

# Sharing your success

Kelly Monterroso

Communications Specialist, IIP



**SBIR · STTR**  
America's Seed Fund

[kmonterr@nsf.gov](mailto:kmonterr@nsf.gov)

Help turn this:

SBIR Phase I: Automated and Self-Service  
Electronics Recycling Kiosk



# TURN YOUR PHONE



## ecoATM

@ecoATM · FOLLOWS YOU

The first and only automated e-Waste recycling kiosk that pays instant cash in exchange for recycling old phones, MP3 players and tablets.

📍 Nationwide!

🌐 [ecoatm.com/locator](http://ecoatm.com/locator)

📅 Joined July 2009

👤 Tweet to

✉ Message

👤 1 Follower you know

- Astronomy & Space
- Biology
- Chemistry & Material
- Computing
- Earth & Environment
- Education
- Engineering
- Mathematics
- Nanoscience
- People & Society
- Physics



Inspired by Outerwall™

How It Works

Find a Location

Devices

## Going Green

Overview

About Outerwall

Going Green

### ecoATM Environmental Commitment

ecoATM is committed to supporting the highest environmental standards in the industry. This includes being certified to Responsible Recycling (R2) and ISO 14001 standards. The R2 standard is a global environmental, worker health and safety standard for refurbishing and recycling industry. ecoATM's environmental commitment is intended to preclude issues such as intentional or unintentional dumping of toxic materials into the developing world.

Read about R2 Certification:



Read about ISO 14001: <http://www.iso.org/iso/iso14000>

Read more from ecoATM on why e-Waste Recycling is important

In addition to our commitment to R2 and ISO 14001, ecoATM is active in a variety of industry organizations focused on evolving e-waste legislation and defining best practices for the industry, including:

- The Consumer Electronics Association (CEA)
- The Electronics Recycling Coordination Clearinghouse (ERCC), of which we are a founding member
- The Device Renewal Forum (DRF)

### Going Green with ecoATM

At ecoATM, most of the devices sold to our kiosks are reused, while the remaining devices are recycled.

Almost all consumer electronics (mobile phones, computers, monitors, printers, etc.) contain toxic materials such as lead, mercury, arsenic and other materials that pose a threat to the environment and our health. The first and best thing we can do is to extend the life of existing devices as long as possible so that there is no need to build new devices to take their place. The next best thing we can do is to responsibly recycle and reclaim materials from devices that are truly end-of-life.

Reuse:





DISRUPT NY The Founder Of Giphy, Alex Chung, To Speak At Disrupt NY Save \$1000 Off Tickets

kiosk

outerwall

coinstar

ecoATM

eCommerce

# Outerwall (Formerly Coinstar) Buys ecoATM For \$350M In Cash To Expand Into Device Recycling Kiosks

Posted Jul 2, 2013 by Ingrid Lunden (@ingridlunden)



## Popular Posts



Meta 2 Is Making Augmented A Reality  
*a week ago*



Google surprises with early preview of Android N  
*6 days ago*



Snapchat has a secret team possibly building a pair of smart glasses  
*3 days ago*



The suddenly exciting future of enterprise communications  
*a day ago*



Facebook Lite, now Facebook's fastest-growing app, reaches 100M monthly users  
*6 days ago*



Some changes underway in the automated retail space: Outerwall, operators of the Coinstar coin-counting kiosks and the Redbox disc and game distribution network, is acquiring ecoATM for \$350 million in cash. EcoATM operates its own kiosk network focused on accepting used mobile phones, tablets and MP3 players for cash and has positioned itself, coincidentally, as the "Coinstar for used devices."

Outerwall, which officially changed its name from Coinstar Inc. today complete with a new stock ticker (OUTR) and ringing today's opening bell, was already an investor in ecoATM, which had raised \$31.4 million in VC financing, plus another \$40 million in debt. Because of the 23% stake that Outerwall already owns, that will be deducted

from that \$350 million pricetag, the company noted today.

EcoATM is also holder of the 2012 Crunchie for best clean tech startup.

The move is a sign of consolidation in the self-service retail space, and also a mark of how Outerwall has much bigger ambitions beyond simply turning your multitudes of pennies into more useful dollar bills — hence, also, the rebranding.

It also underscores how lower-margin companies like these are looking for ways to ramp up into higher value items, while at the same time providing a much-needed service in our highly disposable economy. In the U.S. alone, ecoATM says 175 million new devices are sold each year, but in terms of older models, only 20% of used mobile phones are collected, and another 50% are either stored or simply thrown away.

"With ecoATM, Outerwall will advance its evolution into multiple automated retail businesses and increase our exposure to the growing demand for refurbished products and mobile



Amazingly simple tools for customer support.

START FREE TRIAL



AdChoices

CrunchBase



# Three things to remember today:

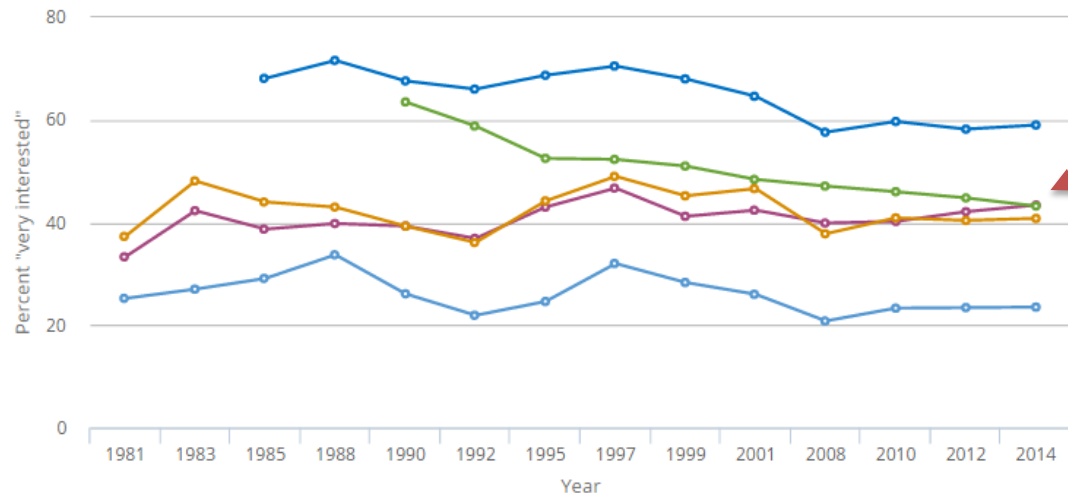
1. YOU are the best person to tell your story.
2. The *future* of your business depends in part on effective public communication.
3. NSF can help.



# Interest in New Inventions & Technologies

Public interest in selected science-related issues: 1981-2014

Source Excel



Legend:  
New medical discoveries (dark blue line)  
Use of new inventions and technologies (purple line)  
Environmental pollution (green line)  
New scientific discoveries (orange line)  
Space exploration (light blue line)



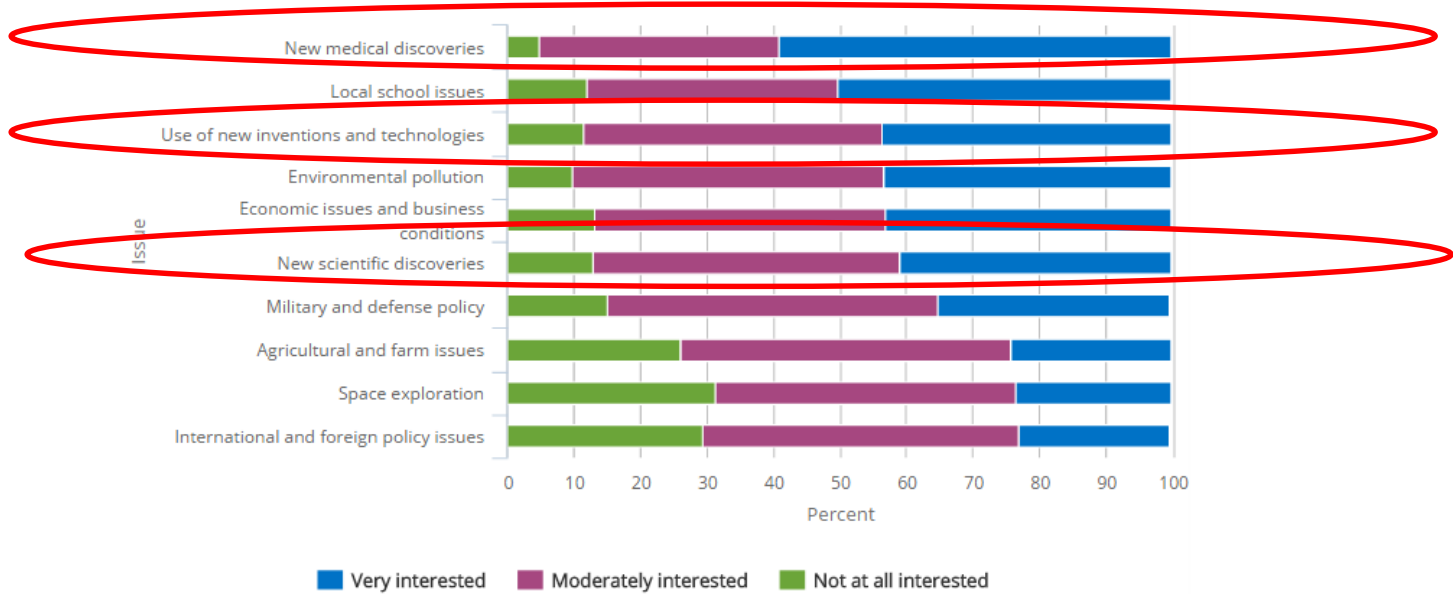
Figure 7-3



# Public interest in selected issues: 2014



Source Excel



NOTES: Responses to *There are a lot of issues in the news, and it is hard to keep up with every area. I'm going to read you a short list of issues, and for each one I would like you to tell me if you are very interested, moderately interested, or not at all interested.* Responses of "don't know" are not shown.

SOURCE: University of Chicago, National Opinion Research Center, General Social Survey (2014). See appendix table 7-1.

Science and Engineering Indicators 2016





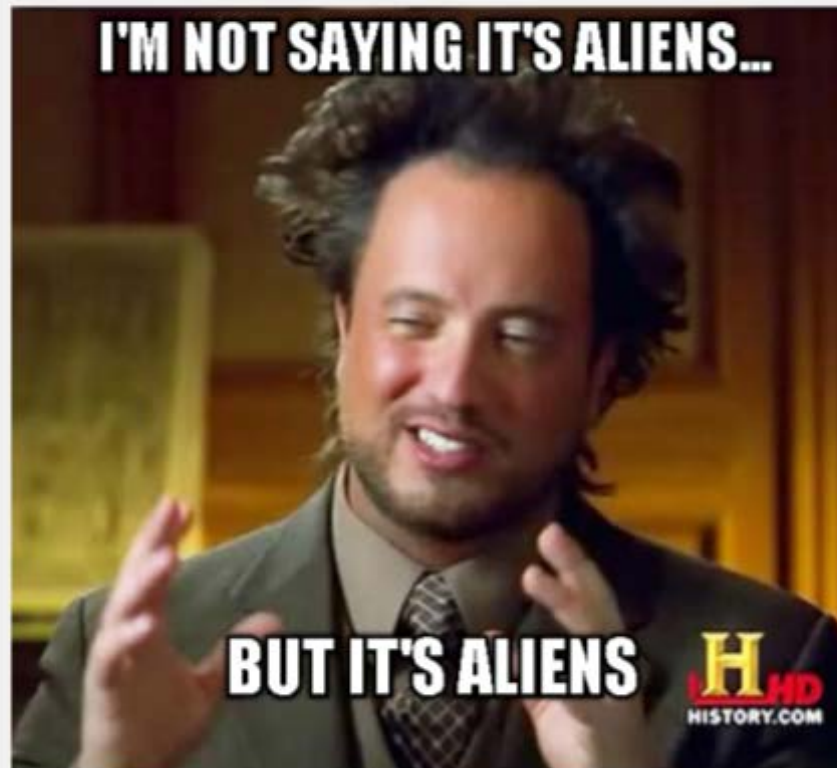
Really?

Question	United States <sup>a</sup> (2012)
<b>Physical science</b>	
<i>The center of the Earth is very hot. (True).....</i>	84
<i>The continents have been moving their location for millions of years and will continue to move. (True).....</i>	83
<i>Does the Earth go around the Sun, or does the Sun go around the Earth? (Earth around Sun).....</i>	74
<i>All radioactivity is man-made. (False).....</i>	72
<i>Electrons are smaller than atoms. (True).....</i>	53
<i>Lasers work by focusing sound waves. (False).....</i>	47
<i>The universe began with a huge explosion. (True).....</i>	39
<b>Biological science</b>	
<i>It is the father's gene that decides whether the baby is a boy or a girl.<sup>b</sup> (True).....</i>	63
<i>Antibiotics kill viruses as well as bacteria.<sup>c</sup> (False).....</i>	51
<i>Human beings, as we know them today, developed from earlier species of animals. (True).....</i>	48





First came the History Channel with its brand of pseudoscience, namely, **ancient aliens**.



I'm not saying it's aliens... (History Channel)

Then came Animal Planet with its ludicrous "**Finding Bigfoot**," in which Bigfoot is never found, and its **Mermaid special**. Say what you will about the **Turtle Man**, at least he's real.

Now, it seems, the Discovery Channel has jumped aboard the train of stupidity.

No, I'm not talking about the ridiculous show **Naked and Afraid**, but rather sharks. And more specifically kick-off special this year's much-loved Shark Week, *Megalodon: The Monster Shark That Lives*, which purportedly offered evidence that these massive beasts are still alive in the oceans.

There's just one problem: the 60-foot Megalodon died out about 1.5 million years ago. The documentary was complete and total garbage.



Search The Huffington Post

SCIENCE FOR THE CURIOUS  
**Discover**

Search DISCOVERmagazine.com

THE MAGAZINE | BLOGS | HEALTH & MEDICINE | MIND & BRAIN | **TECHNOLOGY** | SPACE & PHYSICS

**TOPICS** | Biotechnology | Computers | Gadgets | Materials Science | Robots | Weapons & Security

Unlimited storage. \$15.99/month.

Home » Topics » Technology



**The Economist** World p

Technology Quarterly: Q1 2012

**Energy storage**  
 Packing so

**Energy technology: Better  
 become cleaner and more**  
 Mar 3rd 2012 | From the print ed

SUMMER in Texas last year was the hottest on record. Demand for electricity spiked as air conditioners cranked up across the state. The Electric Reliability Council of Texas (ERCOT), the state's power grid operator, only narrowly avoided having rolling blackouts. To do so, it had to buy all the electricity it could find on the spot

**MARKETPLACE**

- LATEST SHOWS
- MENTIONED ON AIR
- PODCASTS
- Sponsor Marketplace Today  
[Become a Corporate Sponsor](#)
- LATEST STORIES
- POPULAR NOW
- Unilever might buy Jessica Alba's Honest Company
- Desperately need pilots? Try paying them more
- The rise of Trump tourism in Kallstadt, Germany
- ITT closes its doors

Search All NYTimes.com

WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS | OPINION | ARTS | STYLE | TRAVEL | JOBS

ENVIRONMENT | SPACE & COSMOS



**THE 2014 XTS**  
 with the newly available 410 HP Twin Turbo

**In a Breathless Voyage**  
 Voyager 1 Explains  
 By BROOKS BARNES

**Donate Your Voice to Charity**

A speech scientist has created a human voice bank to build personalized sounds for people who rely on computers to communicate.



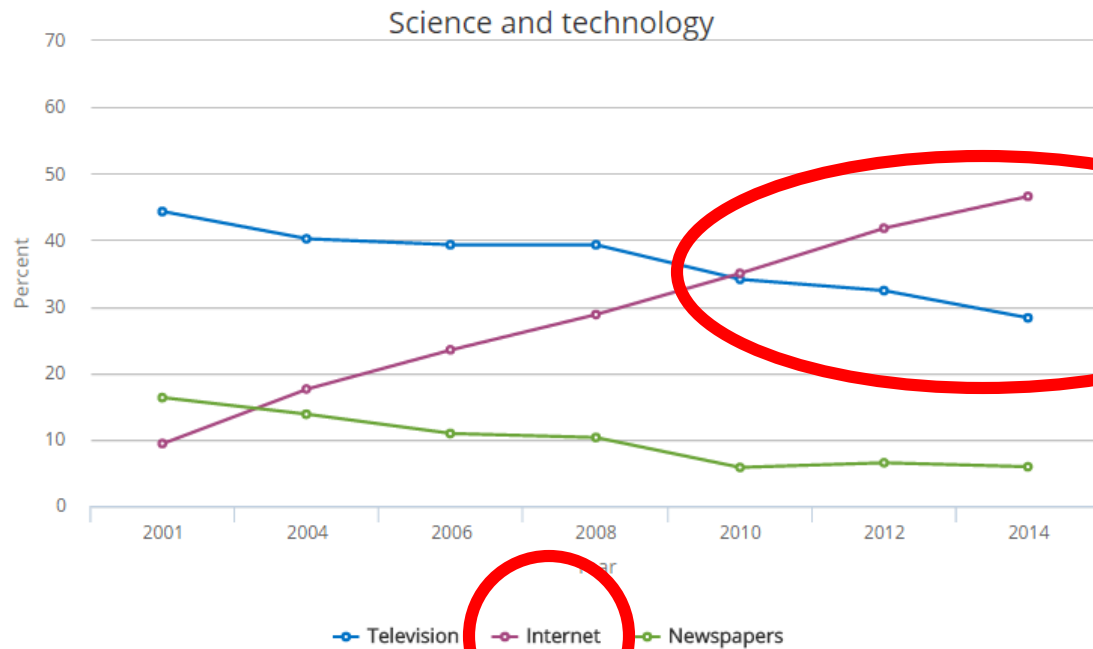
**Tobacco farmers see green in income**

By **Emily Siner**  
 September 08, 2016 | 1:56 PM



Figure 7-7

# Primary source respondents used to learn about current news events, science and technology, and specific scientific issues: 2001-14



# Good news

OH, HI; I'M HERE  
FROM THE INTERNET.

WHAT ARE YOU DOING!?

GLUING CAPTIONS  
TO YOUR CATS.



xkcd.com





# NSF's mission



STUDENTS?

# PURSuing OUR DESIRE FOR DISCOVERY

Because of our comprehensive commitment to empower discoveries in all areas of science and engineering, NSF enables America's best minds to realize their dreams and keep our nation at the very forefront of the world's science-and-engineering enterprise. Over the years, NSF-empowered discoveries have fostered long-term economic growth, addressed critical national needs, and returned enormous dividends to the American people.

1956  
ASTRONOMY  
TRANSFORMED



1981  
FOUNDATION FOR  
THE INTERNET LAID  
BY CSNET\*

1990  
PLANT GENOMES  
DECODED

2000  
ROBOTS  
SERVED  
THE SICK

1957  
SCIENTISTS FROM  
AROUND THE  
WORLD UNITED  
BY IGY\*\*



1985  
SUPERCOMPUTING  
CENTERS BOOTED UP

1993  
COMPUTER  
PRINTERS  
WENT 3-D

2005  
THE AFRICAN  
SUPERPLUME  
SURVEYED



1950s

1960s

1970s

1980s

1990s

2000s

2010s

1953  
RESEARCH  
STATISTICS  
COLLECTED



1965  
AMERICAN SIGN  
LANGUAGE  
CATALOGED

1970s  
BAR CODES  
POPULARIZED



1986  
OZONE HOLE LINKED  
TO CFCs

1990s  
CELLULAR  
INDUSTRY  
CONNECTED



2009  
CHANGES IN  
OCEAN  
CHEMISTRY  
CONFIRMED

1998  
LIGHT SHONE  
ON DARK  
ENERGY

2010  
ECONOMIC THEORY  
MATCHED KIDNEY  
TRANSPLANTS



# NSF channels

- NSF.gov
- Social media
- News service
- Media contacts

The screenshot shows the NSF science360 NEWS website. At the top, the NSF logo is on the left, and the text "National Science Foundation WHERE DISCOVERIES BEGIN" is on the right. Below this is the "science360 NEWS" header with the tagline "BREAKING SCIENCE NEWS THAT SHAPES YOUR WORLD". Navigation links include "NEWS HOME", "ABOUT", "SECTIONS", "NEWS", "RADIO", "VIDEO", and "IPAD". A search bar is on the right. Below the navigation is a "Past Issues" link and an email subscription link "editor@science360.gov" with a "Subscribe" button.

The main content area is divided into sections:

- TODAY'S VIDEO:** Features a video titled "Friction-stir welding" provided by the National Science Foundation and NBC Learn. The video player shows a close-up of a welding process.
- TOP STORY:** Features a story titled "Robot learning companion offers custom-tailored tutoring" with a photo of a child wearing headphones and a large red robot.
- HEADLINES:** Lists three headlines: "Tunable windows for privacy, camouflage", "Why pollinators forage on toxic or bitter nectar", and "Computer model sheds light on how modern".
- NEW TODAY ON SCIENCE360 RADIO:** Promotes a radio show "All in the Mind" featuring an interview with NSF-funded neuroscientist David Eagleman, provided by the Australian Broadcasting Corporation. It includes a "LISTEN NOW" button and a "24/7 Science Radio 100+ shows and growing" badge.



FEB 5, 2015 @ 3:00 PM

TECHNOLOGY INFRASTRUCTURE &amp; TRANSPORTATION WIND ENERGY TURBINES ALTAEROS ENERGIES

# This Shark Blimp Turbine Eats Wind and Spits Out Power

The high-altitude design could generate power in rural areas and emergency situations.



By John Wenz

479

Shares

f SHARE 381

TWEET 94

PIN

MOST READ



The 14 Best Startup Cities in America



8 Incredible Vessels That Changed How Ships Are Ma...



Altaeros Energies



To generate more wind power, why not go where there's more wind? That's the idea behind the Buoyant Airborne Turbine, which will float up to higher atmospheric layers and harvest the more constant and stronger winds up there.

The turbine is held aloft by helium and tethered to the ground by three strong cables. It's designed to automatically deflate if the cables are severed. One of the turbine blimps can power about 12 houses, making them ideal for rural communities and emergency situations where people might otherwise rely on diesel generators.

The BAT design from Altaeros Energies is still in the prototyping stage, and recently received a grant from the National Science Foundation. If they pull this off, the wind farms of the future might look like a series of shark blimps hovering in the air.

Introducing the Altaeros BAT: The Next Generation of Wind Power

eight times greater power density. As a result, the BAT can generate more than twice the energy of a similarly rated tower-mounted turbine.

The BAT's key enabling technologies include a novel aerodynamic design, custom-made composite materials, and an innovative control system. The helium-inflatable shell channels wind through a lightweight wind turbine. The shell self-stabilizes and produces aerodynamic lift, in addition to buoyancy. Multiple high-strength tethers hold





# Great Gov Tweets

Using data to highlight great government communication.  
From Measured Voice.

#4

This was the 4th most engaging Tweet from U.S. government Twitter accounts on February 3, 2015.

Within its first day, this tweet received

107 retweets

60 favorites

and reached a potential

141,392 people

Other top U.S. government tweets on February 3, 2015:

< 3

by @usfwssoutheast

5 >

by @usembassyve

Like 0 Tweet 0 Share 0 +1 0



**NSF Engineering**  
@NSF\_ENG Follow

A floating wind turbine could bring #windpower to remote communities [1.usa.gov/1F2mYKb](http://1.usa.gov/1F2mYKb) #lifesaver

12:24 PM - 3 Feb 2015

140 RETWEETS 81 FAVORITES



# FREE!



**National Science Fdn** ✓

@NSF FOLLOWS YOU

Where Discoveries Begin. Social media policy: <https://t.co/arEAsLBd7k>

📍 Arlington, Virginia

🌐 [nsf.gov](http://nsf.gov)

📺 View on Vine

📅 Joined September 2008

🗨️ Tweet to

✉️ Message

👤 672 Followers you know

TWEETS 15.6K FOLLOWING 92 FOLLOWERS 869K LIKES 1,344

Tweets Tweets & replies Media

**National Science Fdn** @NSF · 10h  
Basic research on foraging bees leads to increase profits for US businesses.

**Golden Goose Award** @GoldGooseAward  
These @NSF funded researchers made wet waggle dance, that is. [youtube.com/watch?](http://youtube.com/watch?)

🔄 18 ❤️ 11 ⋮

🔄 National Science Fdn Retweeted

**NSF SBE** @NSF\_SBE · 20h  
Total U.S. R&D performance rose to \$47



**NSF SBIR** ✓

@NSFSBIR

The National Science Foundation's Small Business Innovation Research program. R&D \$ for science & tech startups. Tweets by Kelly. Follows/RTs ≠ endorsements.

📍 Arlington, VA

🌐 [nsf.gov/SBIR](http://nsf.gov/SBIR)

📅 Joined September 2012

📷 221 Photos and videos



TWEETS 3,322 FOLLOWING 2,744 FOLLOWERS 6,056 LIKES 739 LISTS 14

Tweets Tweets & replies Media

**NSF SBIR & STTR** - Sep 12  
**NEW SBIR & STTR solicitations! \$225K, 6-12 months of R&D. Both due by 12/6.**  
SBIR - [nsf.gov/pubs/2016/nsf1](http://nsf.gov/pubs/2016/nsf1) ...  
STTR - [nsf.gov/pubs/2016/nsf1](http://nsf.gov/pubs/2016/nsf1) ...

**DL Carranza** @dicarranza · 12h  
Never Heard of the SBIR? You Could Be Missing Out On Millions  
@NSFSBIR @sbirgov @NIHsbir @NHLBI\_SBIR @DOESBIR #STFundera.com/blog/2016/07/2...

**SXSW Eco** @sxsweco · 10h  
Excited to have @NSF @NSFSBIR as a sponsor at #SXSWeco's #Startup Showcase! Check out more about NSF + their work

@NSF

@NSFSBIR







Published



Notify

Template

Embed

Edit



National Science Fdn

@NSF

Follow

Tony Stark is not the only one enjoying exoskeletons.

#robothaiku

5:09 PM - 20 Nov 2014

33 RETWEETS 29 FAVORITES



#robothaiku @NSF #archaeology

5:30 PM - 20 Nov 2014

11 RETWEETS 10 FAVORITES



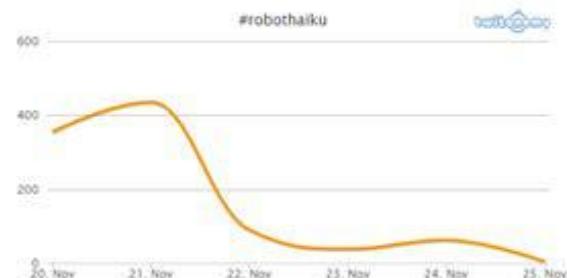
National Science Fdn @NSF

Follow

Tony Stark is not the only one enjoying exoskeletons. #robothaiku

5:09 PM - 20 Nov 2014

33 RETWEETS 29 FAVORITES



683 users

Potential Reach 35,276,770



TECHNOLOGY

# THIS NEW DRAWING TOOL CAN TURN SKETCHES INTO 3D IMAGES

WALDO WAS BEHIND THE CORNER ALL ALONG!

By Kelsey D. Atherton Posted August 14, 2015



## New digital media type gives drawing a third dimension



National Science Foundation

Subscribe 16,231

7,013

+ Add to Share ... More

40 3







## 14 Reasons Diamonds Are A Scientist's Best Friend

Diamonds are a symbol of love, but to researchers supported by the [National Science Foundation](#) they are also precious for their amazing physical and chemical properties. After all, there are more things to do with diamonds than just put one on your finger. **Scientists and engineers use diamonds to:**

posted on Feb. 12, 2014, at 1:40 p.m.



This post was created by a user and has not been vetted or endorsed by BuzzFeed's editorial staff. It is also not paid advertising. BuzzFeed Community is a place where anyone can post awesome lists and creations. Learn more or post your buzz!



### 1. Grow even bigger diamonds



NOVA scienceNOW / Via pbs.org

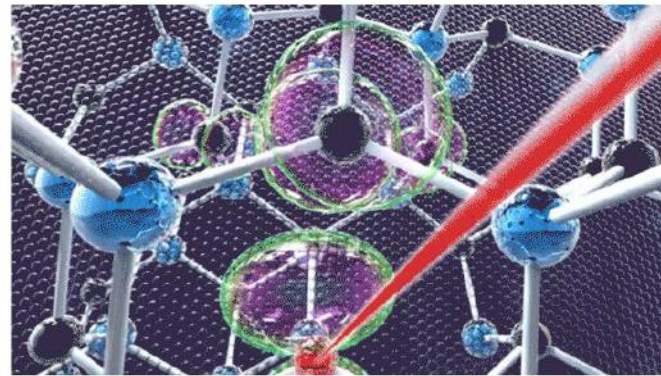
### 2. Learn about Earth's geological history



NSF / Via nsf.gov

Because they form within the bowels of our planet – in the Earth's molten middle layer aka mantle – and are millions of years old, diamonds can [tell us a lot about our geological history.](#)

### 3. Build quantum computers



via Science / Via images.com





National Science Foundation

Subscribed 33,280

Home Videos Playlists Channels Discussion About

What to watch next



NSF Science Now



Wearable robotic arm responds to human gestures - Science Now by National Science Foundation 374 views • 6 days ago



Researchers create unique ice storm lab. by National Science Foundation 871 views • 3 weeks ago

Engineering



utube

215 subscribers 14,343 views Video Manager



# National Science Foundation

## Industrial Innovation and Partnerships

Home of Small Business Innovation Research (SBIR), I-Corps, Partnerships for Innovation & I/UCRC

National Science Foundation IIP View as: Yourself

Home Videos Playlists Channels About

For returning subscribers For new visitors

What to watch next

### Partnership Project Types

- Open to any knowledge domain or application area,
- Operate in the post-fundamental/early translational space,
- Building on novel fundamental research discoveries,
- Technology requires interdisciplinary collaborations to be advanced,
- A clear path to commercialization does not need to be a central part of this proposal,
- Proposal must be mindful of the state of the art and the competitive landscape.

**NSF PFI:BIC Solicitation Webinar (Sept 9, 2016)**  
by National Science Foundation IIP  
14 views 3 days ago

**Overview and RFP/RFOT (10/16/16)**  
What is your organization, and why would it be interested in funding a PFI? How do you respond to the request for information? What are the key questions to be addressed? What is the timeline for the process?  
**1:08:19**

**PFI:AIR-TT Solicitation Webinar (Aug 2016)**  
by National Science Foundation IIP  
265 views 1 month ago

**So What Next?**  
What are the next steps in the process? How do you respond to the request for information? What are the key questions to be addressed? What is the timeline for the process?  
**1:38:44**

**I Corps Supplement Webinar July 27,**  
by National Science Foundation IIP  
181 views 1 month ago

**What We Don't Fund**  
What are the criteria for funding? What are the key questions to be addressed? What is the timeline for the process?  
**2:31:00**

**SBIR/STTR Phase I Q&A #4**  
by National Science Foundation IIP  
371 views 3 months ago







### Clearing feeding tubes faster – Biotech's future

National Science Foundation  
Subscribed

742 views

Add to Share More

4 0

Published on Oct 22, 2014

Feeding tubes often become clogged with medication and food, depriving patients of nutrition. NSF-funded small business Actuated Medical has invented an FDA-approved device that clears clogs quickly and cleanly.

SHOW MORE

Subscribed 32,280  
Add to Share More

2015 International Consumer Electronics Show  
National Science Foundation • 1/10 videos

- Smart vents to save energy - CES 2015
- Light-based virus detection - CES 2015
- Robotic hand with a delicate grip - Empire Robotics at CES 2015
- Shoe-based tech helps amputees get extra mileage out of physical therapy - CES 2015
- Headset uses ear muscle signals for hands-free control - CES 2015
- Self-powered device measures lung function - CES 2015
- Heat and motion-powered wearable electronics for improved health - CES 2015
- Glass coatings enable futuristic digital displays - CES 2015
- Empire Robotics demos soft gripper on ping pong balls - CES 2015
- The incredible shrinking chip - CES 2015

Keen Vent & App Review  
Tim Milligan  
15 views

21,514  
51 5

Gaelyn...: NPR Music Tiny Desk Concert  
NPR M...  
Recommended for you NEW





Engineering Topics

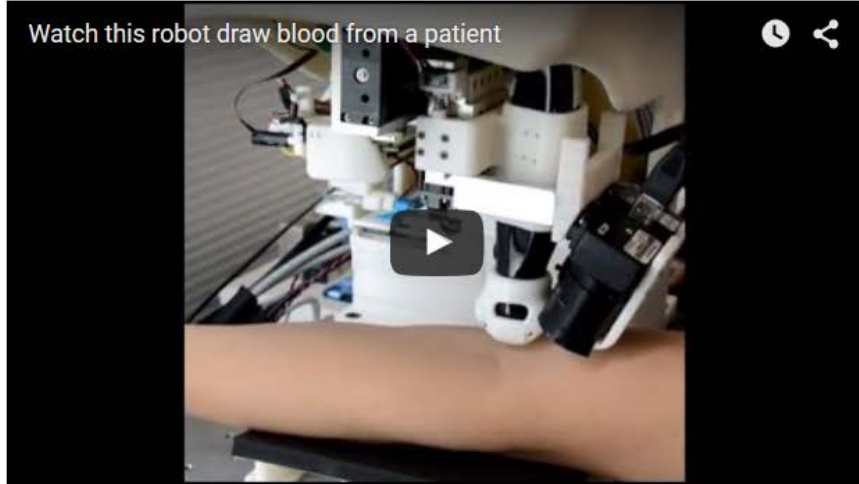
Special Reports

Blogs

Multimedia

Professional Resources

Search



Watch this robot draw blood from a patient

[ [VascuLogic](#) ] via [ [NSF](#) ]

I have to hand it to *Star Wars*: they've managed to create a real, and quite innovative, robot design with their BB-8 droid:



BB-8 droid from The Force Awakens rolls out on stage at Star ...

**IEEE SPECTRUM**

Follow on: [f](#) [t](#) [in](#) [+](#) [m](#)

Engineering Topics

### Video Friday: Atlas Kicked, Tea-Brewing Robot, and Rodney Brooks's Giant Brains

The week's best robot videos  
24 Jul



Robotics



Robotics

### Video Friday: Bacteria Driving Robot, Drone With Gun, and Freaky Snakebot

The most exciting place in robotics right now: Video Friday  
17 Jul



## Watch this robot draw blood from a patient



National Science Foundation

Subscribe 16,231

+ Add to Share More

26,356

129 3



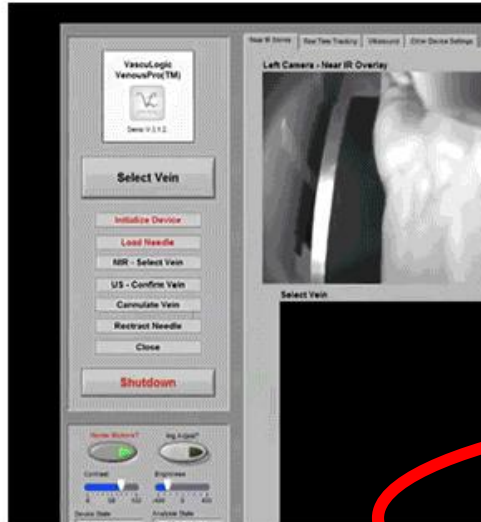
# I'm Not Putting My Arm Anywhere Near This Blood-Thirsty Needle Robot



Andrew Liszewski

Filed to: ROBOTS 4/17/15 3:42pm

9,182 🔥 5 ☆



## GIZMODO

SO, EXTENSIVE TESTING IS CRUCIAL OF COURSE - BUT ONCE DEVELOPED PROPERLY IT SHOULD BE NEARLY INFALLIBLE - MORE THAN YOU CAN SAY FOR EVEN THE BEST NURSE/DOCTOR/TECHNICIAN.

↳ Reply



Guspez > Andrew Liszewski

4/17/15 7:09pm

The one time I needed blood tests done, when I was a kid, I remember it being excruciatingly painful. And I'm somebody who has no problems at all getting injections, don't mind flu shots or other vaccines at all. I'm thinking that part of the reason for the pain came from it being done by a human, like how when they changed the tubes the whole thing jiggled around, which really hurt. So if a robot can make an improvement by keeping my arm more still, not moving the needle around, not having to change tubes, and applying a topical anaesthetic? I'm sold. Sign me up. Bonus points if the robot can move the needle in sync with any movement of the arm.

↳ Reply



He Who Must Not Be Named > Andrew Liszewski

4/17/15 6:55pm

Given the total lack of competence I've experienced with some technicians, I'd go





# ROBOTICS

comments related

Want to join? Log in or sign up in seconds. | English

↑ Watch this robot draw a blood sample from a patient (youtu.be)  
77 submitted 5 months ago by Batessa  
↓ 18 comments share

this post was submitted on 13 Apr 2015

## all 18 comments

sorted by: **best** ▾

↑ [-] **base736** 5 points 5 months ago  
↓ I wonder what the use of **18G/19G/20G/21G/22G/23G/24G/25G/26G/27G/28G/29G/30G/31G/32G/33G/34G/35G/36G/37G/38G/39G/40G/41G/42G/43G/44G/45G/46G/47G/48G/49G/50G/51G/52G/53G/54G/55G/56G/57G/58G/59G/60G/61G/62G/63G/64G/65G/66G/67G/68G/69G/70G/71G/72G/73G/74G/75G/76G/77G/78G/79G/80G/81G/82G/83G/84G/85G/86G/87G/88G/89G/90G/91G/92G/93G/94G/95G/96G/97G/98G/99G/100G** needles (like, watches them going in), the id  
permalink

[-] [deleted] 5 months ago  
[deleted]

↑ [-] **base736** 2 points 5 months ago  
↓ :) I guess, no matter how hard I try, a needle.  
permalink

↑ [-] **Tabdelineated** 1 point 5 months ago  
↓ You just don't want **this happening** (  
permalink

↑ [-] **kolal2** 1 point 5 months ago  
↓ This Israeli development (with American) Central venous catheters, or central lin

**cardiac arrest.** Failure rates in children can be higher still. **A study in 2013 by Stanford University School of Medicine and Lucile Packard Children's Hospital, found that over half the attempts to place a central venous catheter in children failed on the first go.**  
The robot is extremely precise in finding the blood vessel, and in using the exact length of needle needed. It takes about 2 min, not much significantly longer than a human doctor would take.  
permalink parent

↑ [-] **SlightlyCyborg** 2 points 5 months ago  
↓ At first I visualized a tick like bug crawling over the skin and sucking the humans blood.  
permalink

[-] [deleted] 5 months ago  
[deleted]

↑ [-] **Planetariophage** 3 points 5 months ago  
↓ I think this is intended to be a first step. Maybe several iterations down the line, in the far future, we'll have disaster relief robots that could do this and more with the efficiency and invasiveness of a mosquito. But for now this is a baby step that will give researchers a better idea of the difficulties and solutions needed to solve this particular problem.  
permalink

↑ [-] **smallfried** 1 point 5 months ago  
↓ That's amazing!  
Using normal camera imaging for the first localization, then echo location for the needle positioning.  
I wonder how much this stings in comparison to a human doing it. It seems that the needle movement into the skin could be a bit quicker to reduce the pain.  
permalink

↑ [-] **anlumo** 2 points 5 months ago  
↓ There's also much less shaking, which might reduce the issues with it.  
permalink parent







A video game that teaches students about the #immune system [youtu.be/nx2PCKFhz0I](https://youtu.be/nx2PCKFhz0I) @Immunequest



**ImmuneQuest Trailer**  
ImmuneQuest is an innovative educational game for college students that brings immunology to life. Designed to augment an educator's existing curriculum, Imm...

View on web  
RETWEETS 19 FAVORITES 16

3:49 PM - 11 Feb 2015

Reply to @ImmuneQuest

**Garrett Hall** @ChemHill · Feb 13  
@NSF\_ENG: A video game that teaches students about the immune system [youtu.be/nx2PCKFhz0I](https://youtu.be/nx2PCKFhz0I) @Immunequest @ire\_hobbs

**Mary Guldon** @margssattle · Feb 13  
Good timing - discussing now #AASMT @NSF\_ENG video game



53,408 people reached

Boost Post

Like · Comment · Share · 211 12 205

Pamela Holmes, Becca Morgan Duryea, Chayanee Seththapramote and 208 others like this.

205 shares



**Daniela Freitas** Cool! 😊

Like · Reply · 1 · 15 February at 12:18



**Sonu Singh** I was studying this in school the other day, and I was so confused, but hopefully this game helps

Like · Reply · 2 · 15 February at 12:28



**James Erdmann** SWEET!

Like · Reply · 1 · 15 February at 12:31



**Hay Dn** We shall see..

Like · Reply · 1 · 15 February at 12:42



**Maria Weir** This looks cool Catherine Weir

Like · Reply · 2 · 15 February at 12:51



**Helio Sebastián Andaluca** Sam Jordan

Like · Reply · 15 February at 13:37



**Sam Jordan** Cool, can't wait to try it out when they code an android version.

Like · Reply · 1 · 15 February at 14:04



**Kristine O'Connor-delgado** When will this be available?

Like · Reply · 1 · 15 February at 14:17

1 Reply



**Bonita Fracklebum** Yea I want this

Like · Reply · 1 · 15 February at 16:34



**Jennifer Wong-Ala** Leslie Auyong

Like · Reply · 15 February at 19:12



Write a comment...

53,408 People Reached

3,703 Video Views

134 Likes, Comments & Shares

30 Likes	211 On Post	219 On Shares
----------	-------------	---------------

13 Comments	13 On Post	80 On Shares
-------------	------------	--------------

11 Shares	205 On Post	6 On Shares
-----------	-------------	-------------

1,756 Post Clicks

81 Clicks to Play	164 Link clicks	911 Other Clicks
-------------------	-----------------	------------------

NEGATIVE FEEDBACK

Hide Post 5 Hide All Posts

Hide Spam 1 Unlike Page



# National Science Foundation

The National Science Foundation (NSF) is an independent federal agency created by Congress in 1950. We fund a significant proportion of federally supported basic research. Follow our Tumblr to learn about projects, people and infrastructure in every...

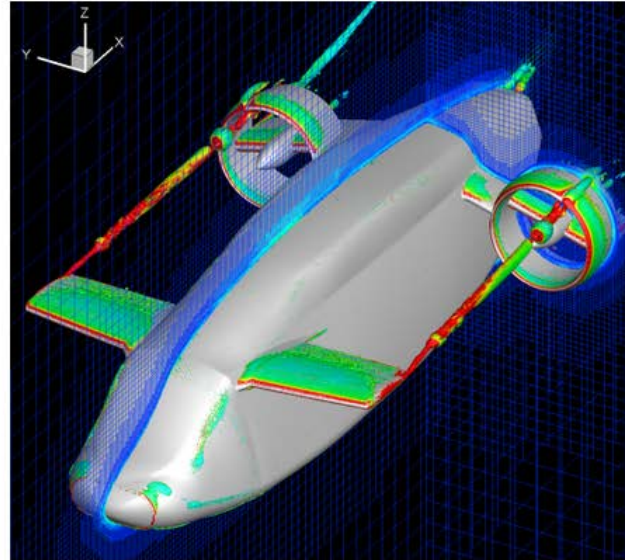
Search keywords

- ABOUT
- NSF DIRECTOR BLOG
- VIDEOS
- VIZZIES

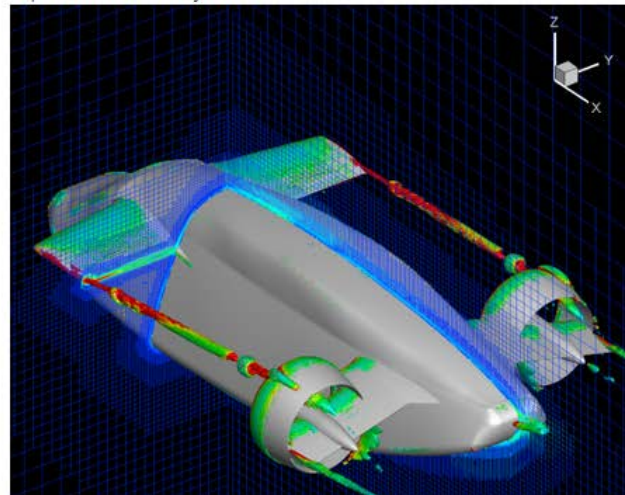
Archive Feed Random



Software for students to better predict and visualize airflow around helicopters



The NSF-funded small business Continuum Dynamics, Inc. (CDI) is developing a new software tool to help students learn fluid dynamics.





# Through the lens

Beautiful visualizations from the worlds of science and engineering. Some of the images here, while related to NSF projects and facilities, do not represent activities funded by NSF.

National Science Fo...

Invite Pinner

27 Pins

62 Followers

Edit Board

...



Add a Pin



Diatoms—tiny phytoplankton abundant in the sea—from Puget Sound, Wash. NSF researchers discovered that diatoms have an animal-like urea cycle that enables them to efficiently use carbon and nitrogen from their environment. [Credit: Adrian Marchetti, University of Washington, and Andrew Allen, JCVI]

Pinned from nsf.gov



Nanocrystalline diamond-coated endmills with innovative diamond tipped coating technology. Durable, low-friction diamond coatings allow tools to run faster for longer periods of time and with fewer replacement tools, thereby reducing manufacturing time and costs. NSF's Small Business Innovation Research program supports development of such technologies. [Credit: NCD Technologies]

Pinned from nsf.gov



Discover how desert sidewinder rattlesnakes slither sandy slopes-- watch Science Now from NSF. #snakes, #Life Sciences, #K-12, #Education

Pinned from nsf.gov



Like science visualizations? People's Choice voting in the 2014 Vizzies Challenge is going on now! <http://go.usa.gov/AmvB> Above: The American Bird Grasshopper (*Schistocerca americana*) is caught in mid jump as it is about to land using a specialized photographic technique called high speed flash. With this technique, the image is exposed using flash at a duration of about 1/50,000 sec. Learn more about The Vizzies.

Pinned from nationalsciencefoundation.tumblr.com



Vizzies public voting is on! Vote for your favorite science or engineering visualization in several categories, including photography, illustration and video.

Pinned from review.wizehive.com



Aurora australis ("southern lights") blankets the sky overhead of the 10-meter South Pole Telescope at Amundsen-Scott South Pole Station, Antarctica. The telescope collects data on cosmic microwave background radiation and black matter. [Credit: Keith Vanderlinde, NSF] #antarctica, #auroraaustralis

Pinned from nsf.gov



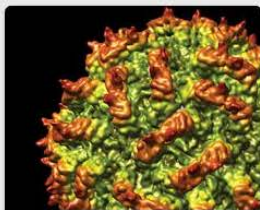
Astronomers have captured the best image ever of planet formation around an infant star as part of ALMA's testing and verification process for new high-resolution capabilities. [Credit: Video Credit: NSF Image Credit: ALMA (NRAO/ESO/NAOJ); C. Brogan, B. Saxton (NRAO/AUI/NSF)]

1 1

Pinned from nsf.gov



A glacier calving icebergs into a fjord in the Norwegian archipelago of Svalbard, Norway. NSF-funded scientists found that summers there are warmer now than at any other



The virus *Penicillium stoloniferum* was reconstructed in 3-D on a



This is an artist's rendering of a biobot powered by actual muscle. It



Polarizing microscope texture of a thin, liquid crystalline film (hybrid-



Insights into bubbles: Researchers described mathematically the stages in the complex evolution and disappearance of foamy bubbles. [Credit: Robertl. Saye and James A. Sethian, UC Berkeley and Lawrence Berkeley National Laboratory] #scienceisbeautiful, #bubbles



Why do tree leaves turn gold, orange and scarlet in the fall? See the role of pigment molecules, including chlorophyll, carotenoids and anthocyanin, in the changing leaves of autumn. #chemistry,





# Science360 for iPad

[View More by This Developer](#)

By National Science Foundation

Open iTunes to buy and download apps.



[View in iTunes](#)

Free

Category: Education  
Updated: Sep 17, 2015  
Version: 1.3.3  
Size: 19.4 MB  
Language: English  
Seller: National Science Foundation  
© 2015 National Science Foundation  
Rated 4+

**Compatibility:** Requires iOS 7.0 or later. Compatible with iPad.

## Customer Ratings

Current Version:  
★★★★ 7 Ratings  
All Versions:  
★★★★ 819 Ratings

More iPad Apps by National Science Foundation



Science Radio  
[View In iTunes](#)

## Description

The National Science Foundation's (NSF) Science360 for iPad provides easy access to engaging science and engineering images and video from around the globe and a news feed featuring breaking news from NSF-funded institutions. Content is either produced by NSF or gathered from scientists, colleges and universities, and NSF

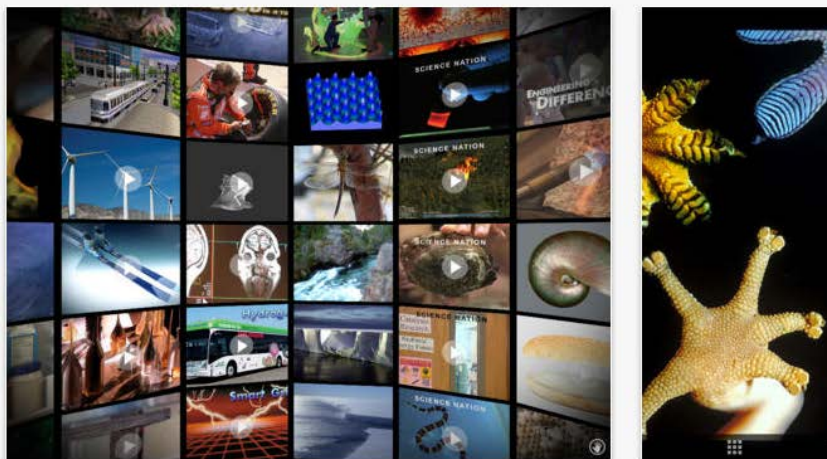
[Science360 for iPad Support](#)

[...More](#)

## What's New in Version 1.3.3

Bug fixes and added support for iOS 8.

## iPad Screenshots

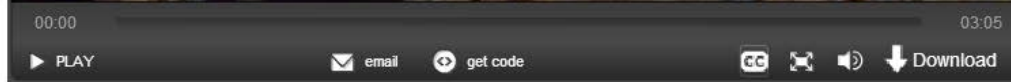


## Customer Reviews

Should have another update ★★★★★  
by Hater of it 11

It needs another update because I want more images, info, and videos!!! I'm talking MORE, dude. ☹️☹️





[About Science Nation](#)

[Get eMail Updates](#)

[Contact Us](#)

[More Special Reports](#)

[Science360 News](#)

November 25, 2013


## EcoVolt generates energy from wastewater

*Researchers bring their invention--the world's first bioelectrically enhanced wastewater to energy system--to market*

### RELATED MULTIMEDIA





- Awards**
- 
- Search Awards
  - Recent Awards
  - Presidential and Honorary Awards
  - About Awards
  - How to Manage Your Award**
  - Grant Policy Manual
  - Grant General Conditions
  - Cooperative Agreement Conditions
  - Special Conditions
  - Federal Demonstration Partnership
  - Policy Office Website

**Guardian sustainable business**  
circular economy

# The Californian craft beer brewed from waste water

A San Francisco brewery is using Nasa technology to make beer with water from sinks and showers, while other brewers are finding new ways to go green

Initiated by

Lat Sponsored by

**PHILIPS**  
About this content

**Kristine Wong**  
@wongkx

Monday 14 March 2016 08:24 EDT

Award

Shares 238 Comments 12

Save for later



Greywater beer (on the left) and same type of beer made with conventional municipal water. Photograph: Half Moon Bay Brewing Company

In autumn of 2014 - three years into California's devastating drought-architect Russ Drinker became fixated on brewing beer from recycled greywater (that is, water that's been treated after use in sinks, showers and washing clothes).

He was increasingly frustrated that the media paid little attention to water recycling. "They were focused on conservation instead. But if Californians really want to have an impact on our water use, we have to recycle our freshwater ... and get over our psychological resistance to that."

While some microbrewers have been working hard to get their water usage down - some to **three gallons of water** for every gallon of beer - the industry has a high water to beer ratio. Despite this, it took Drinker about a year to find a brewer up for the challenge. But when he broached the idea with the Half Moon Bay Brewing Company, he found a partner in the local craft beer scene.

use, and

Order Reprints Save Article Print

**K&L GATES HUB**

VISIT HUB FOR  
INDUSTRY-SPECIFIC INSIGHTS  
AT THE INTERSECTION OF  
LAW AND BUSINESS.

kgateshub.com

Program

Progr

**ABSTRA**

This SBIF electrode electroch of electric To date, produce process f directly in voltage t thermody





## Free Resources &gt; Science of Innovation

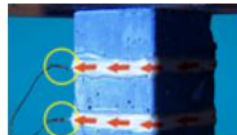
[Sustainability: Water](#)[Science of Golf](#)[Science of Innovation](#)[Writers Speak to Kids](#)[Science of the Summer Olympics](#)[Science Behind the News](#)[Science of NHL Hockey](#)[Science of NFL Football](#)[Chemistry Now](#)[Changing Planet](#)[Science of the Olympic Winter Games](#)[Finishing The Dream](#)[Sinking of the Titanic](#)

**SCIENCE OF INNOVATION**

Science of Innovation

NBC Learn, in collaboration with the National Science Foundation and the U.S. Patent and Trademark Office, explores the process of innovation. For related lesson plans by the National Science Teachers Association, open the video and click on "Lessons". If you are having trouble viewing the videos, [click here](#).

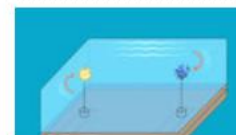
## Science of Innovation

Showing 1-11 of 11 [SHARE](#)

Science of Innovation: Smart Concrete



Science of Innovation: Self-Driving Cars



Science of Innovation: Fuel Cell Efficiency



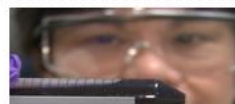
Science of Innovation: Electronic Tattoos



Science of Innovation: Bionic Limbs



Science of Innovation: Biometrics



# American Institute of Chemical Engineers (AIChE) Publishing Partnership

45,000  
professionals  
across 100  
countries

**Catalyzing Commercialization**

**A COOL ENERGY-STORAGE TECHNOLOGY PRESERVES MILK IN RURAL AREAS**

**E**lectricity shortages stunt the economic growth of many emerging economies. In India, more than \$10 billion worth of fresh produce is wasted each year due to poor grid infrastructure. Without a reliable source of power, food processors in agricultural areas cannot operate refrigeration equipment economically. Their only option is to use backup diesel generators to fill the power gap. This not only doubles the capital cost of refrigeration equipment, it also triples the operating costs. In addition, diesel generators are a major source of noise and environmental pollution.

But help is on the way. Promethean Power Systems, a Somerville, MA-based small business with grants from the National Science Foundation, has developed a thermal battery-based refrigeration system to address the challenges of unreliable electricity supply in rural areas. Its patent-pending thermal battery pack can store and release large amounts of thermal energy to cool agricultural products and preserve their freshness during transport from farms to markets.

The initial application for this technology is a milk chiller that cools raw milk to 4°C in seconds to arrest bacterial growth and preserve its freshness after milking. To date, Promethean has installed more than 90 milk-chiller systems in areas throughout rural India, with a total thermal energy storage capacity of over 2 MWh. The company is also conducting field trials for a similar refrigeration system for the U.S. microbrewery market, and for chilling fruits and vegetables on farms.

The Promethean thermal battery consists of a phase-change material (PCM) submerged in a heat-transfer fluid (HTF) that is encapsulated in densely packed plastic tubes. Ethylene and propylene glycols, mixed with water, are used as the HTF because of their wide availability and low cost. The PCM consists of water containing 12–14% of a nucleating agent, such as monopotassium phosphate, to achieve target temperatures necessary for food preservation (0–5°C).

This proprietary combination of HTF and encapsulated PCM is a novel modular design approach to thermal storage that enables compact, low-cost energy storage systems with predictable performance and high heat-transfer rates.

During charging, the PCM freezes as it absorbs energy from the HTF. The PCM expands during freezing, and the tubes allow for this expansion to occur without bursting. During discharge, the PCM releases energy as it melts. The HTF remains in liquid form during charging and discharging.

To charge the battery, a refrigeration compressor cools the HTF and freezes the PCM. The compressor needs about 5 hr of grid electricity to fully charge a battery with a standard storage capacity of about 20 kWh. An automated control system consisting of a combination of software and reconfigurable hardware from U.S. suppliers starts the charging process and when electricity is available and stops it when the battery is charged. Once the battery is fully charged, it can chill up to 700 L of milk without any additional power.

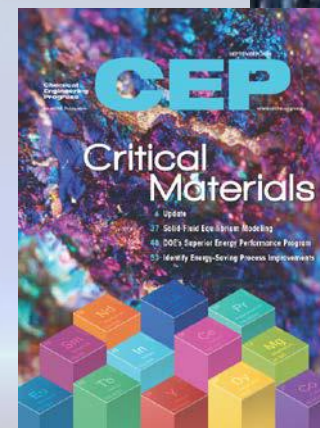
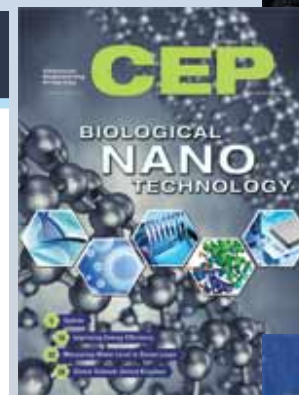
In India's hot climate, farmers can sometimes lose as much as 30% of their milk due to spoilage. For the world's largest producer of milk, the amount of milk lost annually in India could equal the total milk production of China. While the technology addresses a significant commercial opportunity, more importantly, the rapid milk chillers have the potential to change the lives of millions of people.

"It's a win for the dairy processors because they can collect more quality milk. It's a win for the farmers because they make more money for their milk, and it's a win for the consumers because it's healthier milk," says director Sam Wlatte, who co-founded Promethean Power Systems in 2007 in Boston with Sorin Grama, the company's chief technology officer.

This technology was funded through the NSF Small Business Innovation Research Program.

This article was prepared by the National Science Foundation in partnership with CEP.

**16** www.aiche.org/cep March 2016 **CEP**



# When to reach out:

- **Ideas** for stories.
- Important pending journal or news **articles**.
- If you're in the **neighborhood** of NSF HQ.
- Cool **images** or video clips.
- Just want to share **good news**.



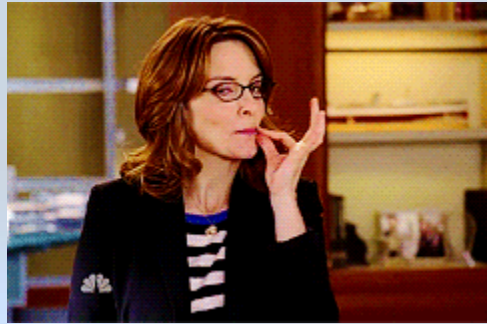


Also reach out when:

- Questions about **news releases**.
- Questions about the **media**.
- Questions about how to handle **sensitive topics**.



# IP and embargoed information



# Show off your NSF support

**Web Policies and Important Links**

- [Data Quality Standards](#)
- [Conflicts of Interest](#)
- [Copyright and Reuse of Graphics and Text](#)
- [Use of NSF Logos](#)
- [Freedom of Information Act and Privacy Act](#)
- [Links to External Sites](#)
- [Privacy Policy](#)
- [Web Accessibility](#)
- [No FEAR Act Data](#)
- [e-Gov Initiatives](#)
- [e-Gov Content Inventory](#)
- [Performance Assessment](#)

## NSF Logo

NSF's logo can be used by recipients of NSF support for the sole purpose of acknowledging that support.

NSF's logo can be used to link to an NSF website or acknowledge NSF assistance or affiliation.

### WHO CANNOT USE THE LOGO?

NSF's with N

### DO I

No ex

### LOGO

## *Incorrect Usage*

The NSF logo must not be altered or distorted in any way. Whether using the logo alone, or partnering with other organizations, care should be taken to follow the standards. T-shirts, hats, and other promotional items are especially easy targets for logo misuse. The effectiveness of the logo depends on consistency of usage.

The logo should never be repositioned, distorted, or set at an angle.

The Logo should never be disassembled to be used as separate elements or retypeset using another font.





# Pick up your phone and...follow us!

- **Twitter:** @NSFSBIR or @NSF  
– #NSFFunded
- **Facebook:** Facebook.com/US.NSF
- **YouTube:** youtube.com/user/videosatNSF or  
youtube.com/user/NSFIInnovationIIP



# Key Takeaways:

- Put the NSF Logo on your site.
- Send us your news! NSF can help you.
- Follow us and tag us.
- Refine your story.

***Your success  
= Our success***



Questions?

[kmonterr@nsf.gov](mailto:kmonterr@nsf.gov)

