting your home lighting from kerosene is a bad idea: it fills the room with smoky carcinogenic fumes, it's a fire hazard, and it emits CO<sub>2</sub>. Yet there are hundreds of millions of rural people around the world with no choice in the matter because they live off-grid. These families end up burning kerosene lamps that emit 200 billion kg of soot and CO<sub>2</sub> each year, and the fumes are responsible for approximately 64% of deaths for children under the age of five in developing countries.

Enter Greenlight Planet, a 2007 E-Team from the University of Illinois at Urbana Champaign making progress in providing clean energy to off-grid villagers. The team developed the Sun



A villager scans for snakes and scorpions with the help of his Sun King solar lantern in Chikanpada, India. Photo from [wsj.com](#)

King, a solar-charged, battery-powered LED lantern that costs \$15 and provides sixteen hours of light from a single charge. Using the permanently roof-mountable, small solar panel with aluminum frame and five-meter cord, villagers can catch enough sunlight to power nighttime activities, from reading to leisure.

The best part? Villagers who purchase Sun Kings at the retail price and quit using kerosene can recover the cost of the lamp in fifteen months.

In 2009, just two years after it received an E-Team grant, Greenlight Planet is selling the Sun King in India and China. Along the way, the company has raised more than \$500,000

from investors and garnered several awards. In June 2010, the Sun King was recognized by the World Bank/IFC Lighting Africa Program as the best solar task light on the market, and Greenlight Planet's new product, the Sun King Hero, a solar lantern with built-in cell phone charger, won the Solar For All Design Contest, carrying with it a \$250,000 prize.

According to Patrick Walsh, one of the original E-Team members who now represents the company in China, "We have really assembled a killer combination of innovative technology and in-house distribution networks. Having both competencies in one company is pretty uncommon. We're planning to grow very quickly. And we have NCIIA to thank!"

#### OneBreath

This 2008 E-Team from Stanford University is developing OneBreath, a low cost ventilator that keeps critically ill patients




breathing when their respiratory system is unable to function.

OneBreath is designed to address two distinct problems: emergency readiness in developed countries and the shortage of ventilators in developing countries. It has been determined that, in an influenza epidemic, US hospitals would not have enough ventilators to meet anticipated demand (more than 740,000 would be needed; the US has 205,000). Meanwhile, in developing countries, millions of people die each year from lack of access to a common ventilator—while the US has approximately 205,000 ventilators for a population of 300 million, India has 35,000 ventilators for a population exceeding 1.1 billion.

To fill the need in both cases, the team is going low cost. A OneBreath ventilator costs \$300, while typical ventilators range from \$8,000-\$60,000. And OneBreath is rechargeable, portable, and disposable—perfect for one-off emergency situations no matter what country you're in.

E-Team member Matthew Callaghan explained the reasoning behind the low cost approach. "I thought, these ventilators cost 40 grand, and they just push air around. It isn't complicated engineering. You don't need all the bells and whistles."<sup>1</sup>

A round of successful animal tests wrapped up last December, and the FDA is expected to review the device for humans this fall. Look for more from this promising E-Team soon. 

1. From "An Inexpensive, Portable Ventilator" by Elizabeth Svoboda, [www.popsoci.com](#)

# Funded NCIIA grants: May 2010

## Advanced E-Team grants

### BiodesignX-XI

Thomas Krummel, Stanford University  
\$20,000

### BioTrace

Paul J. Wang, Stanford University  
\$20,000

### IntelliWheels

Elizabeth Hsiao-Weckler, University of Illinois at Urbana-Champaign  
\$20,000

### CalSolAgua

Ashok Gadgil, University of California, Berkeley  
\$18,400

### Aqua Port Water Transporter

Amy Smith, Massachusetts Institute of Technology  
\$17,517

### Leveraged Freedom Chair Indian Trial and Dissemination

Daniel Frey, Massachusetts Institute of Technology  
\$17,517

### Laparo-Lineater

William Guilford, University of Virginia  
\$9,732

### Mobile Information Aggregator (MIA)

Iqbal Quadir, Massachusetts Institute of Technology  
\$16,500

### infantAIR

Rebecca Richards-Kortum, Rice University  
\$18,000

### Relay Technology Management, Inc.

Andrew Plaut, Tufts University  
\$19,900

### Miret Surgical

Scott Delp, Stanford University  
\$19,450

### ABSAL Desalination Systems

Burt Swersey, Rensselaer Polytechnic Institute  
\$12,200

### Gen2 Agro

Michael Camp, Ohio State University  
\$20,000

## Course & Program grants

### Technology Innovation for People With Disabilities

Jon Pearlman, University of Pittsburgh  
\$49,950

### Accelerating Student E-Team New Venture Creation through the Application of Industrial Design and Structured Seed Funding

Tucker Marion, Northeastern University  
\$9,000

### Master's Level Education in Bioengineering Innovation

Robert Allen, Johns Hopkins University  
\$30,000

### Practicing Entrepreneurship: Creating Value for a Technology-based Invention or Idea

Ramani Narayan, Michigan State University  
\$29,500

### Creative Design for Affordability

Mark Milstein, Cornell University  
\$17,226

### Bridge Mentorship Program for Advanced Student Companies at UMass Amherst

Kwong Chan, University of Massachusetts, Amherst  
\$29,000

### Cross-disciplinary Development Teams to Make Students' Ideas Real

John-David Yoder, Ohio Northern University  
\$19,500

### Sustainable Medical Device Innovation for Developing Countries

Soumyadipta Acharya, Johns Hopkins University  
\$41,500

### Drexel Smart House Student Seed Fund

Joan Weiner, Drexel University  
\$25,000

### Entrepreneurship Initiative for Rural Southeastern North Carolina

Michael Menefee, University of North Carolina at Pembroke  
\$8,000

### Developing a Cross-Disciplinary E-Team to Enhance Innovation and Entrepreneurship at LSU

Loubna Bouamane, Louisiana State University  
\$7,500

### Spark: A University-Level Initiative for Innovation and Entrepreneurship

Daniel Raviv, Florida Atlantic University  
\$7,500

## Global Innovation Initiative, *continued from page 1*

the ultimate goal of training of 10,000 university entrepreneurs and the creation of 500 social enterprises.

GII will scale up NCIIA's existing Sustainable Vision program, which provides grants, venture development support and training for faculty engaged in designing for the poor. Presently, the Sustainable Vision program funds more than forty projects in thirty countries.

The program reflects the increasing acceptance of science and technology as a driver of market-based solutions for critical global challenges. Over the past fifteen years, NCIIA has worked with hundreds of U.S. universities and thousands of faculty and student innovators in developing and launching innovative products and businesses. Our focus has increasingly been on supporting technologies that improve the lives of people living in poverty. Examples include a grant to educate and empower Senegalese students and female business owners to develop and use mobile phone apps; the development of cheap, rugged solar lanterns for people in Ghana; and providing villages in Honduras with renewable hydroelectricity through a franchise model.

Another such project was highlighted at the Clinton Global Initiative annual meeting in September.

In 2007, NCIIA awarded an \$18,000 grant to a Dartmouth College student team to develop an SMS technology designed to fight the counterfeit pharmaceutical drug trade in developing countries. Incredibly, over 30% of drugs administered in the developing world are fake, which has had a terrible impact on the health of people in those countries. The SMS technology makes it easy for consumers to spot fake drugs using their cell phones. At the point of purchase they scratch a label on the bottle revealing a unique ID number, which they text to a database and get an instant response confirming if the drug is genuine or fake.

One of the founders of the team, Ashifi Gogo, went on to launch Sproxil, a venture dedicated to taking this technology to market. With the help of the Nigerian government, Sproxil is now implementing the technology in Nigeria. So far Sproxil has processed over 115,000 text messages from consumers, and several thousand new users are joining each month.

Last year, Ashifi was given a \$10,000 award by the CGI University division. At the CGI conference in September, he gave his update on the past twelve months, and received praise from President William Jefferson Clinton. "This is a genuinely remarkable accomplishment," said the president. "[It's] empowering...putting people in charge of their own healthcare."

That statement captures the essence of GII: putting people in developing countries in charge of their lives. Preparing students to be change agents. ○



In the photo, NCIIA Executive Director Phil Weilerstein is flanked by President Bill Clinton and Arianna Huffington. Rob Lemelson is on the President's left.

## Winners of inaugural BMEStart competition announced

We are proud to announce the winners of the latest addition to NCIIA's suite of competitions: BMEStart. BMEStart is a new biomedical engineering student competition designed to promote product design and entrepreneurship at the undergraduate level.

The inaugural BMEStart competition brought an exciting array of submissions from across the country. Visit [nciia.org/competitions/bmestart](http://nciia.org/competitions/bmestart) to read more about the winners.

**First place (\$10,000): HydrEYE CorneOasis Contact Lens**

*North Carolina State University*

A lens that will help keep eyes hydrated over an extended period of time while also preventing infection.

**Second place (\$5,000) Procar: A Trocar Worth Trusting**

*Columbia University*

An advanced trocar that will prevent over-insertion through abdominal wall.

Tied for third place (sharing \$2,500) was the Malaria Retinopathy Automated Detection team from Tulane University and the Handheld Plasma Isolation Device team from Purdue University.

Congratulations to the winning teams!

The deadline for the 2011 competition is in May.

## Meet one of our new Student Ambassadors

NCIIA's new Student Ambassadors program is a network of students that develop and deliver local events for their fellow university entrepreneurs, encouraging them to become involved in NCIIA programs and activities and supporting them in creating inventions and innovations that benefit society.



Mohamed Ali Niang Starting this fall, fourteen exceptional students will be hard at work on campuses across the country, inspiring their classmates and peers to take get involved in technology entrepreneurship.

One of them will be Mohamed Ali Niang, a senior at Temple University. He's is the co-founder of a student-led venture called Malo Traders and received the Judge's Choice Award at the Global Social Entre-

preneurship Competition. Mohamed Ali described his mission as a NCIIA Student Ambassador in the following way:

"My endeavors on three different continents have provided me with the opportunity to acquire a strong sense of the challenges and opportunities student entrepreneurs face. The prospect of assisting NCIIA in harnessing the entrepreneurial spirit of students is very exciting. Not only do I see this as a excellent opportunity to learn from and positively influence students, but being part of a program hosted by a well-respected institution like the NCIIA presents me with a great opportunity to interact with others that share my passion for innovation. I hope to connect and collaborate with a number of student entrepreneurs with different backgrounds raging from engineering to all colleges."

Read about the rest of the Student Ambassadors at [www.nciia.org/studentambassadors](http://www.nciia.org/studentambassadors).

# open


 NCIIA  
**15<sup>th</sup>** Annual Conference

**WASHINGTON, DC**

March 24-26, 2011

Westin Hotel, Old Town Alexandria, VA

View the program and register at  
[nciia.org/network/conference/2011](http://nciia.org/network/conference/2011)



Next NCIIA grant application deadlines  
Course & Program and Advanced E-Team grants:

**December 3, 2010**

Sustainable Vision grants:

**October 15, 2010**

Use our online  
grant application  
system!  
[www.nciia.org](http://www.nciia.org)

**Advanced E-Team grants** (\$1,000 - \$20,000) support commercial outcomes by moving innovative products or technologies from idea to prototype. E-Team grant proposals must demonstrate an idea's technical feasibility, potential for commercialization, and social value.

**Course & Program grants** (\$2,000 - \$50,000) are awarded to faculty and staff at colleges and universities to help improve existing curricular programs or build new programs in invention, innovation, and entrepreneurship.

To obtain the full RFP and apply online, visit [www.nciia.org](http://www.nciia.org) or e-mail [info@nciia.org](mailto:info@nciia.org).

**Sustainable Vision grants** (\$10,000 - \$50,000) support transformative educational programs where breakthrough technologies are created and commercialized for the benefit of people living in poverty in the US and abroad. Past grants have addressed basic human needs such as health, food, security, clean water and affordable energy for people living in poverty.