The World 20 Years Ahead
With a 2020 Vision

The Science Circle

Steven R. Van Hook, PhD

Global Trends the Next 20 Years
Technological Paradoxes

- Abundant & cheap energy supplies
- Inexpensive & accessible technologies
- Universal access to information
- High quality, low-impact living
- Global health care
- Big Brother intrusion
- Technology failure
- Technological divide

The NIC's National Intelligence Officers founded 1979 — drawn from government, academia, and the private sector — are the Intelligence Community's senior experts on a range of regional and functional issues.
link

GLOBAL TRENDS

Global Trends Report

Local

University Work

- **Steven R. Van Hook, PhD**
- Global business/MBA/communication courses for UCLA Extension, UC Santa Barbara, California Lutheran University, National University, Antioch University …
- http://wwmr.us
- http://course.wwmr.us
- steven@wwmr.us

NATIONAL UNIVERSITY

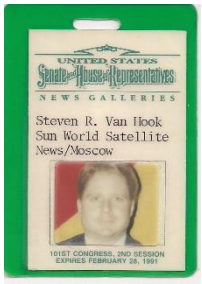
UC SANTA BARBARA
UNIVERSITY OF CALIFORNIA

California Lutheran University

Steve Van Hook
:: Media Samples ::

TV Anchor
Circa 1987

УДОСТОВЕРЕНИЕ
ИНОСТРАННОГО ТЕХНИЧЕСКОГО ПЕРСОНАЛА
Управление информации МИД СССР удостоверяет, что г-н ВАН ХУК Стив
зарегистрирован как редактор
телевидения Сан Уорлд
США
Выдано 23.01.91
Действительно по 23.01.92
МИД № 002142 СССР



Russia TV Bureau Chief
Circa 1990

Newspaper Writer
1980s –

Radio Reporter
Circa 1985

Nonprofit / Government Work

- VISTA
- USAID
- UNESCO
- Head Start
- IREX
- Educare Research
- Crisis Counselor
- Saylor Foundation
- Corrections Intake

USAID
FROM THE AMERICAN PEOPLE

UNESCO
United Nations Educational, Scientific and Cultural Organization

UNIVERSITY OF OREGON

OFFICE OF HEAD START

Oregon Department of Corrections

IREX
Make a Better World

VISTA 50 years

saylor.org ACADEMY

ERI

Articles on Transcultural Learning

Journal of Distance Learning Administration
(University of West Georgia)

Van Hook, S.R. (2018, Spring)
The future revisited: Can global learning still save the world?

Article Local File

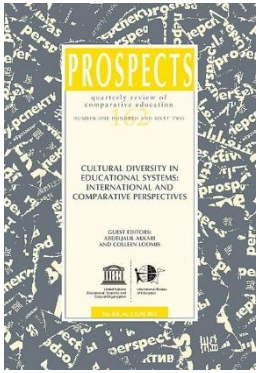
***Journal of Research in International Education* (Sage)**

Van Hook, S.R. (2011, April)
Modes and models for transcending cultural differences in international classrooms.

Article Local File

UNESCO Journal *"Prospects"*

Van Hook, S.R. (2012, June)
Hopes and hazards of transculturalism



Article

Local File

Current Events in Education

- **It's Time for Radical Reorganization**
  Chronicle of Higher Education
- **Is This the End of College As We Knew It?**
  Inside Higher Ed
- **Khan Academy: Online Learning is 'Silver Lining' in Crisis**
  CNBC
- **How will the Pandemic Change Higher Education?**
  Chronicle of Higher Education
- **Harnessing Virtual Exchanges for Global Education**
  Inside Higher Ed
- **After The Coronavirus, the Deluge Killing of Adjuncts**
  Chronicle of Higher Education
- **We are Living in a Failed State**
  The Atlantic
- **Virtual Museums Shake Off the Dust**
  New York Times
- **Can Global Learning Still Save the World?**
  Journal of Distance Learning Administration / S. Van Hook

The New York Times

INSIDE HIGHER ED

The Atlantic

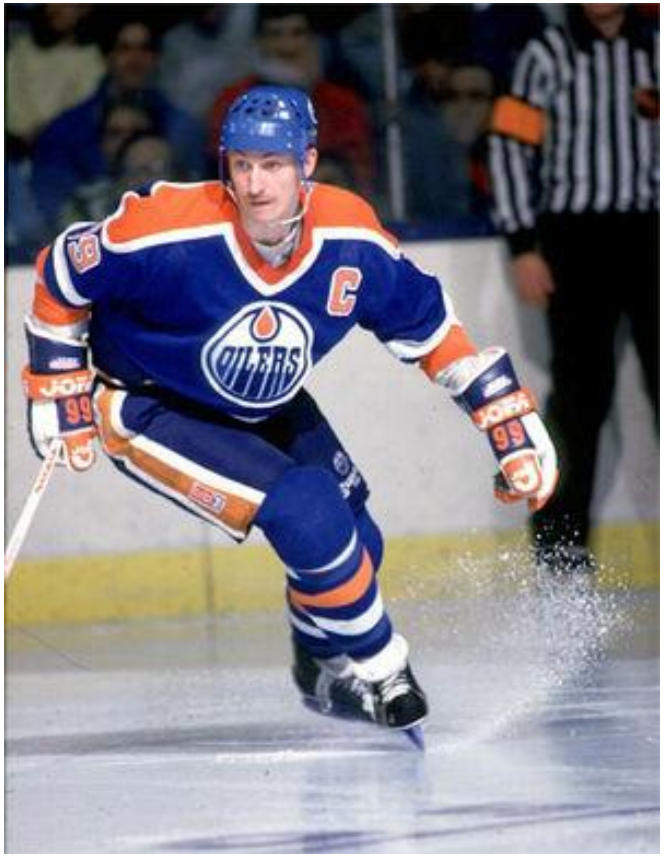
CNBC

THE CHRONICLE OF HIGHER EDUCATION

Wayne Gretzky on The Future

"A good hockey player is where the puck is ...

A great hockey player is where the puck will be."



A New ‘Useless Class’

The Guardian

> By 2050 a new class of people might emerge – the useless class. People who are not just unemployed, but unemployable

“Economically redundant people might spend increasing amounts of time within 3D virtual reality worlds, which would provide them with far more excitement and emotional engagement than the ‘real world’ outside.”

Article

Local

AI Is Coming for White Collar Jobs

Most Exposed Industries:

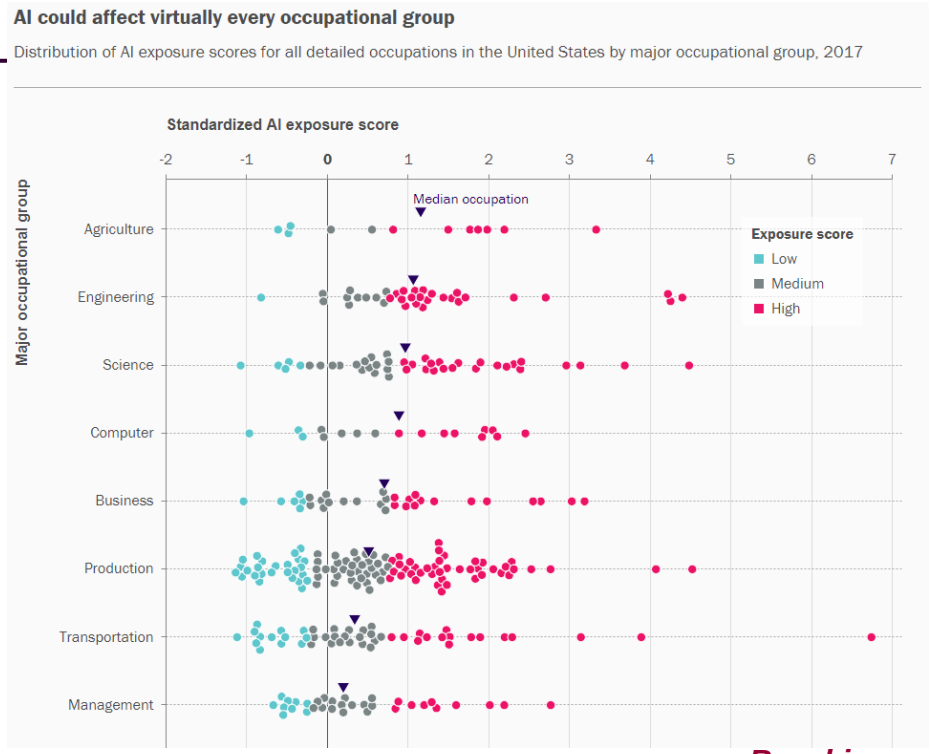
- Carmakers
- Clothing
- Software publishing
- Computer design
- Professional services (e.g., legal, marketing, accounting)
- Agriculture

Most Exposed Places:

- San Jose, Seattle, Salt Lake City, Boulder, Michigan, Indiana, Illinois, Nebraska

'Those with more education and diverse skills will be better prepared to navigate the shifts.'

Article



Brookings

***'AI with** the ability to interpret voice commands, recognize images, and make predictions and decisions could impact jobs ranging from radiologists to legal professionals and marketing specialists with drastically diminished roles.'*

How the World Keeps Getting Better

23 Charts & Maps that Show the 'World is Getting Much, Much Better'

Article

by Dylan Matthews / Vox.com

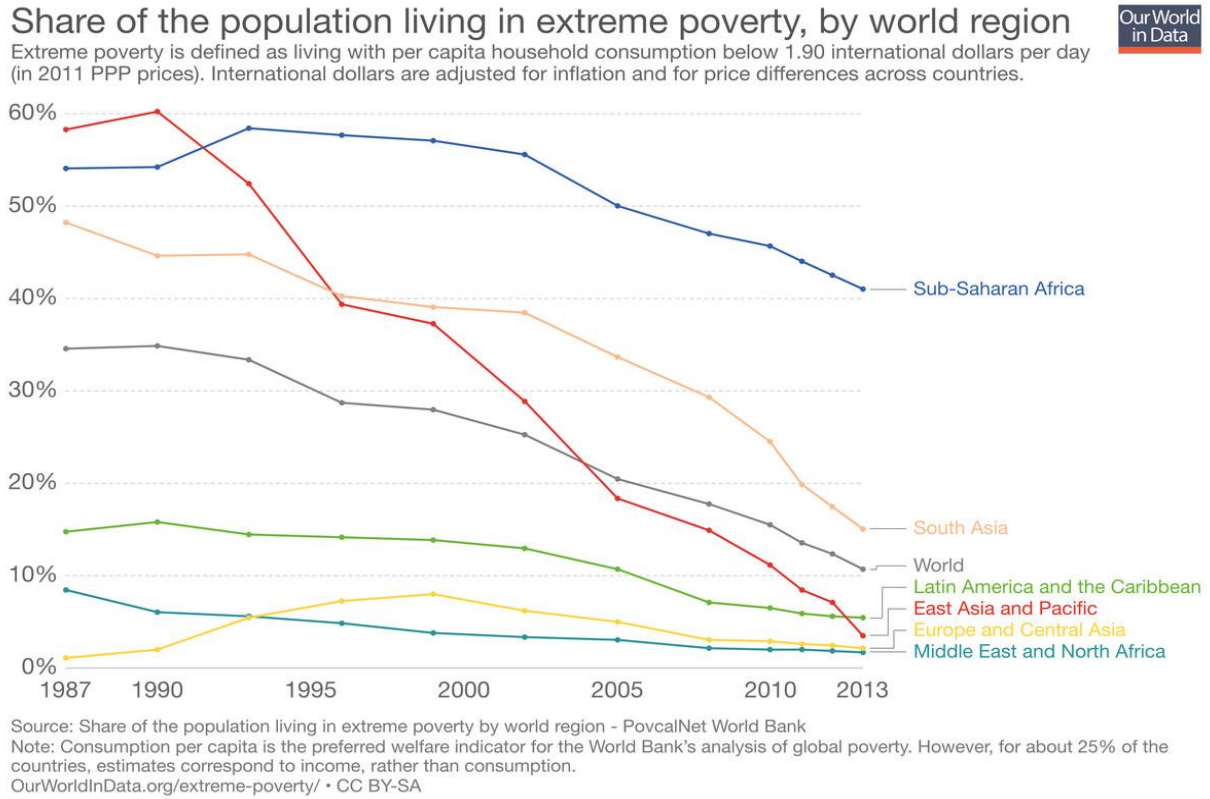
Presentation

Local

Extreme Poverty Has Fallen

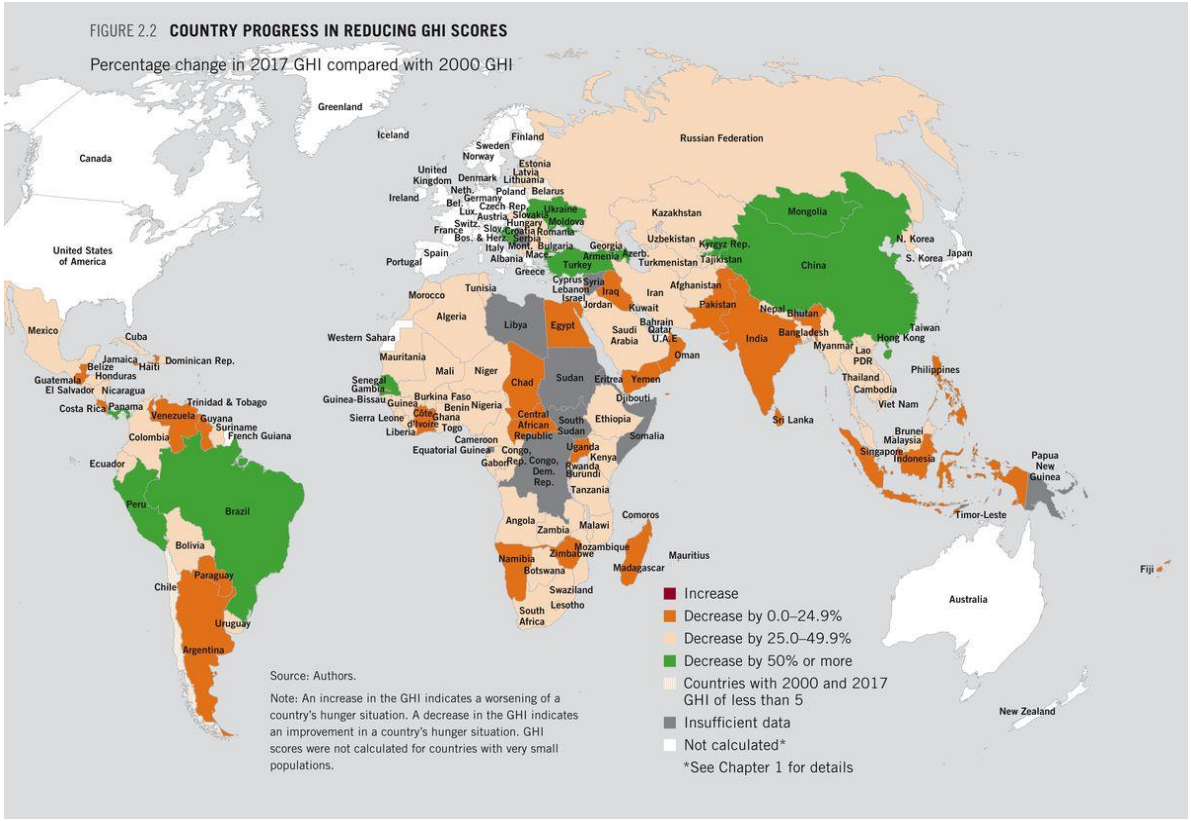
Subsistence living on less than $1.90 a day:

1987: *35%*
2013: *11%*



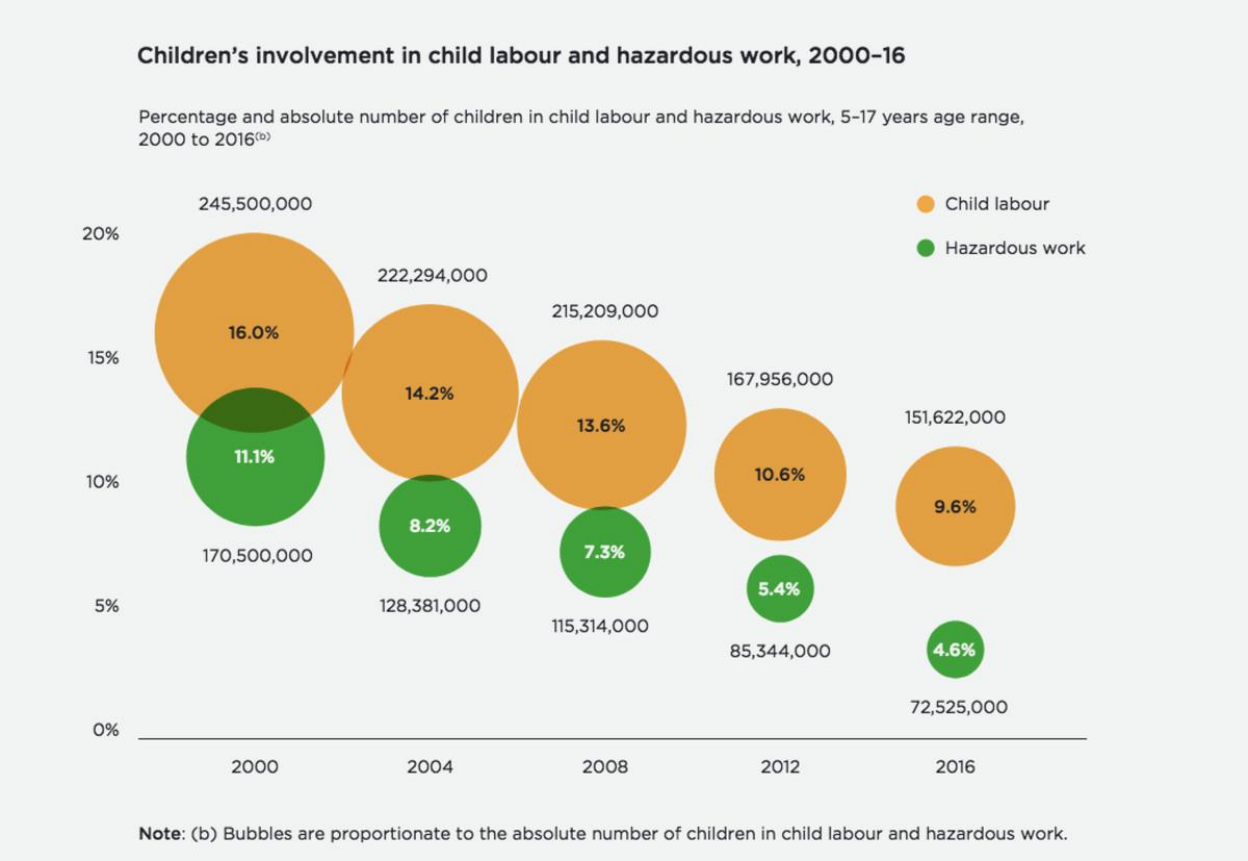
Hunger Is Falling

Between 2000 and 2017, hunger has decreased by half or more in green countries



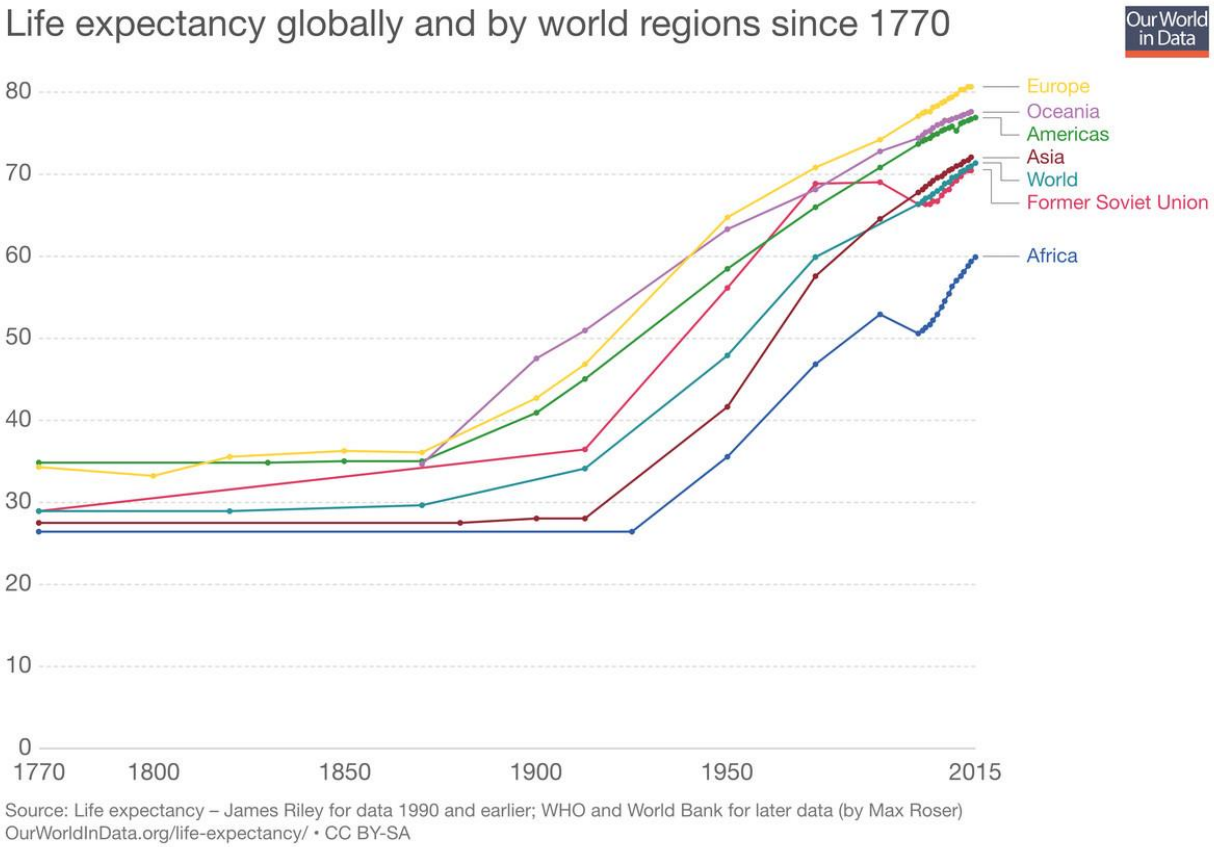
Child Labor on Decline

Reduction of 40% in child labor at hazardous work



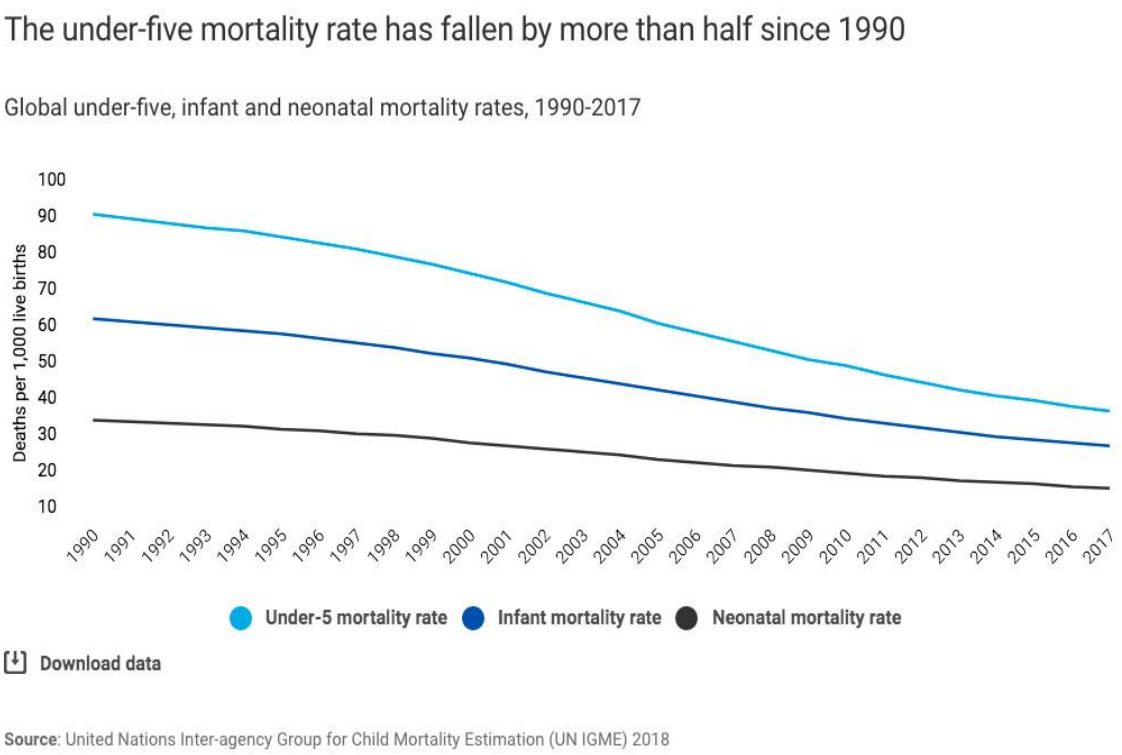
Life Expectancy is Rising

Global life expectancy increased by six years between 1990 and 2016.



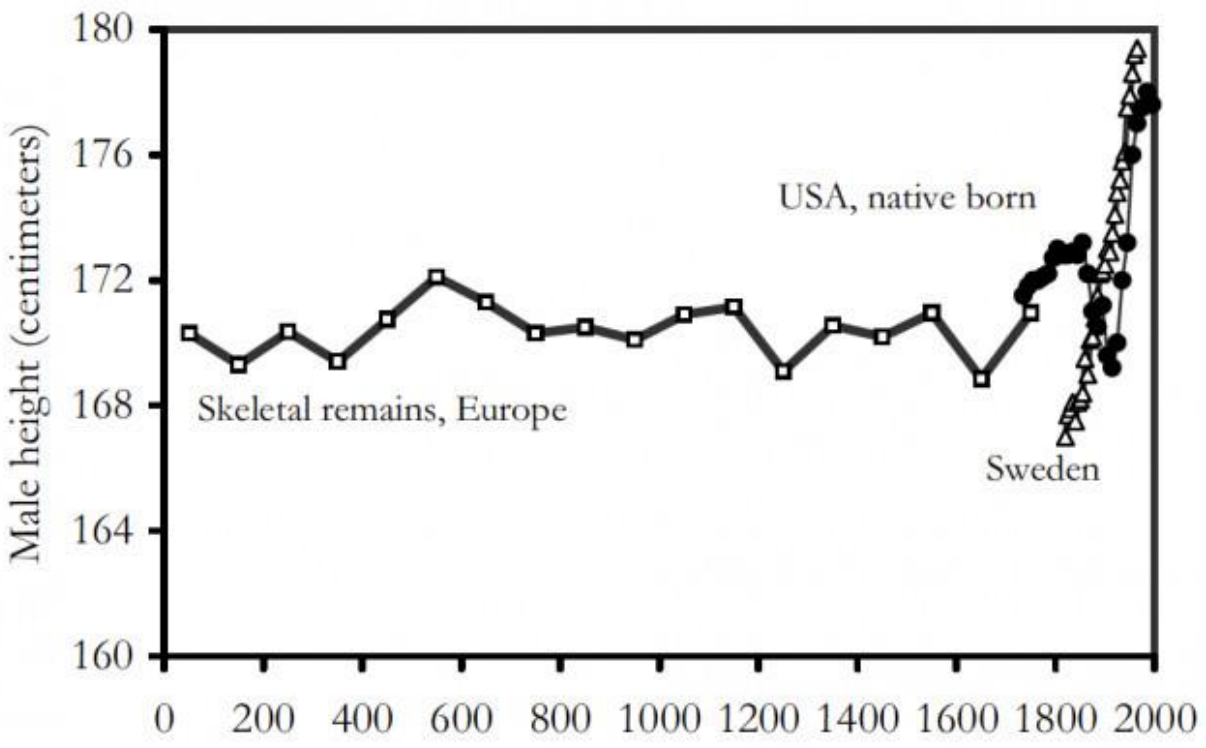
Child Mortality is Down

Child deaths by age 5 have fallen by half since 1990



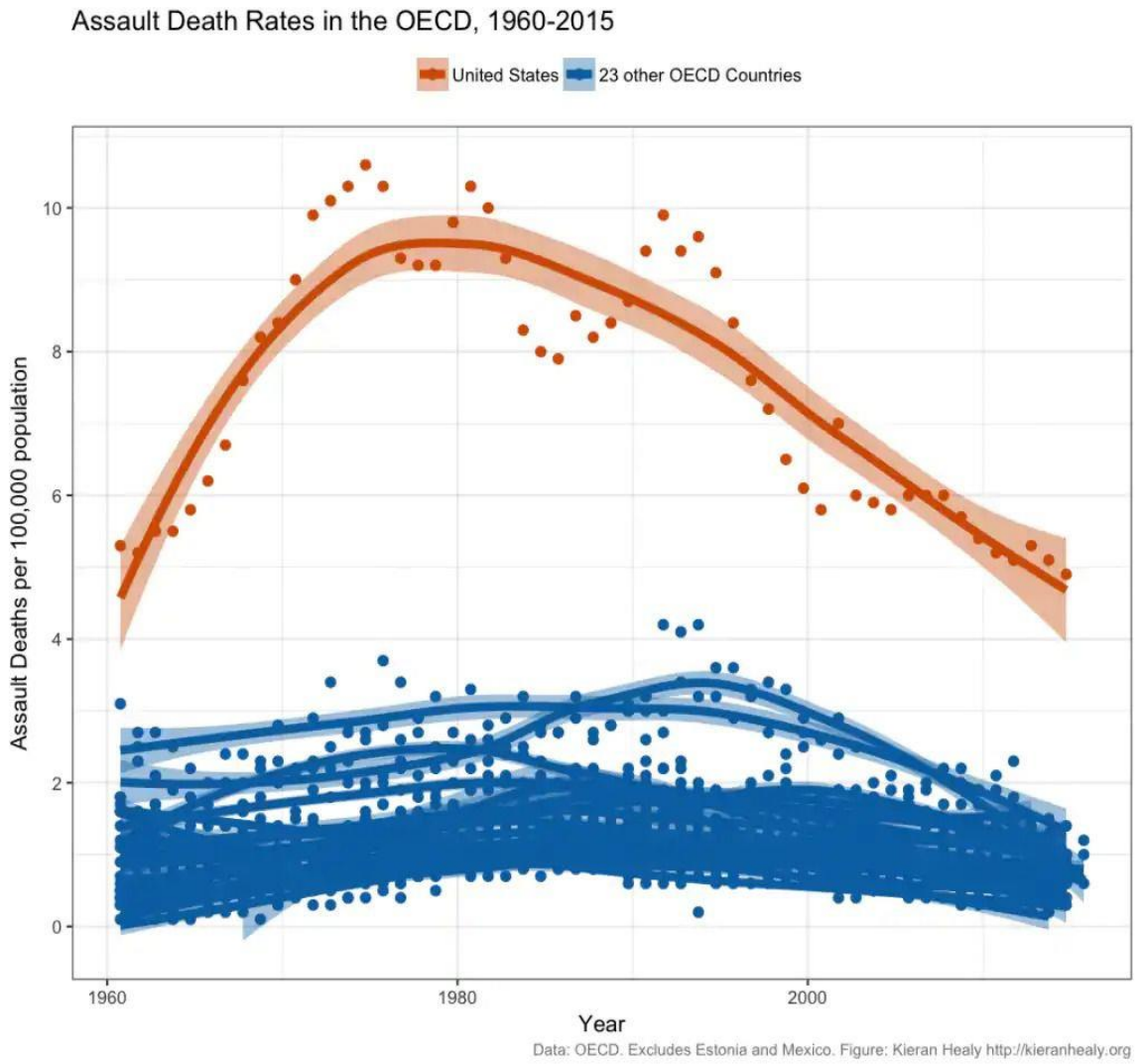
People are Getting Taller

Better nutrition and living standards have contributed to human height shooting up since the industrial revolution



Homicide Rates Have Fallen

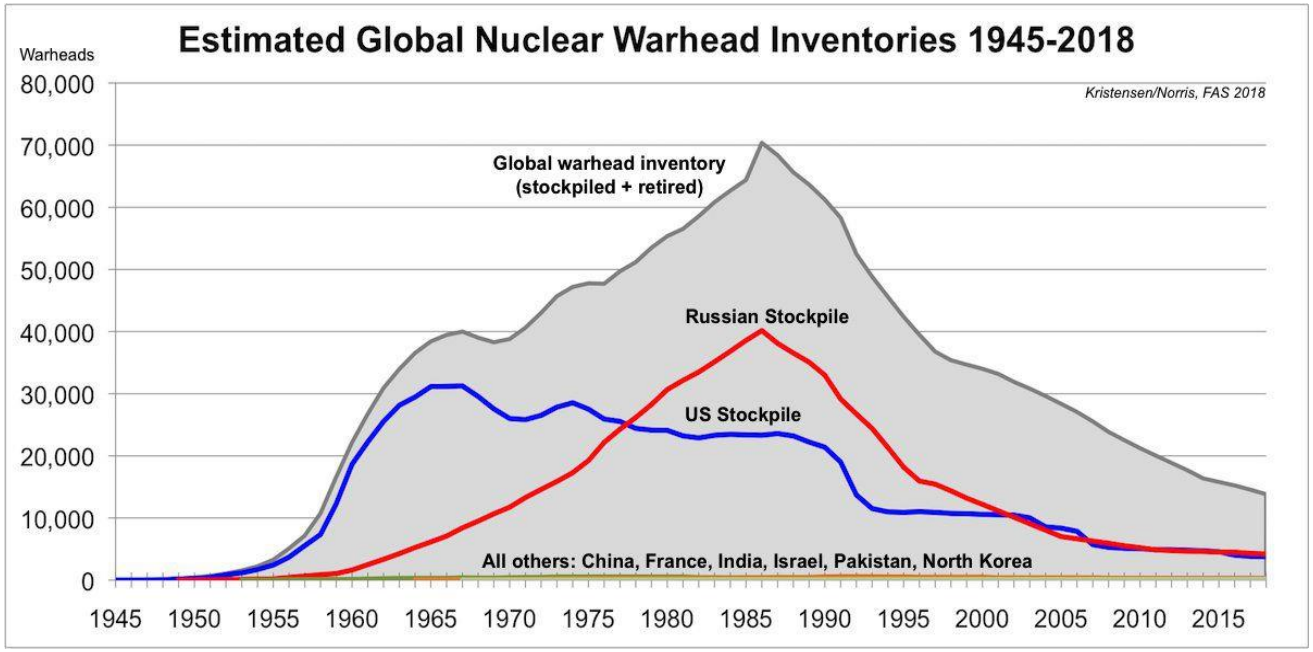
Sharp decline in homicides per 100,000 from 1980 - 2015



Global Nuclear Weapons Declining

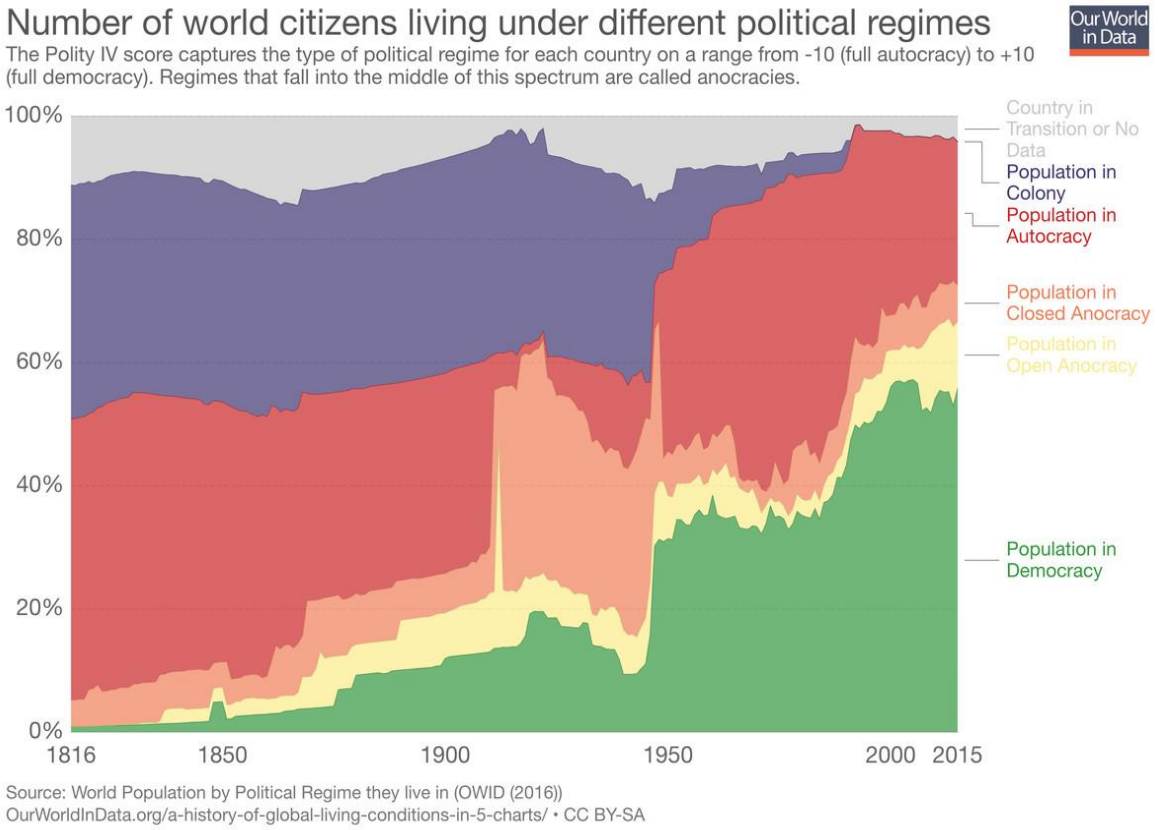
Stockpiles peaked in 1986 at 70,300 warheads;

to sharp drop towards 2018



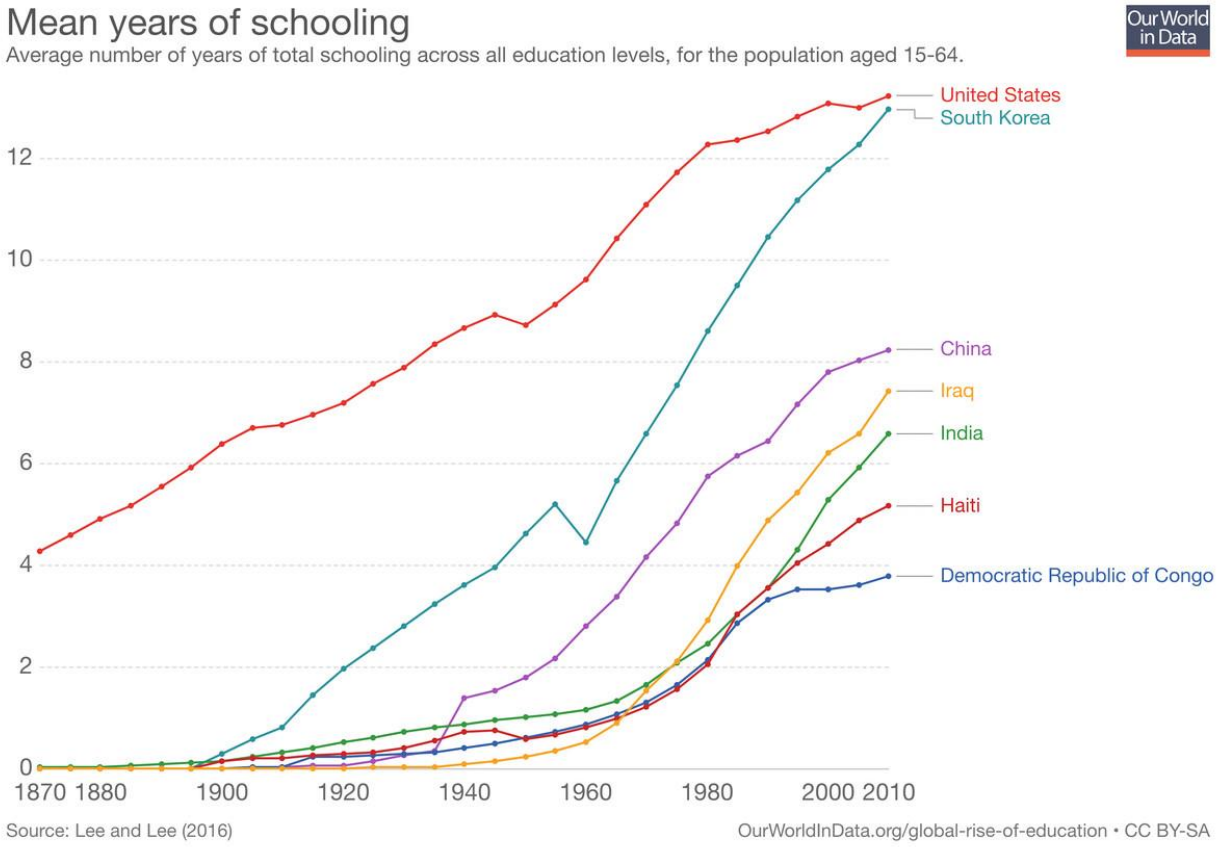
More People Live in Democracies

Percentage of democratic countries has climbed to record highs since 1950



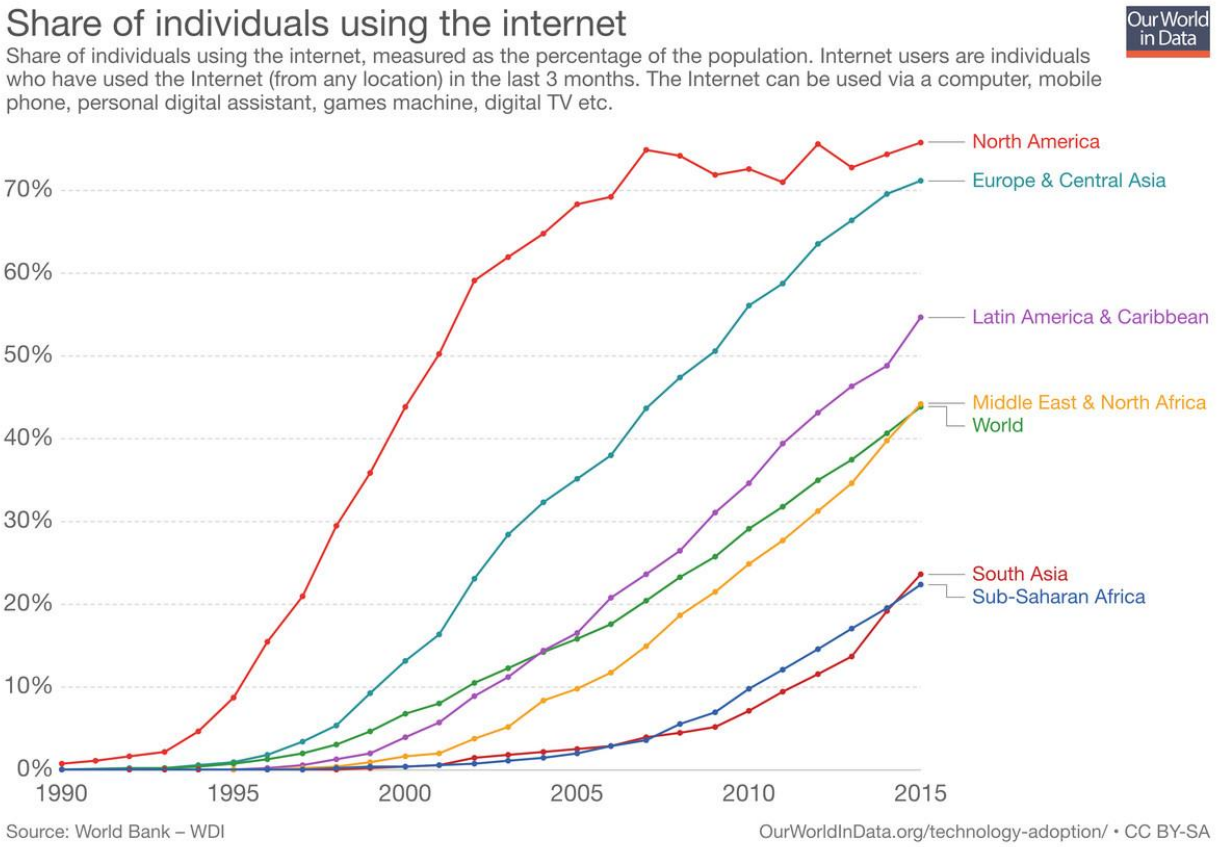
More People Go to School for Longer

Education rates rise swiftly in many developing nations



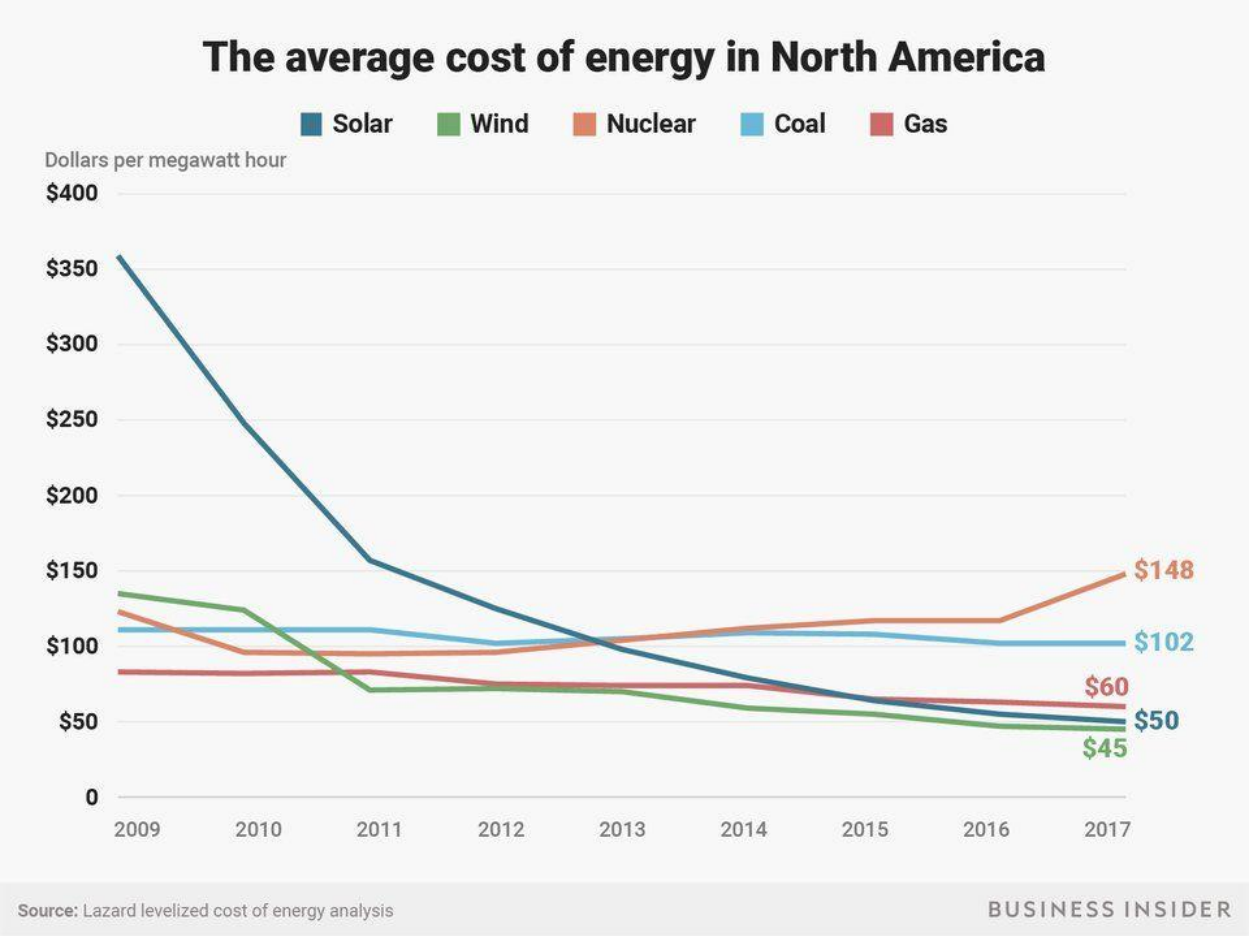
Access to the Internet is Increasing

Internet access rises rapidly in developed and developing nations

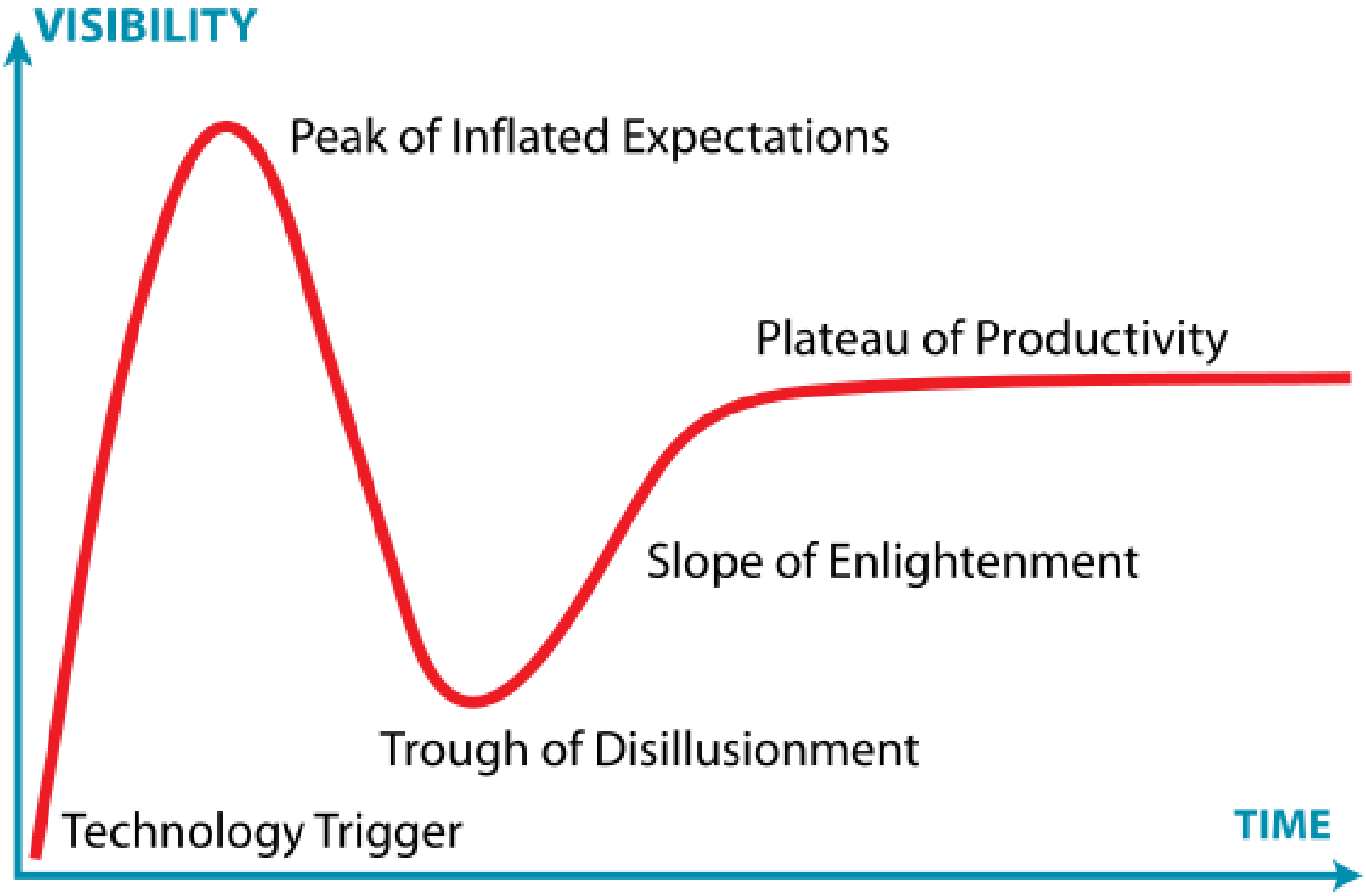


Solar Energy is Getting Cheaper

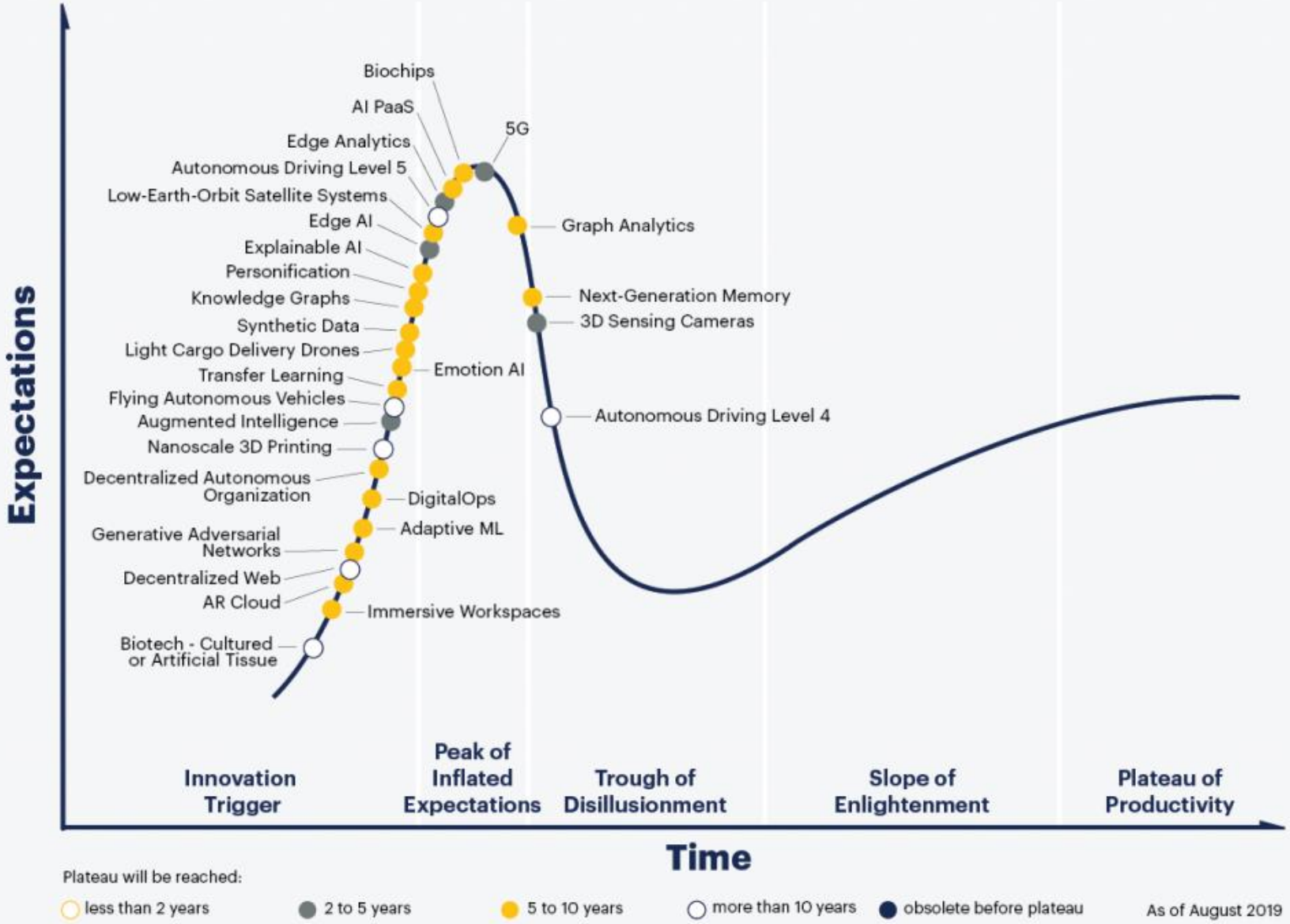
Solar and wind power now cheaper per megawatt hour than gas or oil



The Slopes and Cycles of Hype



Gartner Hype Cycle for Emerging Technologies, 2019



Glass Sphere Solar Harvester

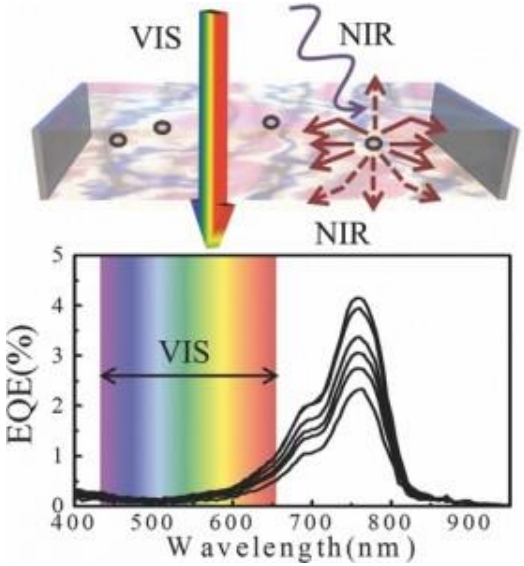
- Tracks and concentrates sunlight & moonlight 10,000 times
- Collects light on solar panels with as much output as standard panel 400% bigger

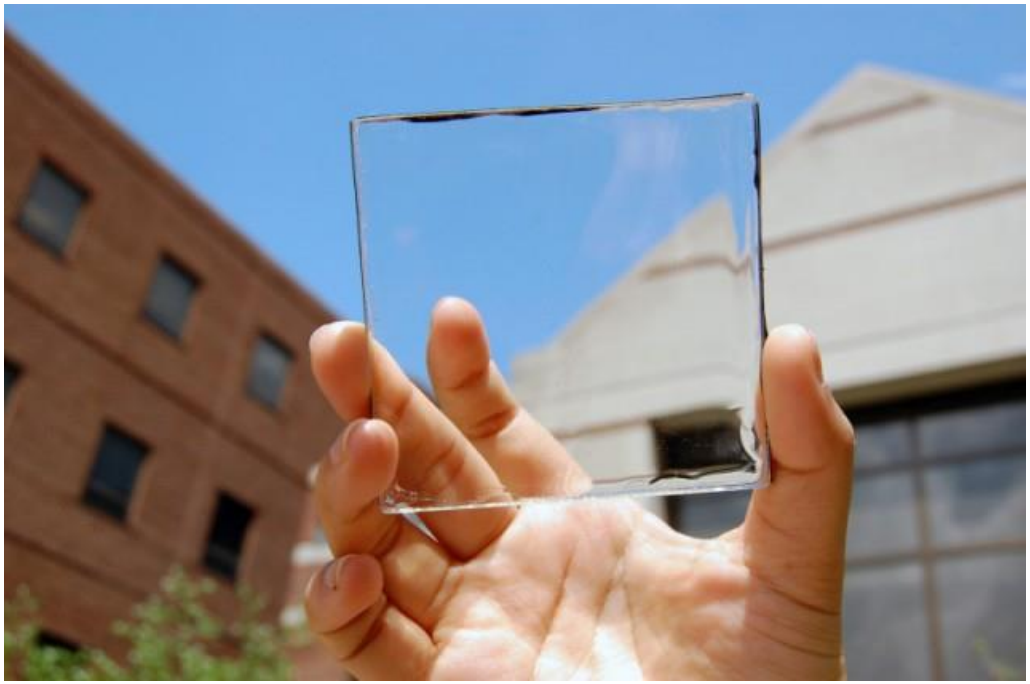
The Betaray, developed by German architect André Broessel

Article

Fully Transparent Solar Cell

Researchers at Michigan State University have created a fully transparent solar concentrator …





… which could turn any window or sheet of glass (like your smartphone's screen) into a photovoltaic solar cell.

Bill Gates Backed Solar Breakthrough

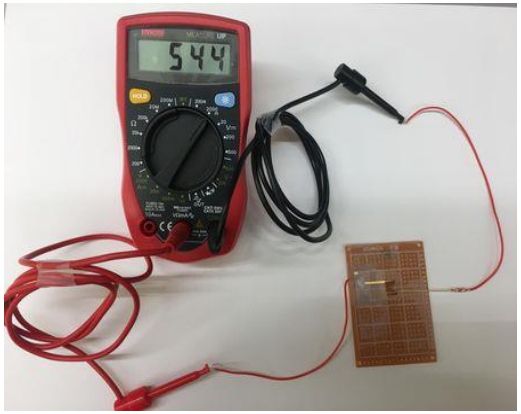
- Solar power concentrated to a single point with AI creates temperatures hot enough to make cement and steel
- ‘This is an existential issue for your children, for my children and our grandchildren’

CNN BUSINESS

Article

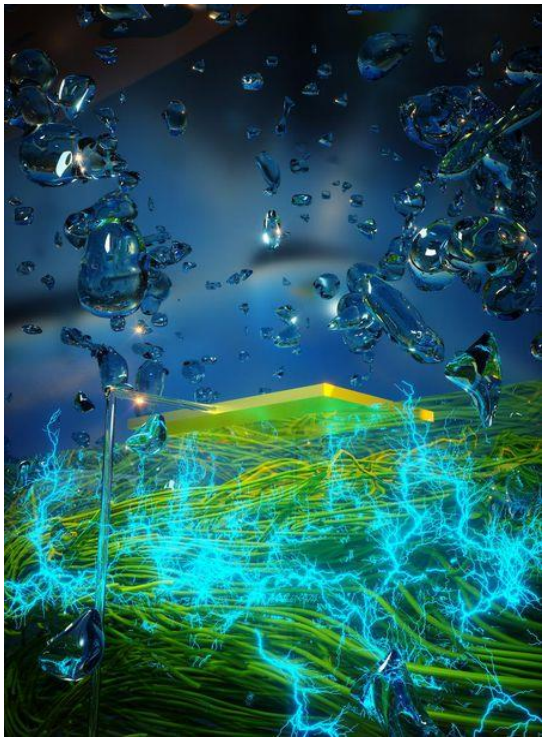
Electricity from Thin Air

Scientists in Amherst, MA are developing a new technology that will use the moisture from the air to create a charge.



The current Air-gen device can power small devices. Photos courtesy: UMass Amherst / Yao and Lovley labs.

Article



Graphic image of a thin film of protein nanowires generating electricity from atmospheric humidity.

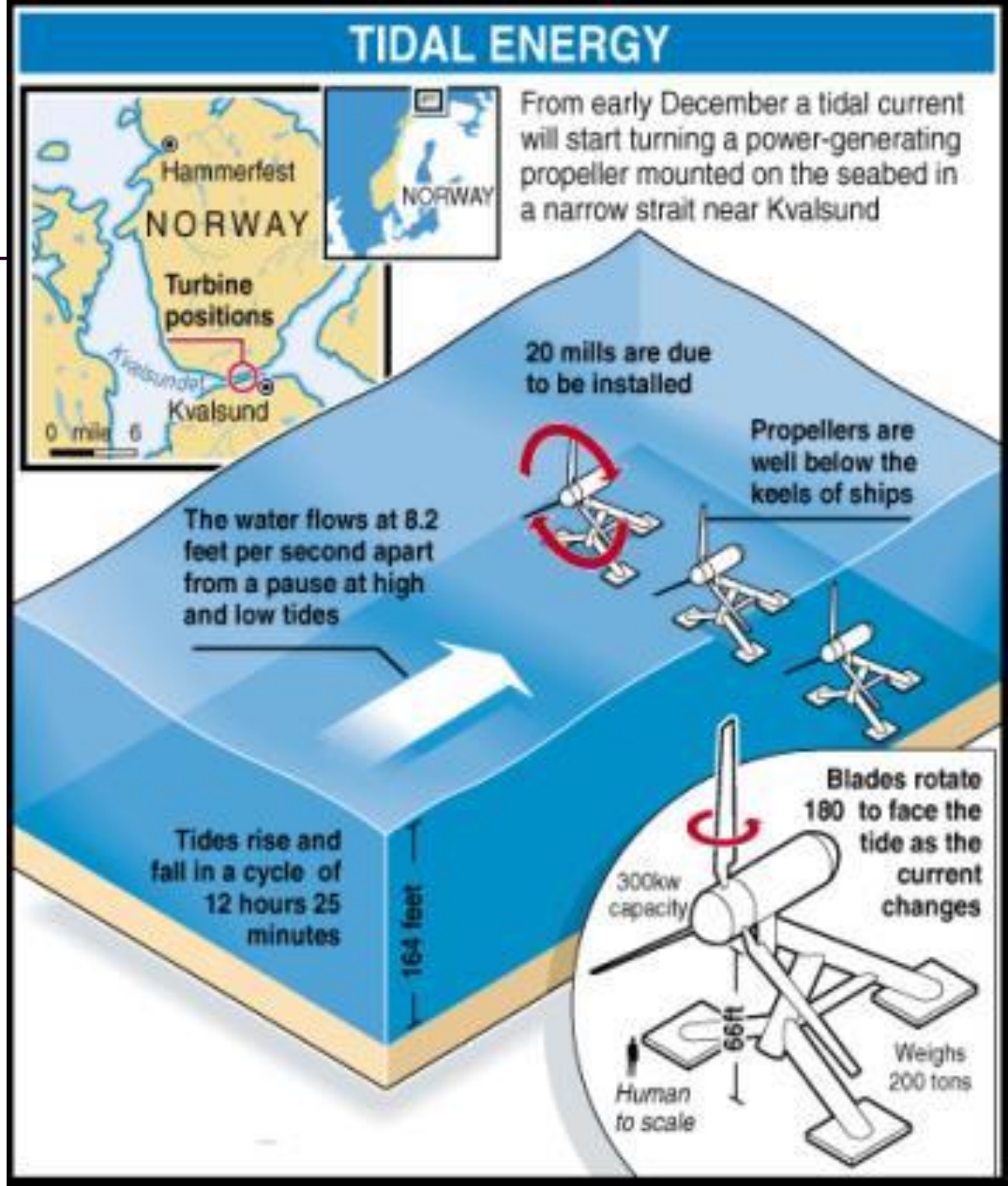
Australian Scientists Close to Converting Sunlight & Water into Fuel

- Plants use photosynthesis to turn water, carbon dioxide and sunlight into oxygen and the energy they need to power their systems.
- Scientists from the National University in Canberra, have modified a naturally occurring protein, and use it to capture energy from sunlight.
- "Water is abundant and so is sunlight. It is an exciting prospect to use them to create hydrogen, and do it cheaply and safely."

Science Alert

Article

- **In a novel use of clean energy, the world's most northerly town will soon be the first to get electricity from a sub-sea power station run on tidal currents tugged by the moon. Gigantic forces in the oceans -- waves, currents and tides -- have often proved too costly or awkward to harness, compared to wind or solar power in global efforts to cut reliance on nuclear power or on fossil fuels blamed for global warming (news - web sites). This Reuters graphic shows how giant underwater propellers will use currents to create electrical power. (Reuters Graphic 11/4/02)**



Wind Energy Multiplies

The global wind energy industry is expected to enjoy continued strong growth in coming years with total installed capacity seen to be ever increasing.
- Reuters

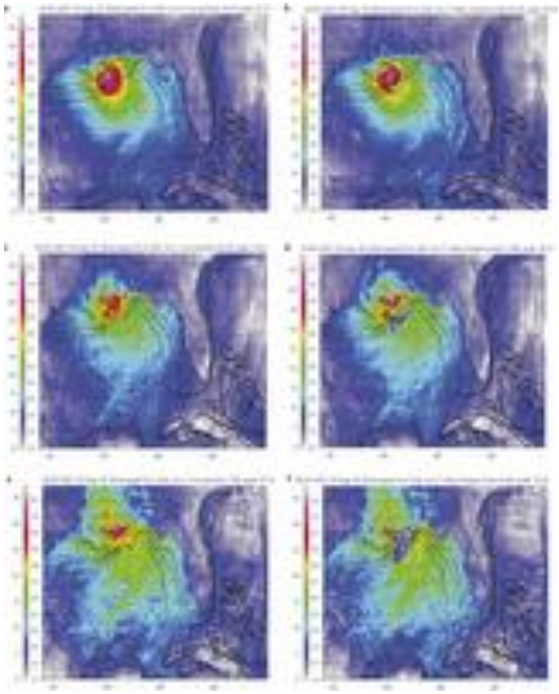
Giant wind turbines dot the sky at dawn near Honrrubia, Spain

An offshore wind turbine off the coast of Fukushima, Japan

Wind Turbines Tame Huricanes

Offshore wind turbines can mitigate hurricane damage: This study finds that large turbine arrays (300+ GW installed capacity) may **diminish** peak near-surface **hurricane wind speeds by 56–92 mph** and **storm surge by 6–79%.**

Article



Modelled surface wind speeds with and without turbines three times during Hurricane Katrina.

Google's Self-Driving Car

During a demonstration of one of Google's self-driving cars, a noticeable behavioral quirk that the Lexus exhibited was that it seemed to change lanes with emphasis, avoiding the gradual meandering from one lane to the next as a human driver might do.

Article

Toyota’s Electric Vehicle 'PM'

Oct 20, 2003 AP

The PM is a single-person vehicle that targets driver-vehicle unity and offers advanced vehicle-to-vehicle communication.

Amphibious Car

British entrepreneur Richard Branson sets out for Calais, France, to break the world record for crossing the English Channel in an amphibious vehicle.

June 14, 2004

The 75,000 pounds ($135,000) Aquada amphibious car, which seats three people, can travel at more than 100 miles per hour (160km) on land and 30 miles per hour (50km) on sea.

Commercial Spaceport in UAE

This computer rendition made available by Space Adventures, Ltd., shows the company's plans for a $265 million commercial spaceport in the United Arab Emirates. The commercial spaceport would be based in Ras Al-Khaimah near the southern end of the Persian Gulf, and the UAE government has made an initial investment of $30 million.

Race to Blast Tourists into Space is On

Associated Press

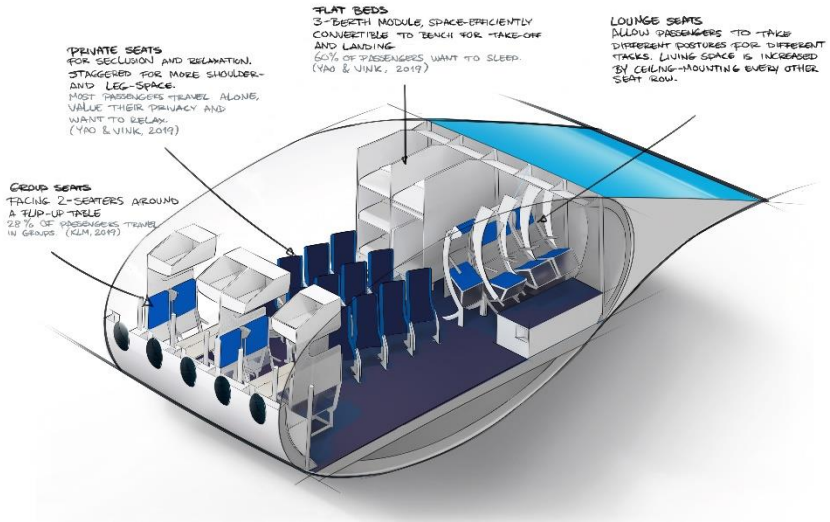
Boeing's developing a flying car, a remote control sporty red helicopter/car hybrid engineers created. The goal is to make a flying car that costs the same as a luxury vehicle, is quiet and fuel-efficient, and is easy to fly and maintain.

Boeing is especially interested in the broader problem of figuring out how to police the airways -- and prevent total pandemonium -- if thousands of flying cars suddenly enter the skies.

Flying V Plane Planned for 2040

- A blended wing body aircraft, with no distinct wing and a body structure like more conventional aircraft, reducing drag and fuel, powered by electric fans

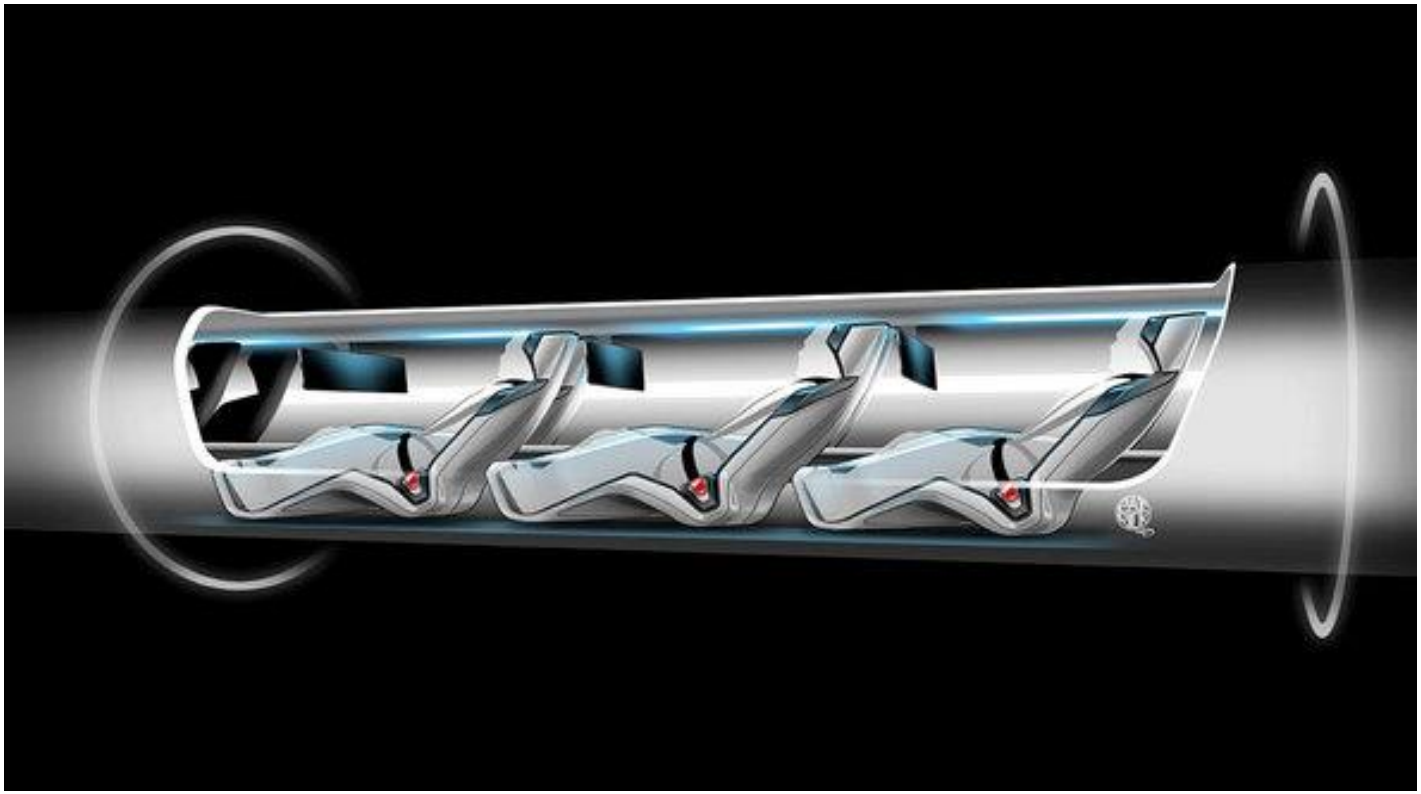
- Arstechnica



Article

The world's first magnetic levitation train for commercial use, the Maglev in Shanghai, China. Regular service runs between Longyang Road Station and Pudong International Airport at a speed of 430 kilometers (270 miles), an hour for about 7 min. 20 sec.

Hyperloop TubeTrain



Paypal co-founder Elon Musk designed a high-speed train that would take people to San Francisco from Los Angeles in 30 minutes at a speed of almost 800 miles an hour. NYT 8/12/2013

Solar Floating Home

WaterNet 100: ***Ecological floating habitat***

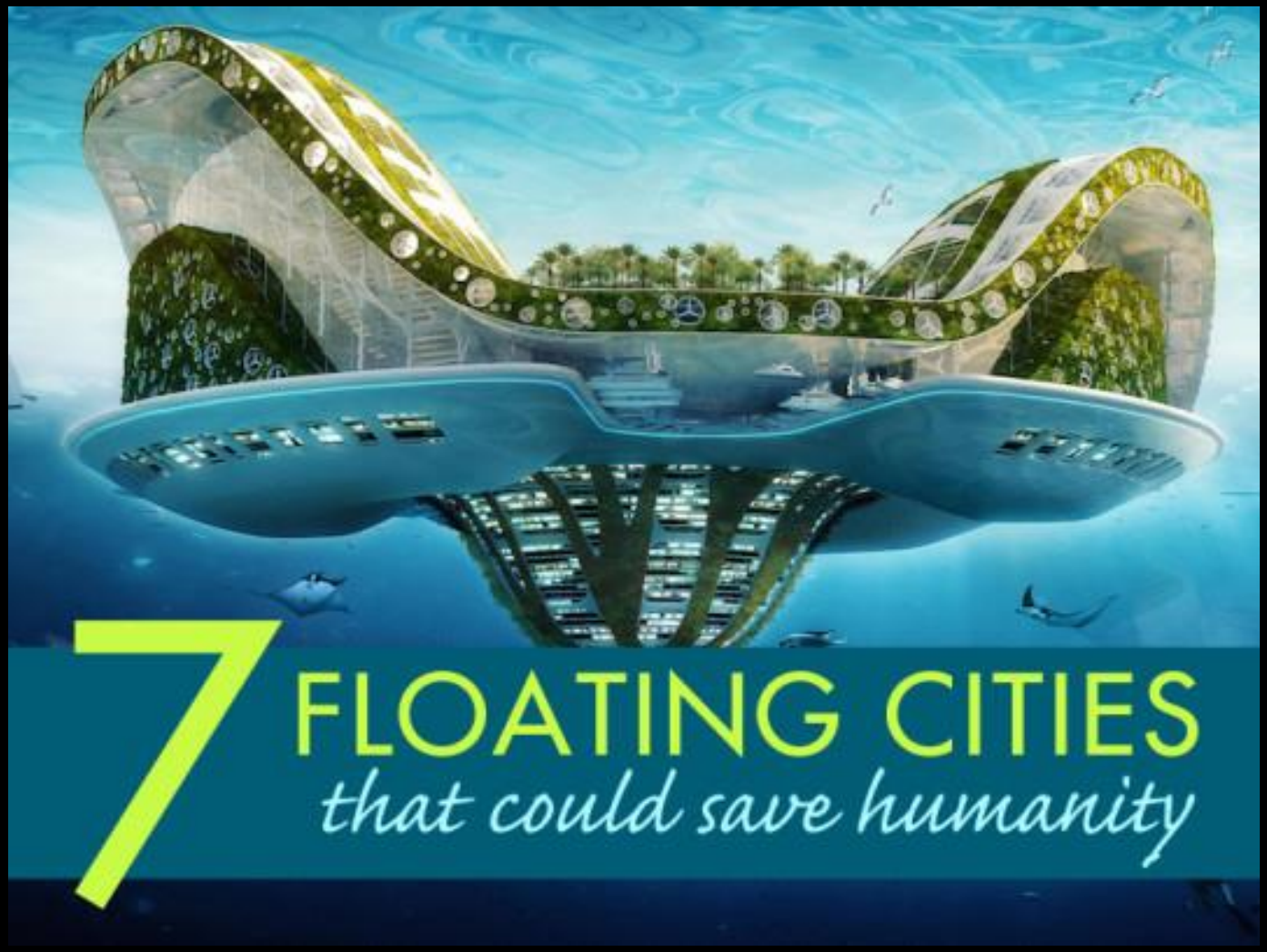
* 1,000 square feet
* 12 meters in diameter – 4 meters tall
* Roof topped with 60-square-meter photovoltaic array generating 4kWp
* Suitable for home, office, exhibition space, shop, café ...
* Nearly 100% recyclable

Article

Printed Homes

- Printed on site using local clay
- Zero waste product
- WASP 3D printers create homes 21’x10’
- Several homes build at once using multiple crane printers

Floating cities may seem like utopian sci-fi, but autonomous ocean settlements could become reality as early as 2020, says The Seasteading Institute. These aquatic communities could be the solutions to many societal issues, such as overpopulation and threats of rising sea levels.



Article

Prefab self-sustaining floating city by AT Design Office.

As the world's most populous nation, China has serious concerns about overcrowding in its cities. Chinese construction firm CCCC commissioned AT Design Office to create an attractive floating city solution that took the form of a sprawling buoyant landmass made from prefabricated hexagonal modules. The self-sufficient island is designed to be zero-carbon, energy efficient, and would include vertical farms and fish hatcheries to produce its own food.

Noah’s Ark by Aleksandar Joksimovic and Jelena Nikolic

Serbian designers Aleksandar Joksimovic and Jelena Nikolic took home an honorable mention in the 2012 eVolo Skyscraper Competition for their design of Noah’s Ark, a self-sustaining floating city designed for a post-apocalyptic world. Powered by renewable energy such as solar and tidal, the structure comprises multiple ring-shaped landmasses with agricultural fields that terrace into a water-collecting center.

Green Float by Shimizu Corporation

Before Shimizu Corporation created its incredible designs for a seabed-powered underwater city, the Japanese firm had unveiled plans for Green Float—a self-sufficient floating ecotopia. Designed to house 1 million people, the floating city comprises a series of connected modular islands. A 1,000-meter-tall mixed-use eco-skyscraper is located at the center of each island and houses a vertical farm, as well as residential, commercial, and office spaces.

Harvest City by Tangram 3DS and E. Kevin Schopfer

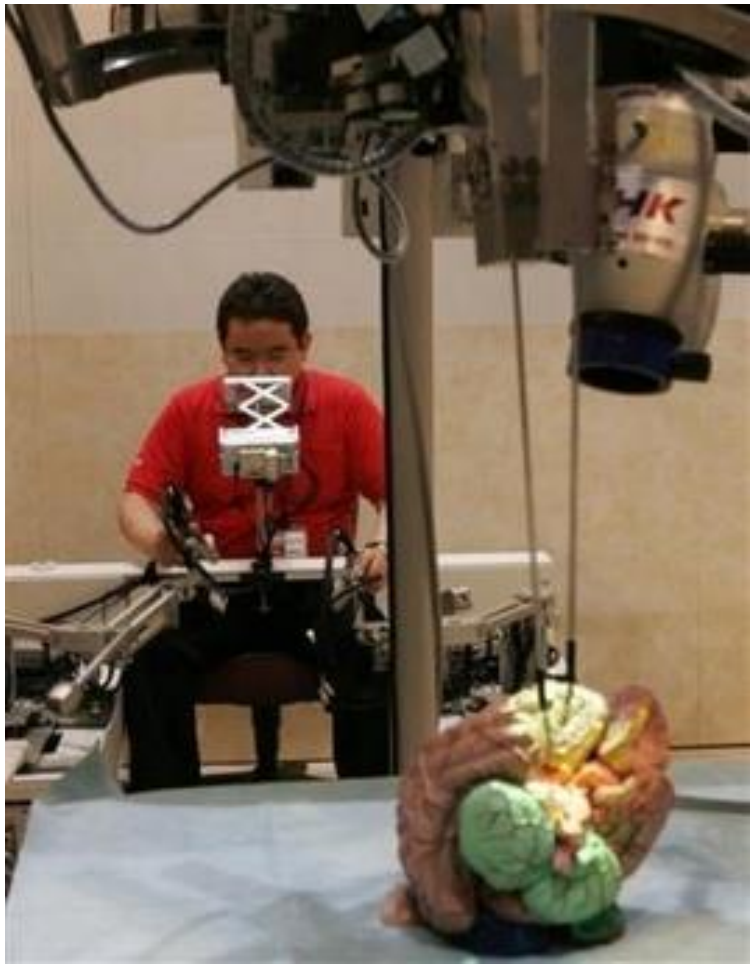
When Haiti was hit by the devastating 2010 earthquake, architect E. Kevin Schopfer and Tangram 3DS developed an innovative floating city design to bolster the country's recovery. The collection of artificial islands, called Harvest City, envisioned a new Haiti made up of tethered floating modules. The center of the floating city would be dedicated to urban functions like office space, education, and light industry, while the outer areas comprised agricultural lands.

Thu Sep 26,10:25 PM ET

Artist rendition of the "AZ Island" project designed by French architect Jean-Philippe Zoppini . The 400 meter (1320 feet) long and 300 meter (990 feet) large vessel could host 4,000 cabins on 15 stories, its own port and facilities to be like a moving city on the sea.

AP Photo/Cabinet Jean Philippe Zoppini

Surgical Robots



- A researcher at Tokyo University operates a microsurgery robotic system, MM-1.
- This surgical robot has microsurgical hands that can operate effectively in a deep surgical field.

Robot Performs First-Ever Surgery Inside Human Eye

"Even highly skilled surgeons can cut too deeply and cause small amounts of hemorrhaging and scarring, potentially leading to other forms of visual impairment … The pulsing of blood through the surgeon's hands is enough to affect the accuracy of the cut."

-- *NBC News*

The technique is being called "a vision of eye surgery in the future."

Article

Robotic Baristas

"Starbucks' 95,000 baristas have a competitor. It doesn't need sleep. It's precise in a way that a human could never be. It requires no training. It can't quit. It has memorized every one of its customers' orders. There's never a line for its perfectly turned-out drinks. It doesn't require health insurance."

Worker Robots

Robots weld vehicle bodies on the Ford assembly line in Flat Rock, Michigan

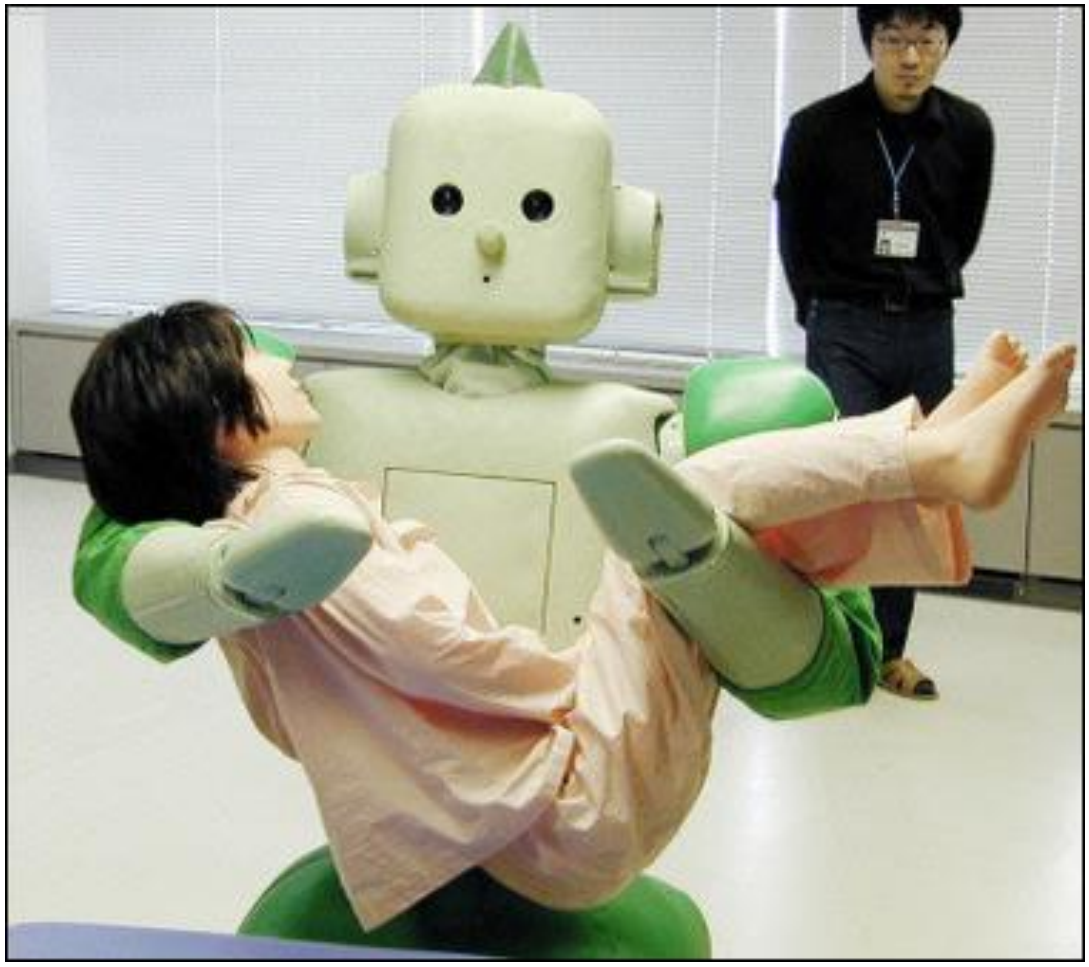
Robots nicknamed 'Sister Mary' and 'Doctor Robbie' work at a London hospital.

A police robot looks over a purse thrown from a bank robber’s car.

Robot Rescuers

The RI-MAN robot carries a life-sized doll at the Riken laboratory in Nagoya, central Japan. The RI-MAN is a seeing, hearing and smelling robot that can carry human beings and is aimed at helping care for the country's growing number of elderly.

(AFP/JIJI PRESs)



Robots for Children

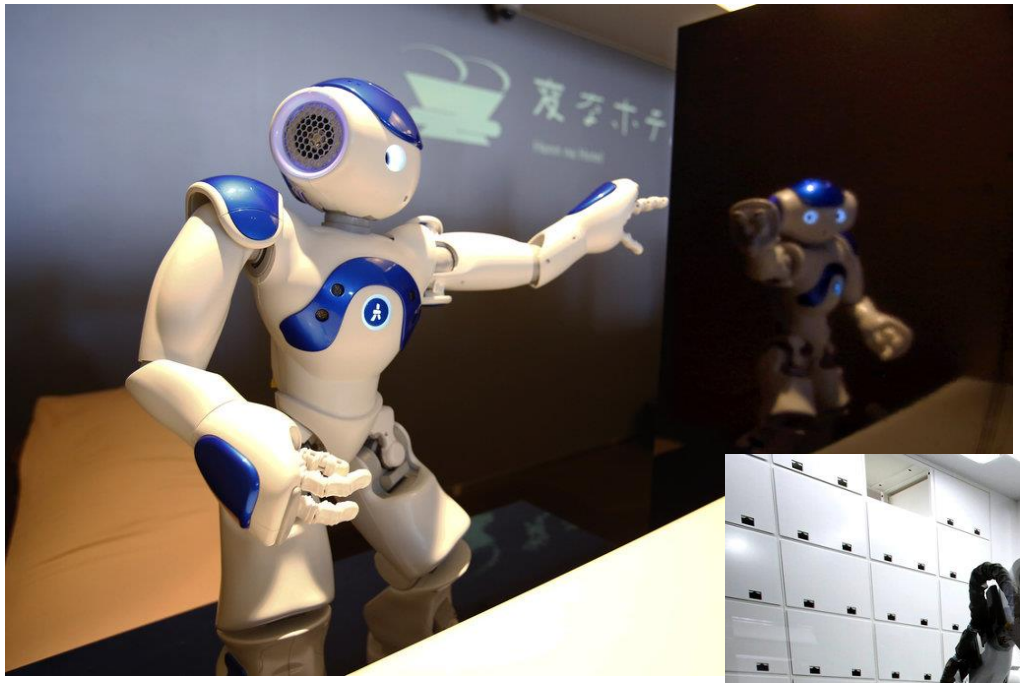
- *Butterscotch, a sound- and touch-sensitive toy horse.*

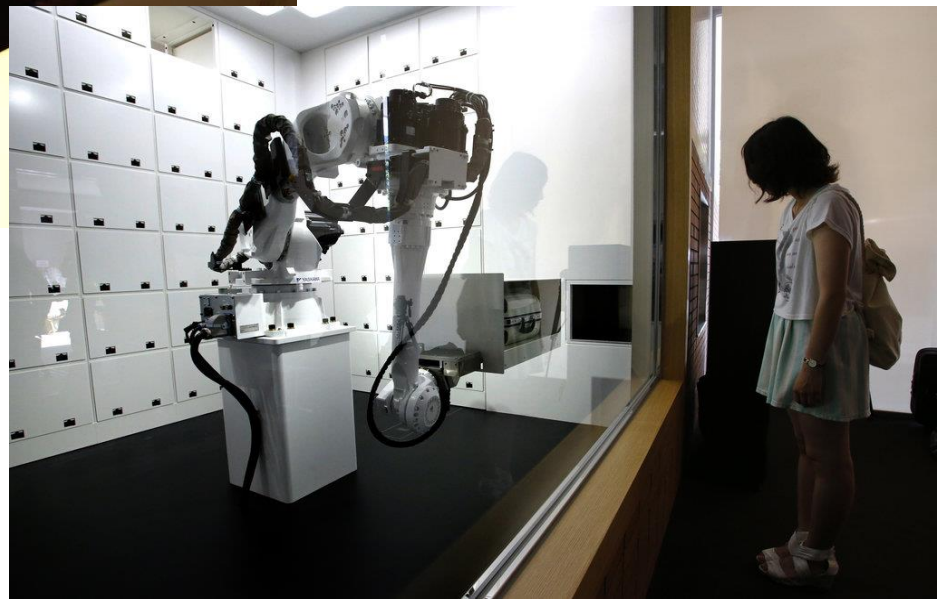
Robo-Dates

This humanoid robot, is covered in a skin-like substance and moves its mouth and shifts its torso as though it's breathing.

- Called Roxxxy, life-size computerized figure can answer questions, carry on chats
- She costs $7,000 and comes with five "personalities," from Frigid Farrah to Wild Wendy

Hotel Staffed by Robots in Japan

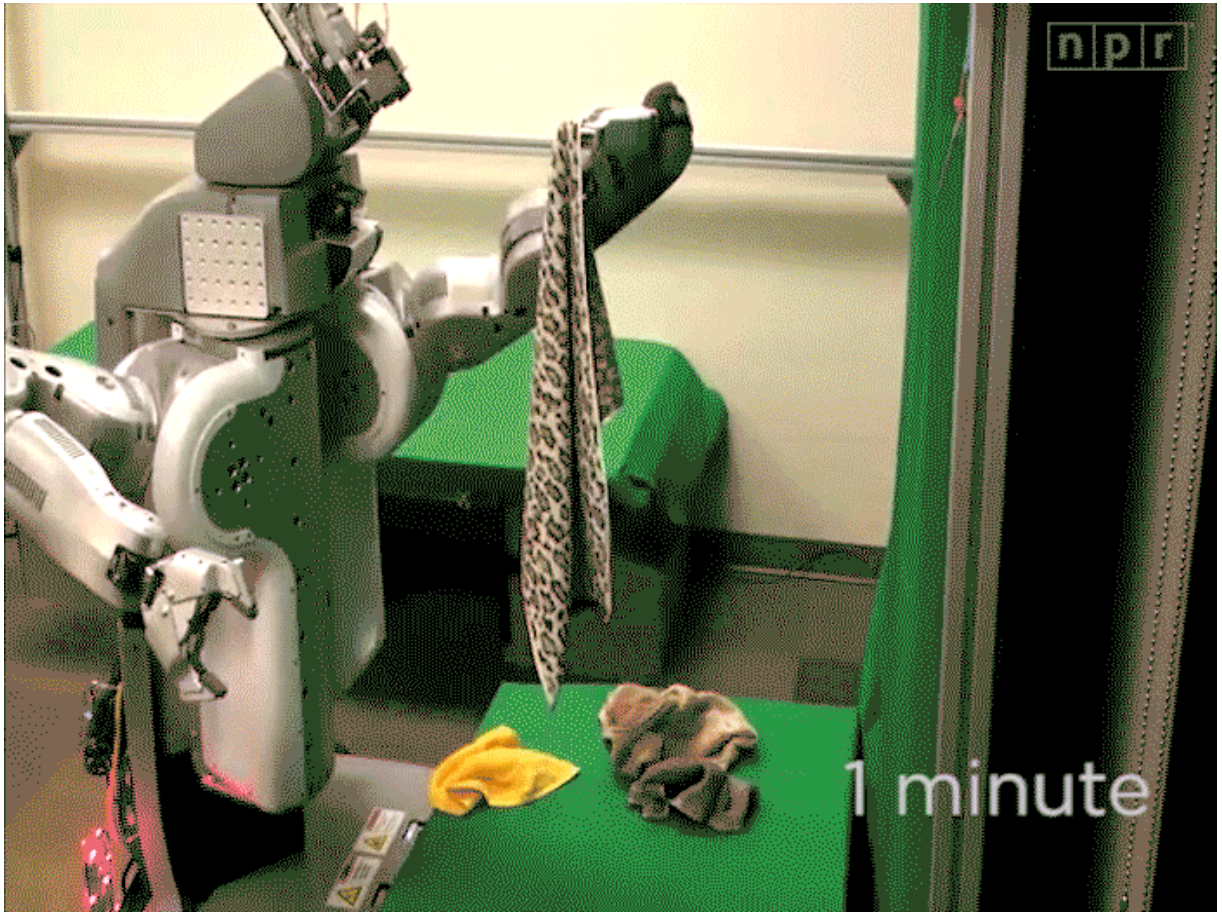




Presentation

Robots Bad at Folding Laundry

- Robots bad at folding towels, wadded up socks, tasks requiring 3D analyses
- 8-year olds better at analyzing certain tasks
- Key questions for robots: is the task based on orderly patterns, or more like a pile of laundry?



NPR 2015

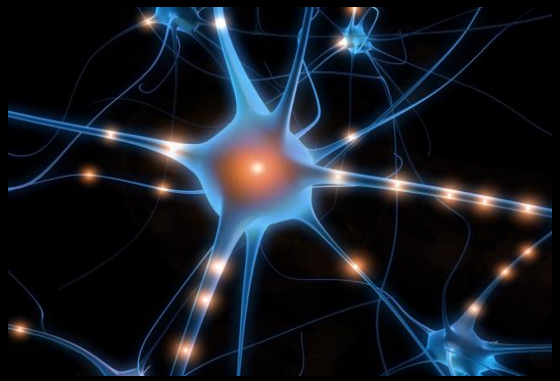
Kurzweil's Singularity

- A couple decades from now, a superior intelligence will dominate and **life in an altered form that we can't comprehend in our current, limited state.**
- Human beings and machines will so effortlessly and elegantly merge that poor health, the ravages of **old age and even death itself will all be things of the past.**
- A great leap will occur when **industries like medicine and energy start moving at the same exponential pace** as I.T.
- Rapid bursts of innovation and may pave a path to a **700-year lifetime.**
- By the 2030s, most people will be able to achieve **mental immortality by similarly backing up their brains**, Mr. Kurzweil predicts.

"Merely Human? That's so Yesterday" / *New York Times*

Brain Map Initiative

- Brain Research Through Advancing Innovative Neurotechnologies (BRAIN)
- $100-million Brain Activity Map project
- To “show how millions of brain cells interact”



“There are 100 billion neurons in the adult human brain, and each neuron makes something like 1,000 to 10,000 contacts with other neurons in the brain. Based on this, people have calculated that the number of permutations and combinations of brain activity exceeds the number of elementary particles in the universe.”

— Neuroscientist Vilayanur Ramachandran on TED.com

Article

Brain Content Avatars

- “By 2045, mass production of lifelike, low-cost avatars that can be uploaded with the contents of a human brain, complete with all the particulars of consciousness and personality.”

  ~ New York Times

Robotic model of head will use 36 motors to reproduce facial expressions and voice.

Article

Robotic limbs moved by the mind

- Humans can now move robotic limbs using only their thoughts and, in some cases, even get sensory feedback from their robotic hands.

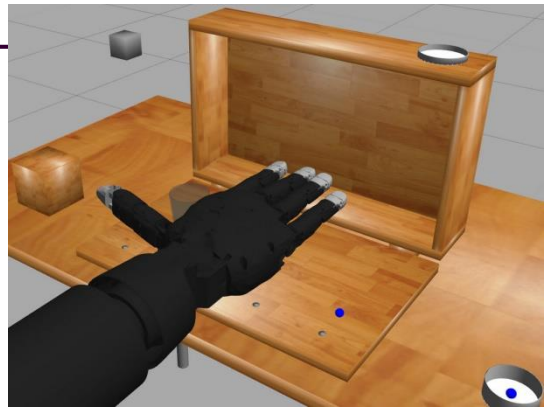
60 Minutes
CBS News

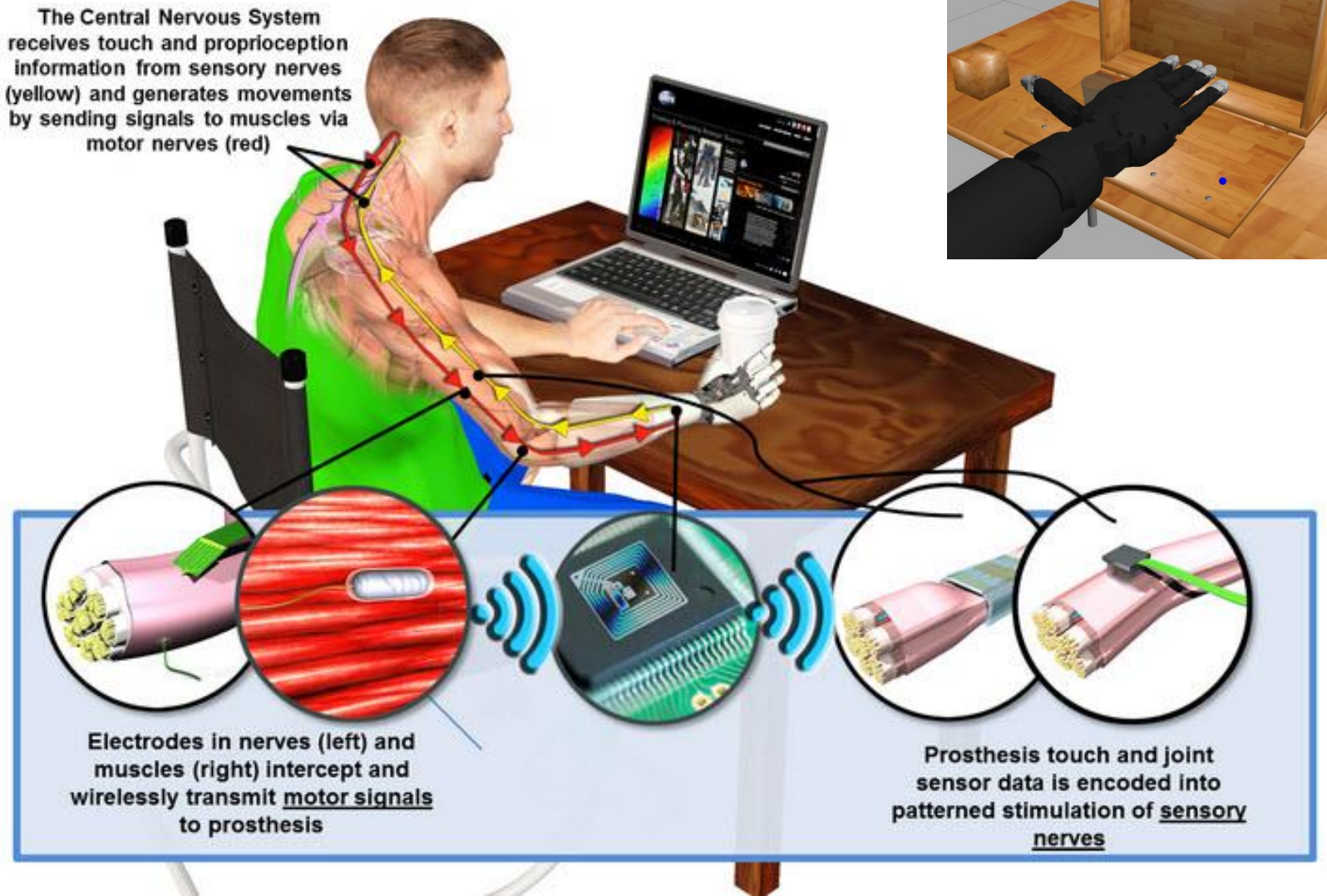
Video: http://www.cbsnews.com/video/watch/?id=50148119n

Electrode Experiment Helps a Paralyzed Man Stand

- A young man paralyzed by an injury to his spinal cord has regained the ability to stand for short periods, take steps with help and move his legs and feet at will, with the help of an electrical stimulator implanted in his lower back.

Functional Replacement Hand

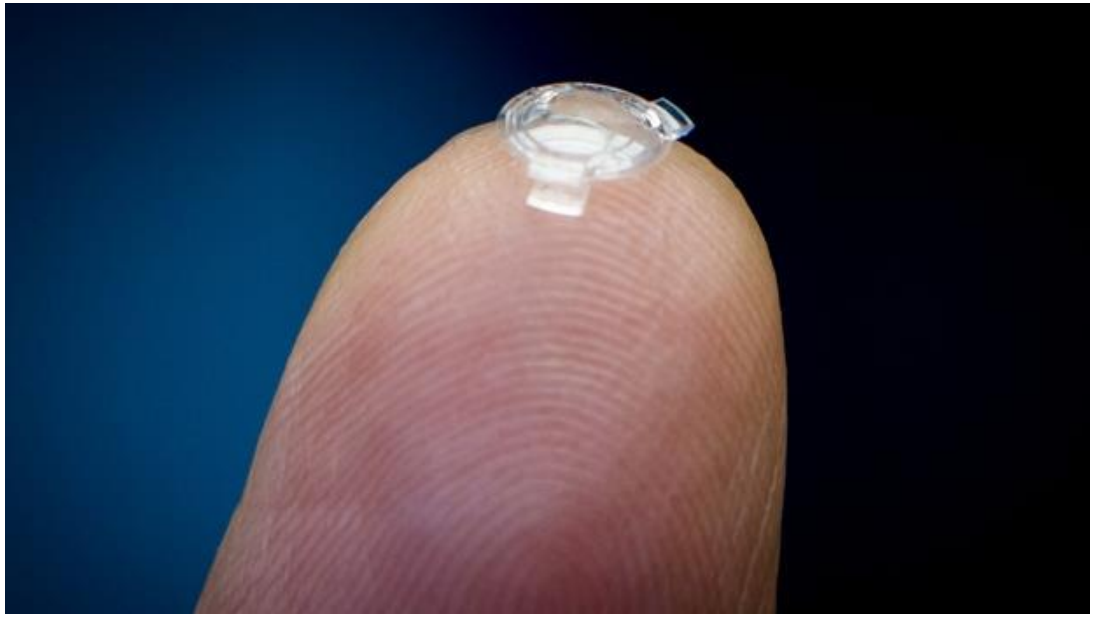




Article

Bionic 60/20 Eye Implants

- Bionic implant can be injected into eye, correcting vision and allowing user to see 60’ clearly from 20’
- Remedies cataracts



Ocumetics' Bionic Lens

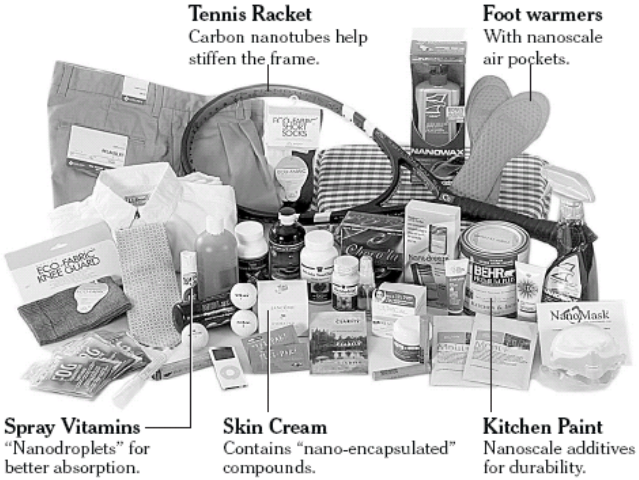
Article

- Bionic implant potential Wi-Fi and Bluetooth interactivity

Nanotechnology: Now & Soon

Lightweight and strong nano-cables make space elevators possible

Materials use light that has been redirected by an ultra-fine grating that is fabricated by self-assembled nano particles.



In stores now

OLED *(organic electroluminescence)* wallpaper

Los Alamos Lab Envisions Space 'Elevator'

LOS ALAMOS, N.M.

Los Alamos National Laboratory researchers are proposing an elevator reaching 62,000 miles into the sky to launch payloads into space more cheaply than the shuttle can.

The elevator shaft would be made of a very strong, thin, lightweight material called carbon nanotubes attached to the Earth's equator. The shaft, really a 32 million-story-tall cable, would be carried into orbit on a conventional spacecraft, then gradually dropped down to Earth to be attached to a platform similar to an ocean oil-drilling rig.

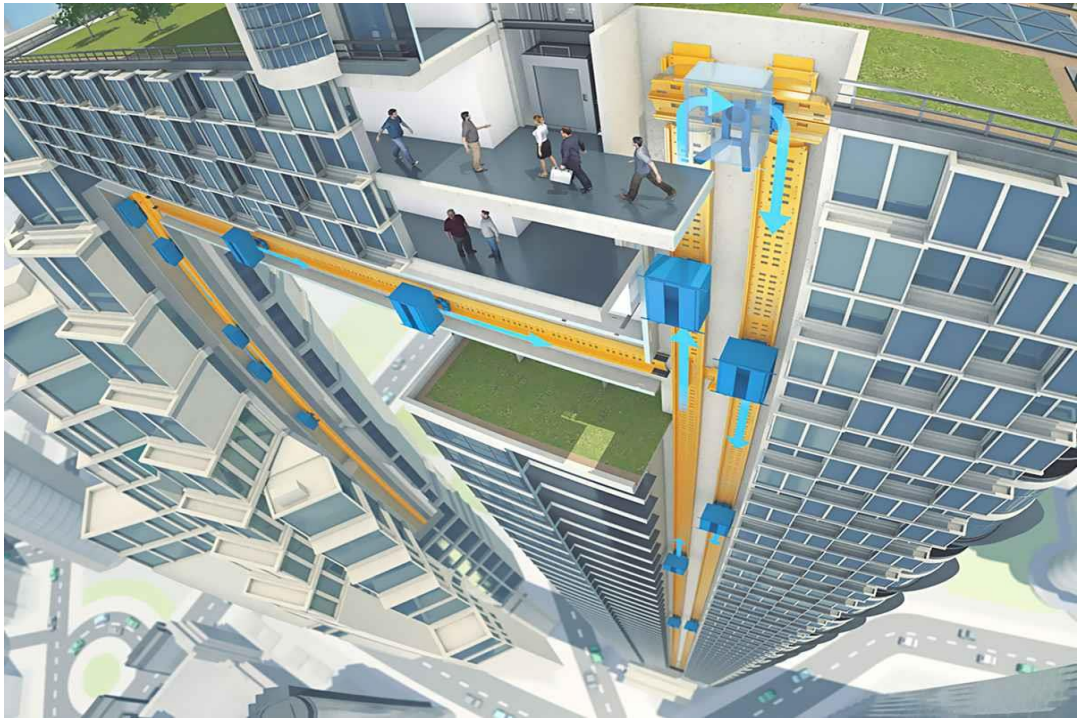
Solar-powered crawlers would move up and down the shaft, carrying payloads of satellites or probes to be placed in Earth's orbit or beyond. They also would attach additional cables to the main shaft that eventually would become new elevators.

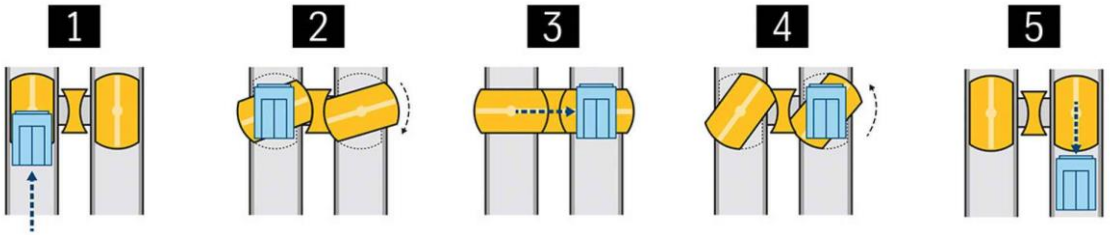
A payload on the shuttle costs about $15,000 per kilogram to launch into orbit. A 150-pound person weighs 68 kilograms.

A payload on the first space elevator likely would cost about $1,000 per kilogram, which could drop to $50 to $100 in time, Laubscher said.

Multidirectional Turbolift

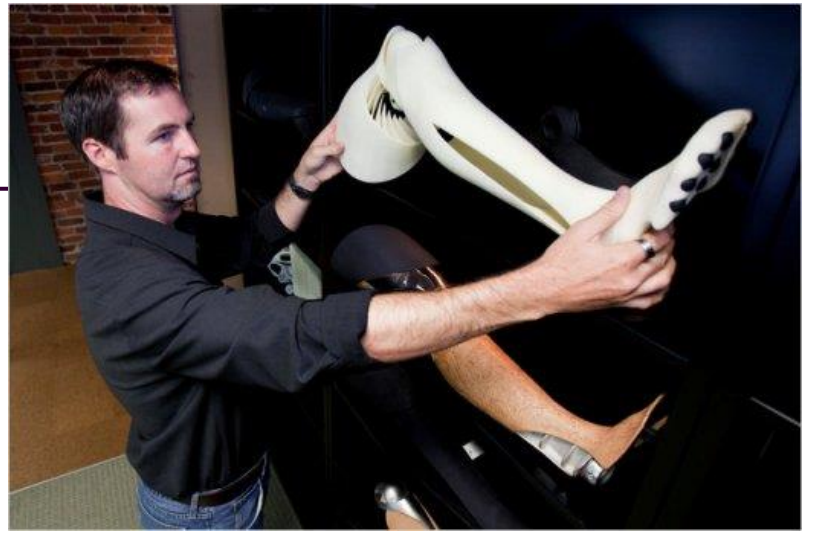
- Up, down, sideways, diagonal
- Using magnetic force rather than cables
- Unlimited floor reach
- German developer





Article

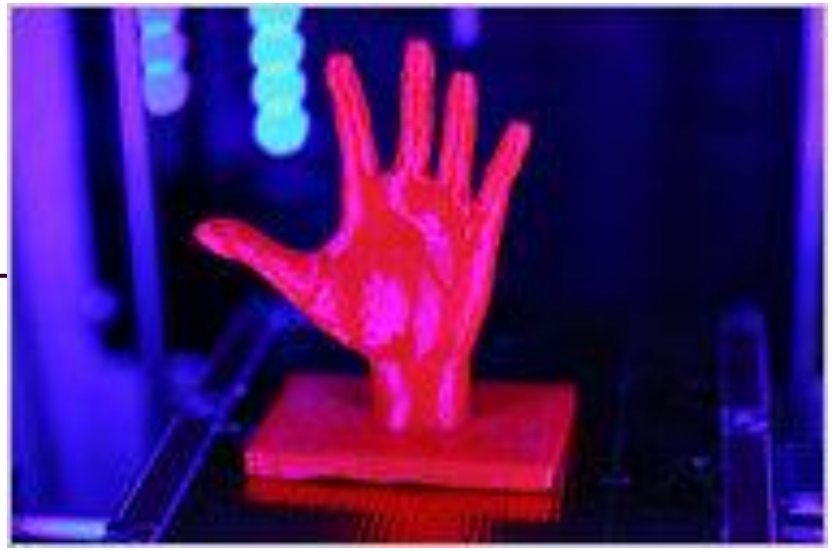
Teleportation



- A group of international scientists successfully transported a photon -- a bundle of electromagnetic energy -- from one side of a room to another in 1993. Physicists routinely conduct teleportation experiments today. (CNN)

Printers create complex objects as single unit from detailed data.

3-D Printers



- $3.7 billion business in 2015
- Medicine
- Human tissue and organs from stem cells
- Dental work
- Hearing aids
- Guns
- Dresses
- Houses

Article

3DTouch 3D Printers
Sale Price: $1,330

Autodesk 3D Printer

The company has used the machine, which makes objects with light projected on a photosensitive polymer, to make architectural models, parts for medical equipment and jewelry.

Article

Homemade 3-D Dinner

Noodles from a 3-D printer in the shape of the initials of A. J. Jacobs and his wife.

Jeffrey Lipton helping to prepare the evening's dinner on a 3-D printer.

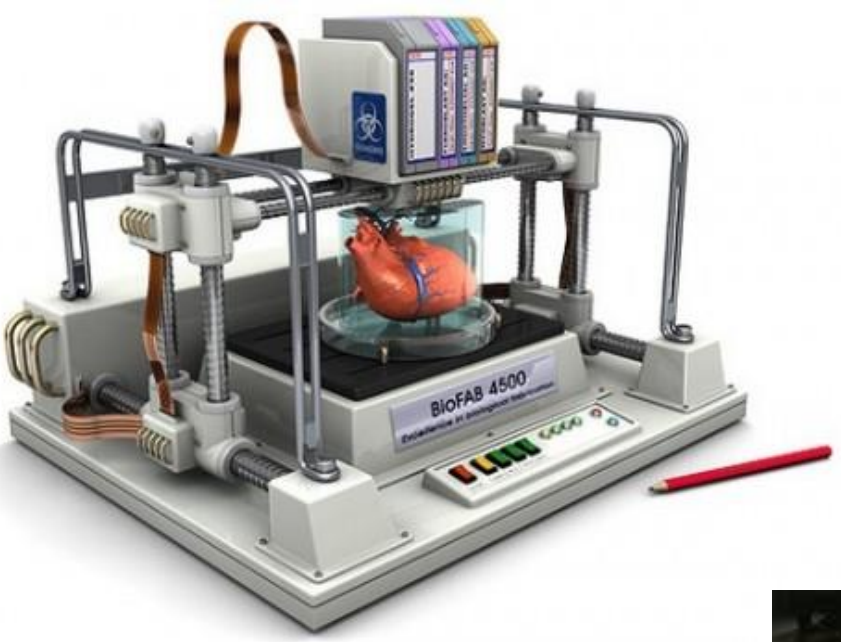
Tubes containing food pastes

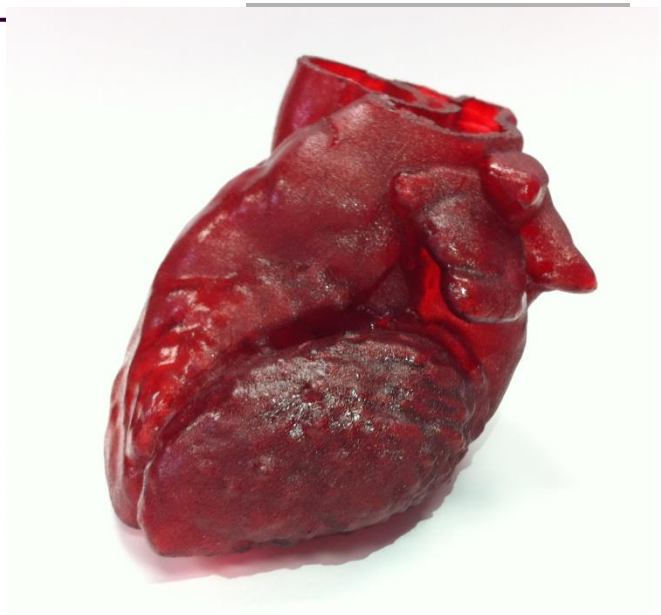
The plates, forks, tie, food were all printed.

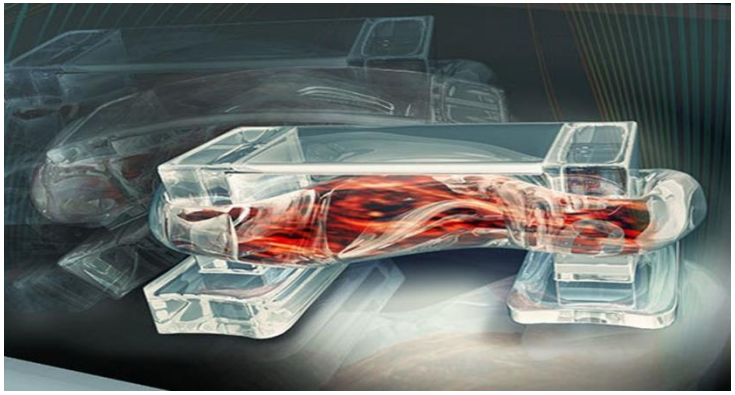
A 3-D printed pizza in the shape of Italy, complete with the Apennine Mountain range in the middle.

NY Times 9/21/13

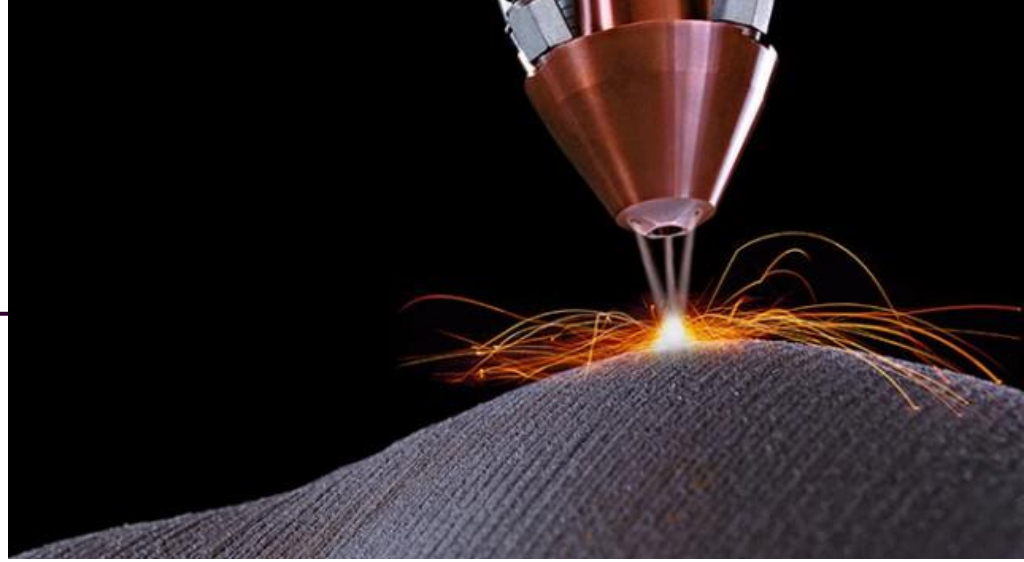
3D Printed organs, flesh, faces …

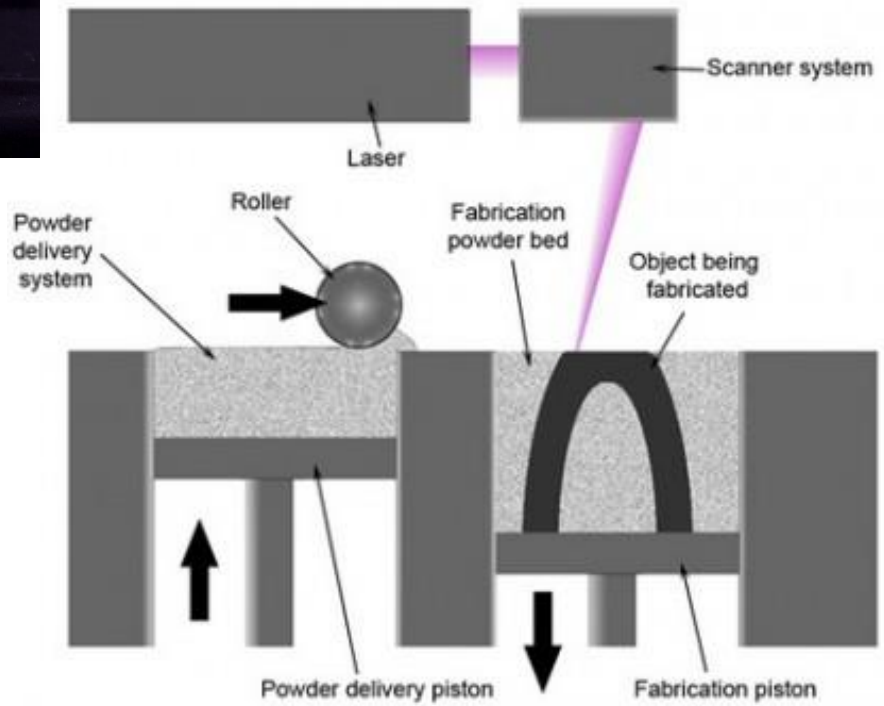


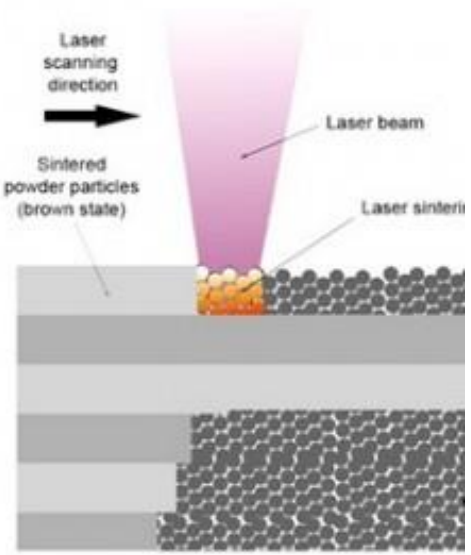




3D Lasers





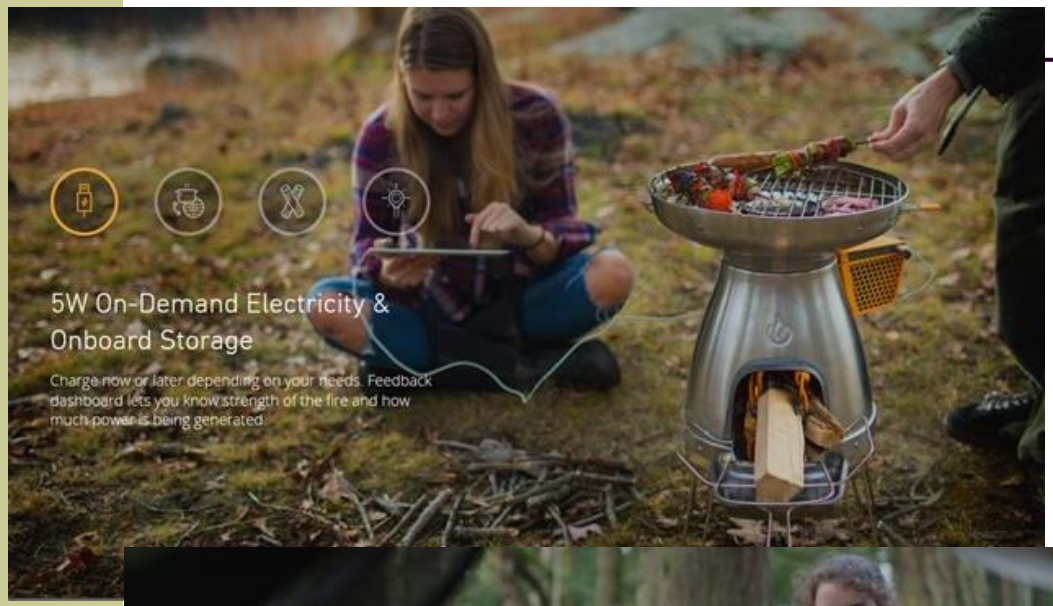


ExtremeTech Website

You Want It, They Make It

- The U.S.B. Beverage Chiller, from CoolIT Systems of Calgary, Alberta, was designed to spare white-collar workers the irritation of wasted caffeine. The device, which can draw power from most any PC or Macintosh, is sort of a reverse hot plate, as well as CoolIT's answer to the multitude of U.S.B. drink warmers beloved by coffee-craving geeks. **New York Times**

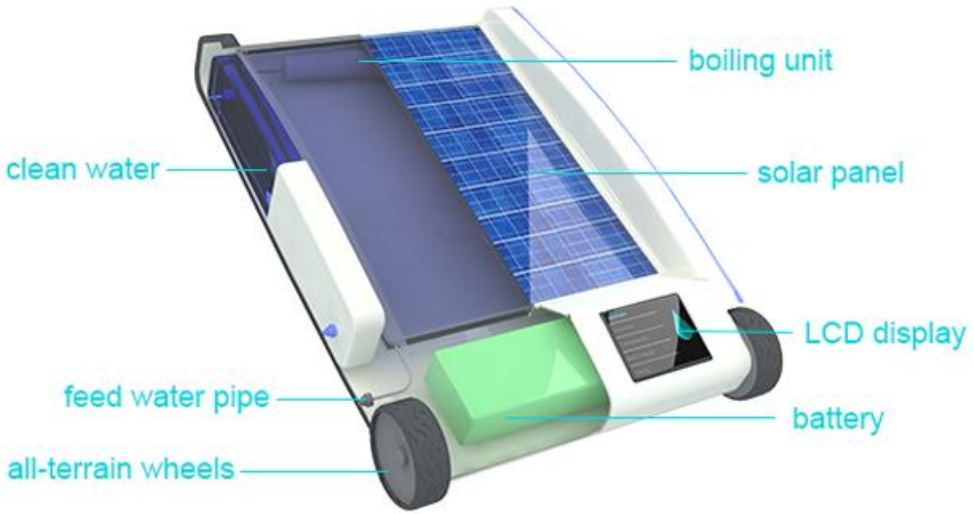
Woodstove with USB Charging Port



Article

Desolenator

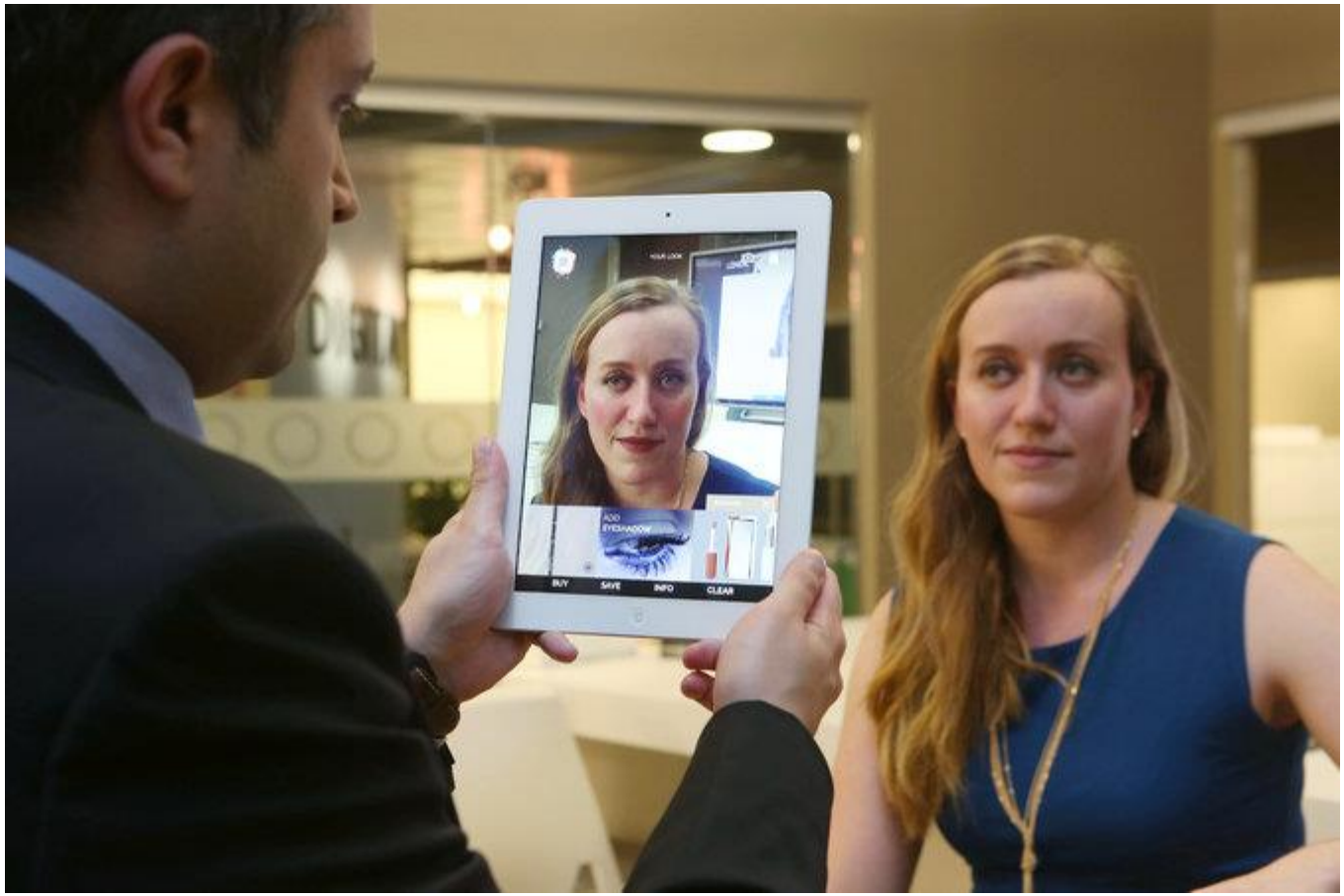
- 97% of world's water is salty
- One billion people lack access to drinking water
- Produces 15 liters of water daily using only sun for power, no moving parts or filters; lasts a household up to 20 years



Article

Website

L’Oreal Make-Up All

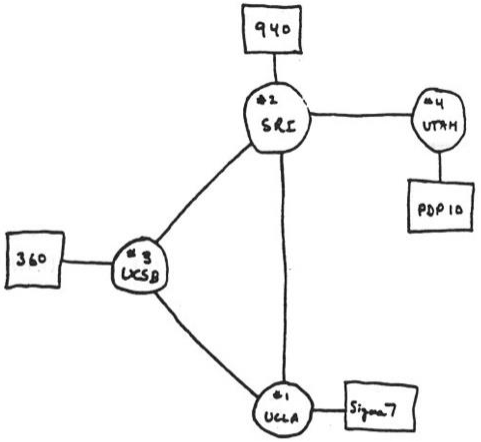


“Mirror, Mirror in the App: What’s the Fairest Shade and Shadow of Them All?”

Article

Birth of the Internet

- 1969 first four nodes of the Internet connecting UCLA, UCSB, Stanford Research Institute, and University of Utah
- ARPANET: military program to ensure robust communications in case of nuclear war
- First email sent at 50 kbps, system promptly crashed



First four network nodes drafted on a napkin

Future of Global Media

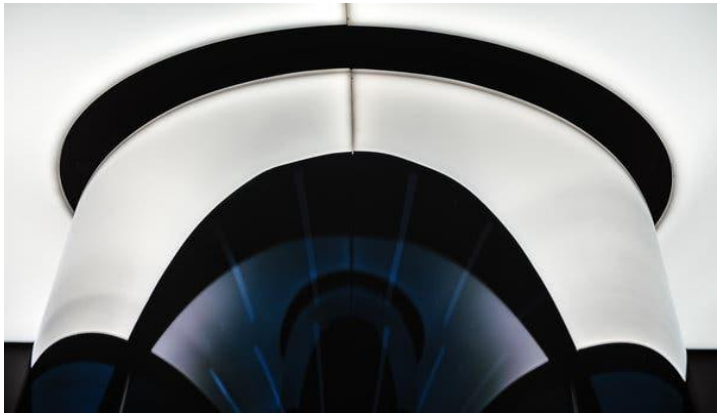
- Exponential growth in processing speed, bandwidth, memory
- Individual access to repository of all human knowledge and creativity
- Mediated self-selection of editorial content
- Highly-segmented audiences
- Everyone a publisher
- Virtual immersive experiences
- Instantaneous remote interactions
- Delivery systems

Quantum Computing Is Coming

- With transmons and entanglement, scientists strive to put subatomic weirdness to work on the human scale
- In three minutes it performed a highly technical and specialized computation that would have taken a regular computer 10,000 years

-NY Times

Article



Much Faster Web

- Google, Twitter, *The Guardian, The New York Times,* and others in cooperative effort to speed up website article load time
- Current Speed: 5-10 seconds to load page
- Target Speed: few-milliseconds to load page
- 81% of smartphone use with mobile apps;
  19% of use with mobile web connection
- 40% of referral traffic to publishers from Facebook
  38% of referrals to publishers from Google

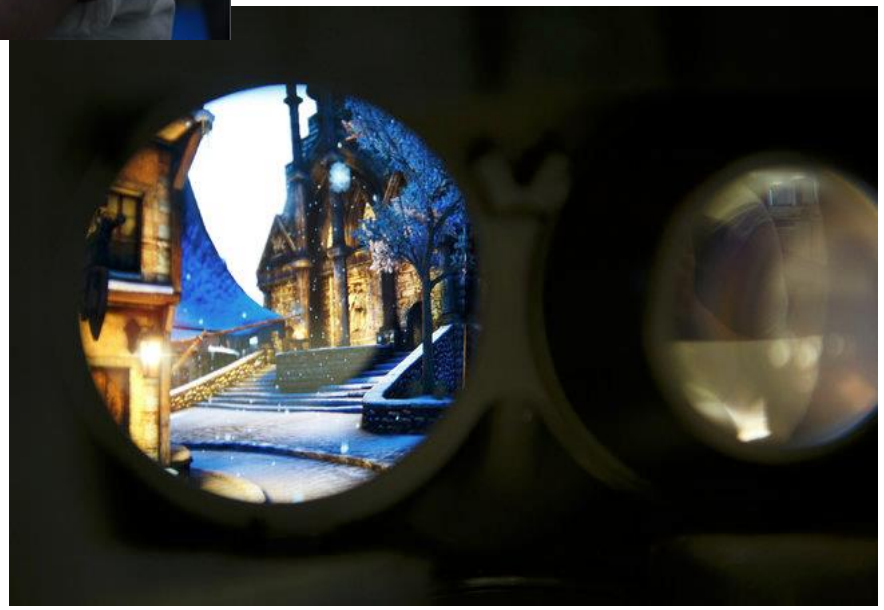
Article

Immersive Technologies

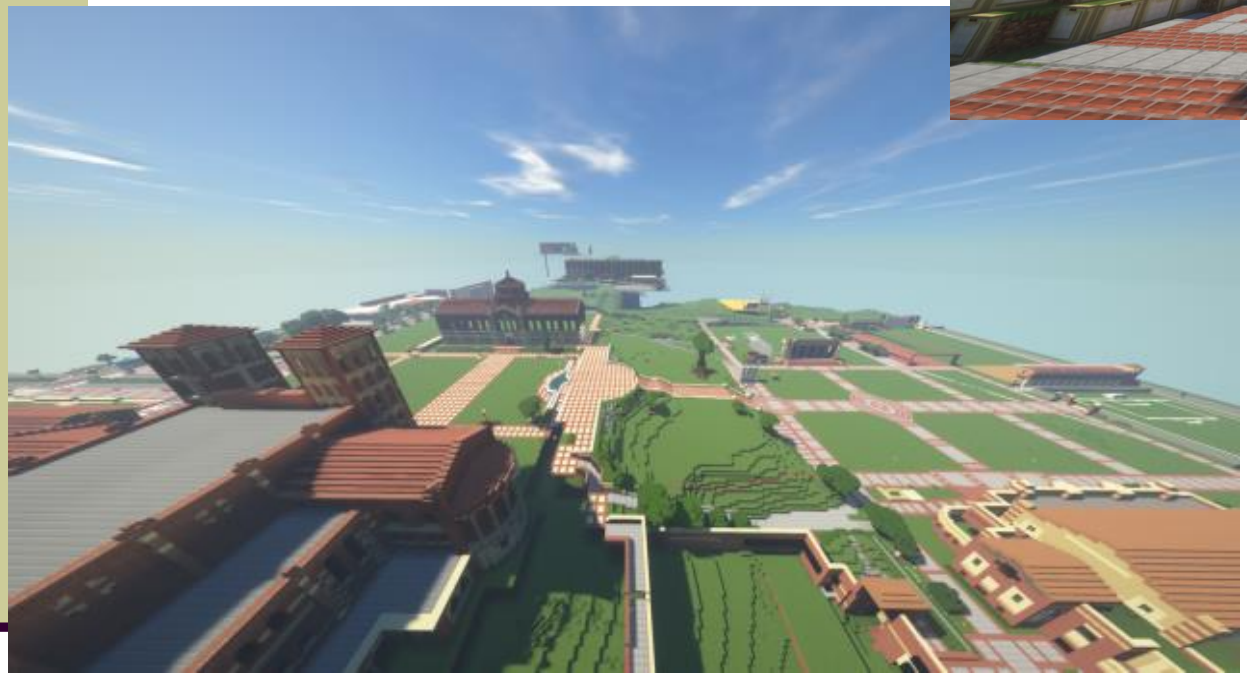
Immersive headset company **Oculus VR** bought for $2-billion by **Facebook** in 2014.

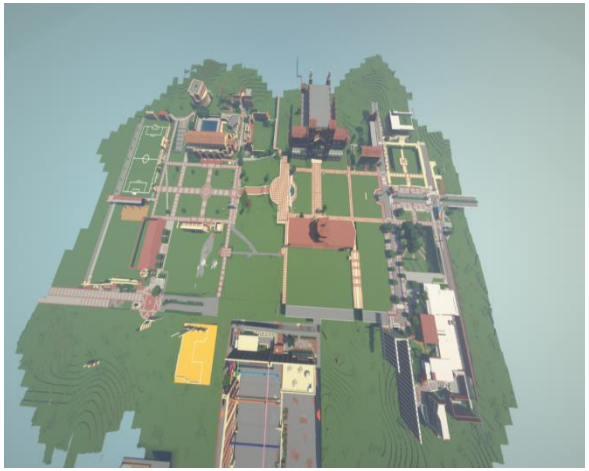
"Imagine … studying in a classroom of students and teachers all over the world *or consulting with a doctor face-to-face, just by putting on goggles in your home*."

~ Mark Zuckerberg



UCLA in Minecraft





Molloy and co-administrator Chris Ko, a second-year electrical engineering student, created the server March 19 with funding from the UCLA Bruin Gaming. Only a few days before, UCLA had announced that spring classes would be held online as a result of the coronavirus pandemic.

Article Link

Local File

English language and content courses designed for a global audience

Educare Virtual Learning Centers

Free college courses, English read-along books, videos, career development, transfer credit possible.

by Educare Research on Science Circle Sim

Non-profit 501(c)(3)

Smart Glasses Race

- The next big trend in technology will be smart glasses we wear everywhere
- Microsoft, Snap, Facebook, Google, Apple and Amazon are all working on computers we wear on our faces that may replace our phones
-CNBC

Article

3-D Immersive Virtual Video

Prototype of the Jaunt motion and audio camera for live-action motion pictures, rendered in immersive 3-D on a virtual reality headset.

Article

Worldwide Cell Phones

World Bank Report:

- 6-billion mobile phones worldwide
- 5-billion in developing countries
- Used for agiculture, health, financial services, government, entrepreneurship, employment, education
- Solar-powered tablets serve energy-deprived areas

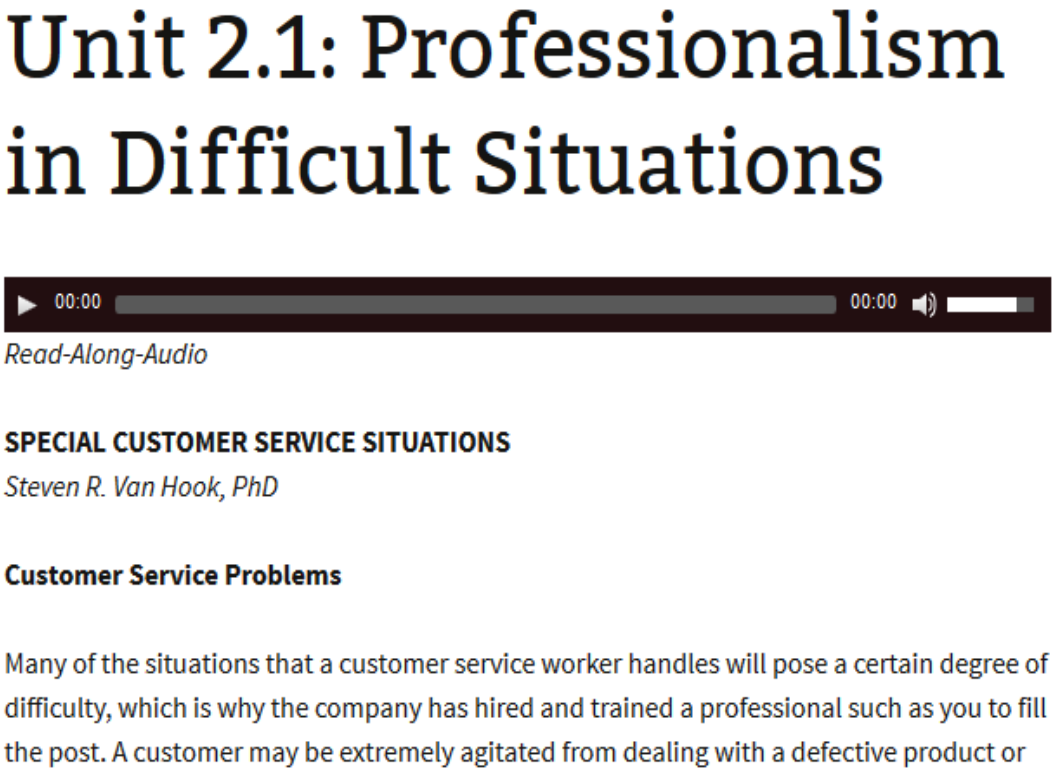
Article

Cell-Phone Formatted Course

International Course in Customer Service

WordPress Platform

Link



wwmr.us/wp/courses/customerservice/

When Villages Go Global …

- Cotopoxi men in Ecuador started accessing porn on the ‘net.
- Women of the Wapishana and Macushi tribes in Guyana were ostracized from their villages after online success selling hammocks. **Article**

- Villageleap.com project brings online learning to remote villages in Cambodia. **Article**

Tech & Dropping Test Scores

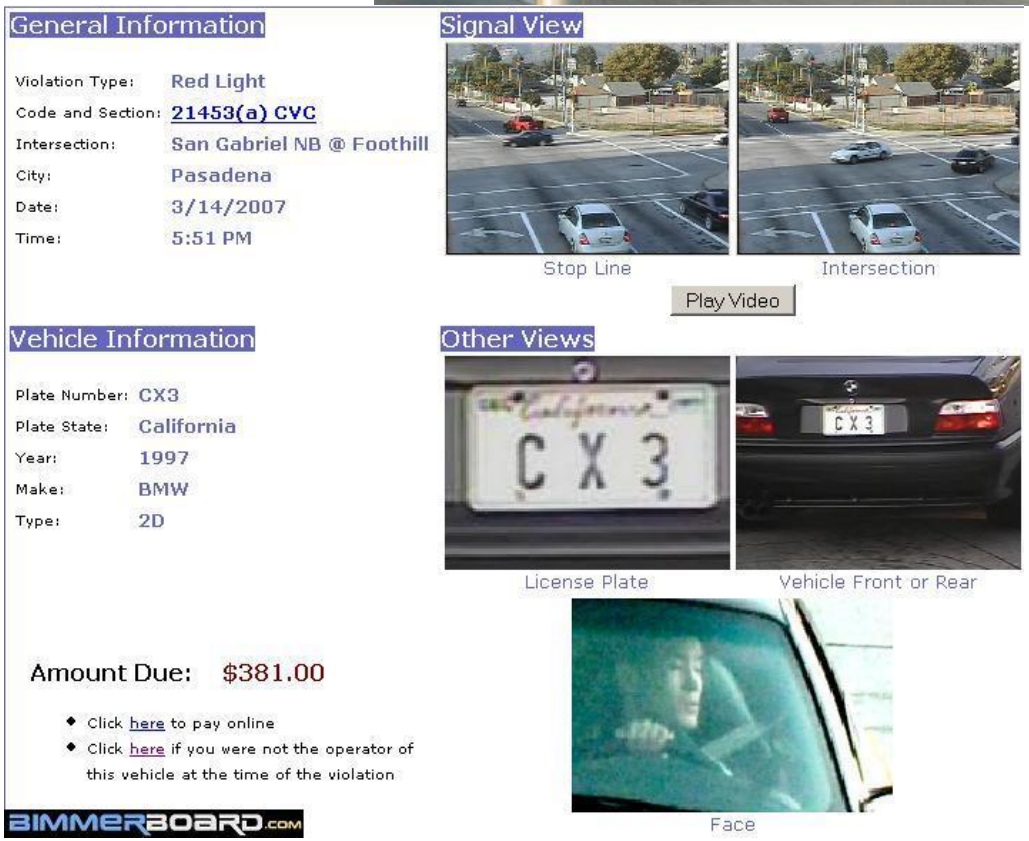
- One-million disadvantaged US middle-school students given networked home computers …
- Over five years, persistent drop in reading & math scores *(Duke University study)*
- Global *'One Laptop per Child'* program: impoverished children spent more time on games & chat, less on studies

Article

Cameras Everywhere

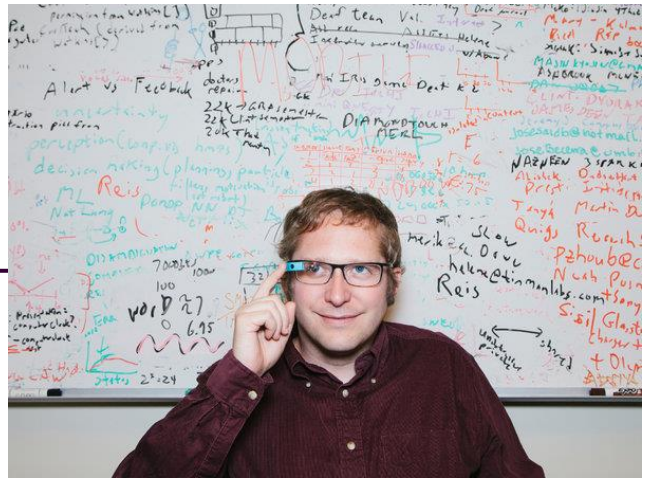
‘Traffic Safety’ Cameras

- Activated by road sensors, the systems provide evidence of a violation, including photos of the license plate and in some cases, the driver.
- Tickets sent for running red lights, > 11mph above speed limit

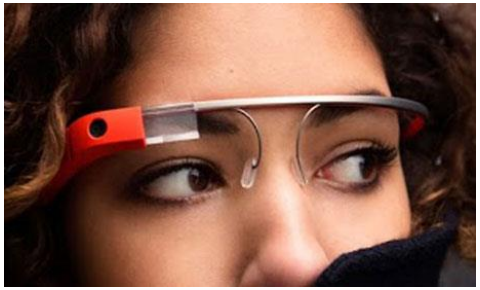


Resource

Google Glass

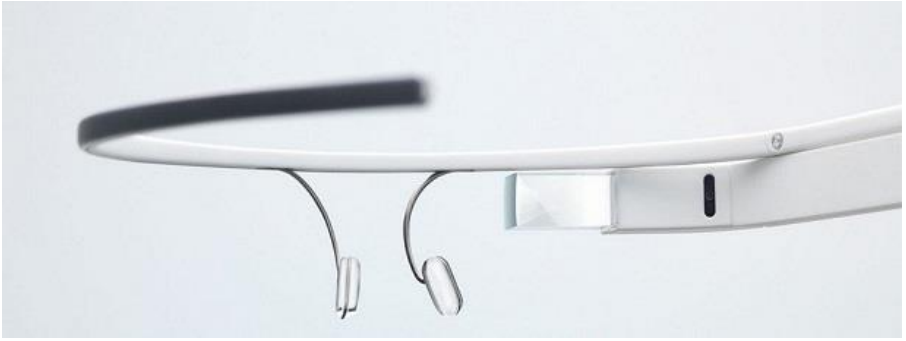


Allows users to access the Internet, take photos and film short snippets.



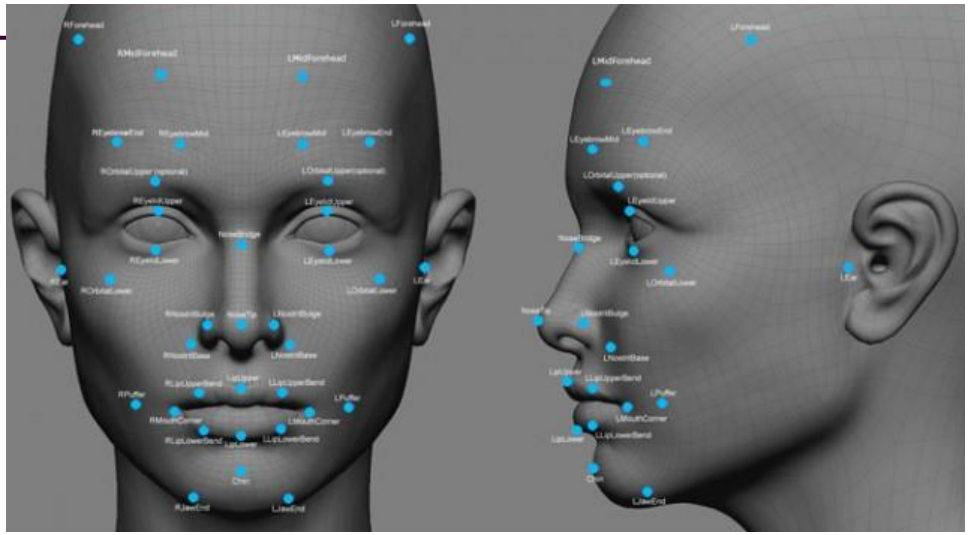
Regulated Controls:

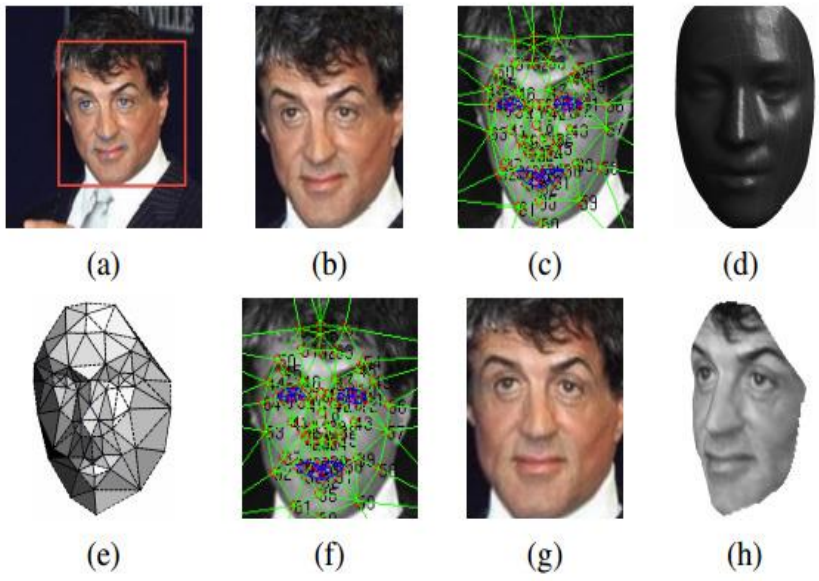
- Face Recognition
- Bars
- Driving
- Las Vegas Casinos
- Schools
- Meetings
- Porn
- Data
- Google Contact Lenses?



Facial Recognition Programs

- Facebook ‘DeepFace’ program has 97.25% accuracy in facial recognition
- Humans have 97.53% accuracy





Article

The Janus Program

- **The Janus Program**, an initiative run by the director of national intelligence, will begin to collect photographs of people's faces from social media websites and public video feeds. Machines will then use powerful algorithms to pair those photos with existing biometric profiles.
- Facial-recognition technology is quickly becoming a mainstay of commercial and government surveillance systems. While it can provide benefits in automation and security, it is also a threat to privacy. Sophisticated algorithms can already extract information about your gender, age and even mood from a single image, and then link those physical attributes to commercial or government databases.

- Thwart detection software through the use of asymmetry, tonal inverse and nose bridge concealment.
- Avoid masks as they are illegal in some areas. Avoid relying on sunglasses or facial hair, as they are common features that are incorporated into most algorithms.
- *Adam Harvey is a Brooklyn-based artist whose work addresses the impact of surveillance technologies.*

Janus Program

Article

Defeating Facial Recognition

Camouflaged Fashion

This design combines unconventional hairstyling and makeup to create an anti-face, an attempt to block facial recognition software.

USE TONAL INVERSE

Some algorithms will analyze gradations in skin tone and texture. This process helps locate the facial region, but it relies on assumptions about what typical facial features look like. To confuse this process, use hair or makeup that contrasts with your skin tone and apply makeup in unusual tones and directions: light colors on dark skin, dark colors on light skin.

CREATE ASYMMETRY

Facial-recognition algorithms expect symmetry between the left and right sides of the face. By developing an asymmetrical look, you may decrease your probability of being detected.

CONCEAL THE NOSE BRIDGE

Some algorithms rely on the nose bridge area as a key facial marker. Use hairstyling or fashion accessories to conceal the area above the nose and between the eyes.

Commercial Drones

Article

Product deliveries, world mapping,

telecom relays, observation

The U.S. Army s Tactical High Energy Laser/Advanced Concept Technology Demonstrator (THEL/ACTD) beam director is shown in this undated photo during tests at White Sands Missile Range in New Mexico. Weapons such as this, that travel far faster than the proverbial speeding bullet, are as little as five years from use in combat, say defense officials. In a first-of-its-kind feat, the Army used the high-energy laser built by TRW Inc. to heat the shell, fired from a howitzer at White Sands Missile Range in New Mexico, and cause it to explode in flight. The shell, moving at approximately 1,000 mph, was tracked by radar and heat-sensing infrared sensors, and then locked onto and zapped by the laser beam traveling at light speed.

US Soldier

- This US Department of Defense handout image shows a soldier in a lightweight uniform with advanced technological capabilities that researchers say will make troops safer and more formidable on the battlefield.

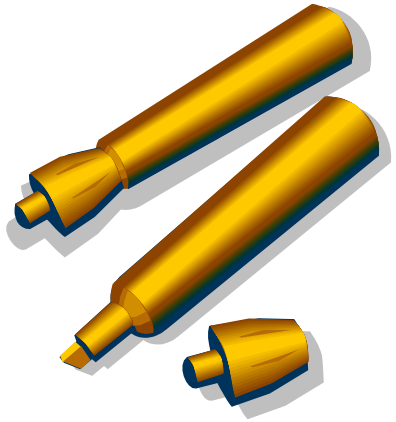
US Military PackBot

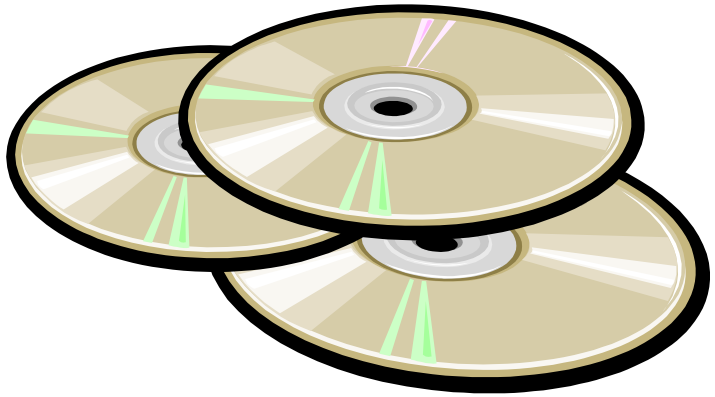
- Military robots will be capable of firing 1,000 rounds a minute. Though controlled by a soldier with a laptop, the robot will be the first thinking machine of its kind to take up a front-line infantry position, ready to kill enemies.

Low-Tech Wonders

'Copy-Proof' CDs Cracked with 99-Cent Marker Pen

By Bernhard Warner, LONDON (Reuters) - Technology buffs have cracked music publishing giant Sony Music's elaborate disc copy-protection technology with a decidedly low-tech method: scribbling around the rim of a disk with a felt-tip marker.





Floating Connectivity with Balloons

- Instead of building cell towers, the Extend America company hopes to attach wireless repeaters to weather balloons and launch them across the state.
- “To cover every square mile of North Dakota, it would take 1,100 cell towers. We can do the whole state with three balloons.”

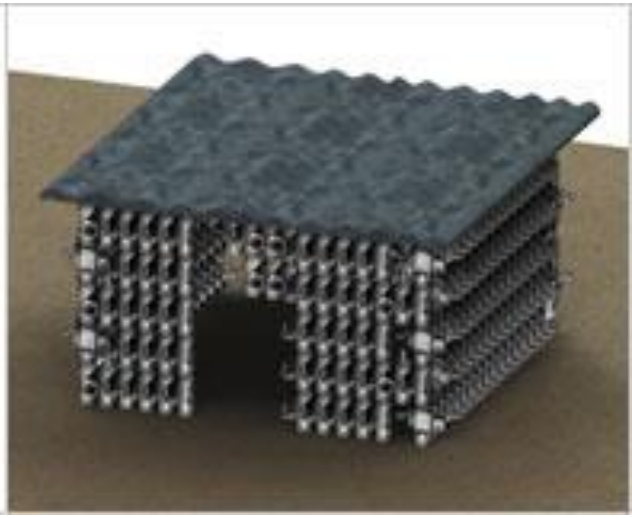
LifeStraw

- At any given moment, about half of the world's poor are suffering from waterborne diseases, of which over 6,000 – mainly children – die each day by consuming unsafe drinking water.
- LifeStraw® offers relief from the waterborne diseases such as Typhoid, Cholera, Dysentery and Diarrhea. A personal mobile water purification tool, designed to turn surface water into drinking water.
- Price: ~$3.00 each. From Denmark.

Designs That Help the World's Poor

- A 20-gallon rolling drum for transporting water.

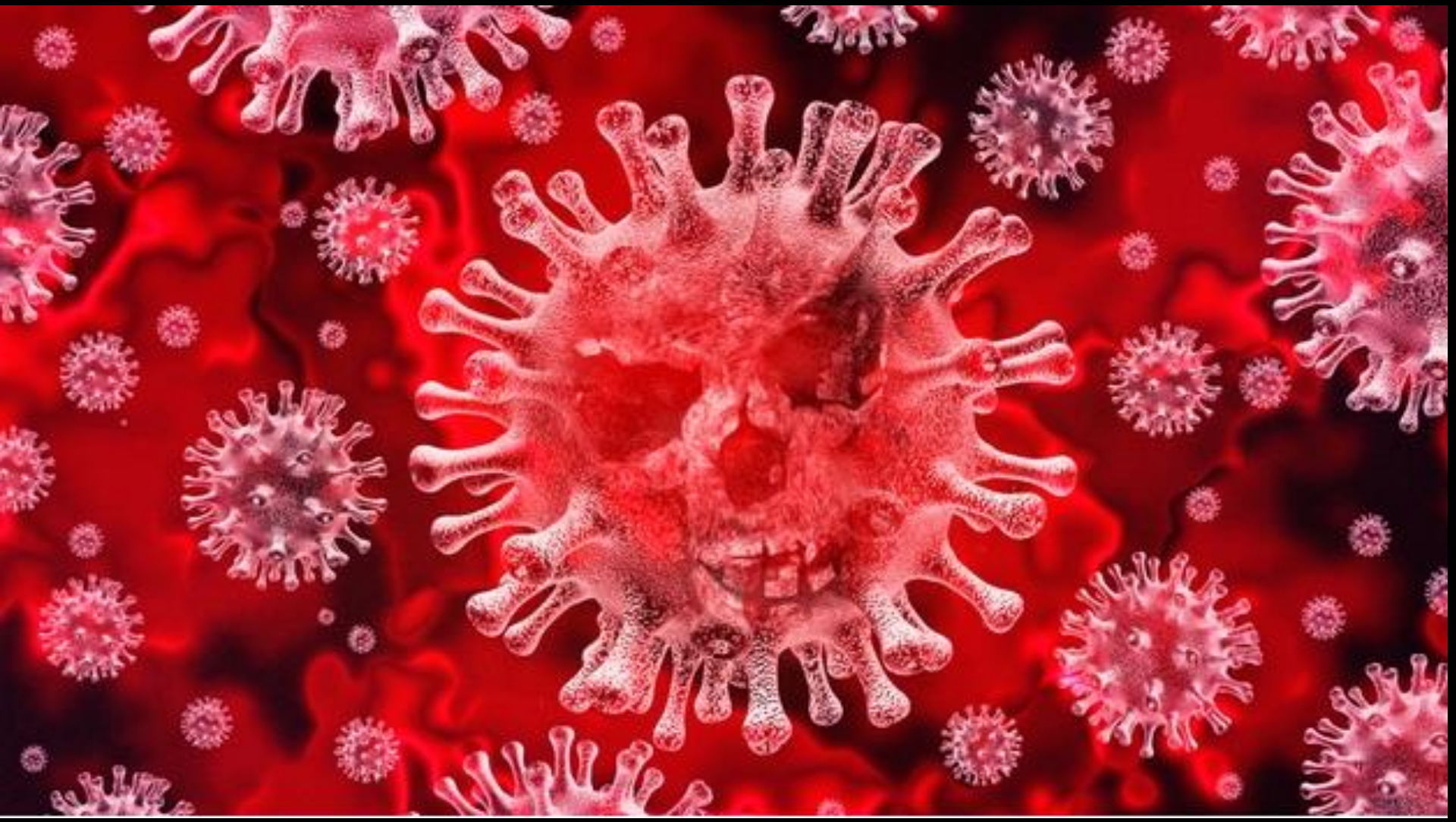
Homes in a Bottle



- *Matthew Naples and Peter Zummo designed bottles that, once empty, snap together for housing in developing countries.*

Low-Tech Terror

9/11/01
Hijacked planes crash into World Trade Center New York killing 1000s.

February 18, 2003
Daegu, South Korea

Man kills hundreds in Daegu subway with bottle of paint thinner and lighter.