

University Innovations That Changed The World!



Radio Carbon Dating

University of Chicago

Carbon dating, or radiocarbon dating, was developed in the late 1940s by Willard Libby, a chemist at the University of Chicago. This revolutionary method allows scientists to determine the age of organic materials by measuring the amount of carbon-14, a radioactive isotope of carbon, remaining in a sample. Libby's invention provided a crucial tool for archaeology, geology, and other fields, allowing for more accurate dating of ancient artifacts and remains.



Military Infrared Night Vision Technology

University of Illinois

Physics Professor Dr. Siva Sivanathan at the University of Illinois developed military infrared night vision technology that helps keep our troops safe when they are in harm's way. The U.S. defense industry has incorporated the technology into tanks, drones, and fighter planes. The same technology is also being applied to the development of next-generation solar panels.



Light Beer

NYU

Light beer's origins can be traced back to the 1960s with biochemist Joseph Owades, who developed a process to break down starches in beer, resulting in fewer calories. This process was first used to create Gablinger's Diet Beer in 1967, marketed towards dieters. The concept was later refined and popularized by other breweries, leading to the light beer varieties we know today.



Plasma Screens

University of Illinois at Urbana-Champaign

The plasma display panel was invented in 1964 at the University of Illinois at Urbana-Champaign by Donald L. Bitzer, H. Gene Slottow, and Robert Willson. The plasma display was originally designed to be an interactive component of the PLATO educational network. The PLATO network was a teaching system that introduced concepts like online chat rooms, multiplayer gaming, and e-newsletters.



Whipped Cream in a Can

University of Illinois

Whipped Cream in a can was an accidental invention of University of Illinois student Charles Getz while working in the University's dairy bacteriology department. Getz discovered that pressurizing milk with carbon dioxide made it foam but determined that nitrous oxide was a better substitute because it didn't change the taste. Getz patented the first aerosol whipped cream, branded as Instantwhip.

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mRNA Vaccines

University of Pennsylvania

Starting in the late 1990s, Katalin Karikó and Drew Weissman from the University of Pennsylvania discovered how to safely use messenger RNA (mRNA) as a whole new type of vaccine or therapy for diseases. When the COVID-19 pandemic hit in 2020, these discoveries made new vaccines possible - saving millions of lives.



Kentucky Bluegrass Hybrid

Rutgers University

Rutgers University has a long history of turfgrass research and innovation. One notable achievement is their development of improved Kentucky bluegrass hybrids, contributing to advancements in turfgrass quality and resilience.



"Restructured Meat" - Leading to the McRib

University of Nebraska

The McDonald's McRib is a distinctive boneless pork patty made from restructured pork, a technique pioneered by meat scientist Roger Mandigo at the University of Nebraska. McDonald's first Executive Chef, René Arend, was inspired by his love of pulled pork sandwiches and sought to create a similar, affordable option for McDonald's customers.



Combination PET/CT Scanner

University of Pittsburgh

Combining Positron Emission Tomography (PET) and Computerized Tomography (CT), from University of Pittsburgh, provided the first medical image containing both anatomical (CT) and metabolic (PET) data from a patient, allowing for long sought-after precision in locating small tumors and/or lesions.



Berkeley Software Distribution

University of California, Berkeley

Berkeley Software Distribution, sometimes called Berkeley Unix, was an operating system based on Research Unix developed and distributed by UCB's Computer Systems Research Group until 1995. Parts of this system have been widely adopted and developed further into proprietary and open-source systems (SunOS, Solaris, Linux, macOS, iOS, Windows).

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Retractable Seatbelts

University of Minnesota

University of Minnesota innovation, the retractable seatbelt, was developed in 1963. It took years of knocking heads, literally and figuratively, but eventually James Ryan convinced Washington and Detroit that his safety features would save lives. His retractable seatbelt has become standard equipment in all autos and trucks made in the U.S.



Webcam

University of Cambridge

The first webcam was invented in 1991 at the University of Cambridge to monitor a coffee pot in the Trojan Room. Researchers Quentin Stafford-Fraser and Paul Jardetzky set up the camera to save people a trip to the coffee pot only to find it empty. In 1993, the feed was connected to the internet, making it the first publicly accessible webcam.



Crash Cushion

Texas A&M University

Dr. Teddy J. Hirsh's Texas A&M University research team invented the "Texas Crash Cushion" in the 1960s. Fatalities due to collisions with concrete abutments were completely eliminated in Houston, going from 27 in seven years to none in the two years following its installation on Houston freeways. The Crash Cushion can now be found on highways around the world.



Gas Permeable Contact Lenses

University of New South Wales

In the 1980s, University of New South Wales scientists developed a new permeable contact lens design to address hypoxia, a condition caused by insufficient oxygen reaching the cornea. Scientists and clinicians, including Professors Brien Holden and Arthur Ho, engineered permeable contact lenses that further led to the creation of silicone hydrogel lenses, which allowed oxygen to reach the eye's surface.



Gatorade

University of Florida

Gatorade was invented in 1965 by a team of scientists at the University of Florida, led by Dr. Robert Cade, to help the school's football players (the Gators) combat dehydration during strenuous games in hot weather. The drink was formulated to replenish fluids, electrolytes, and carbohydrates lost through sweat, ultimately improving athletic performance.

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Irradiated Vitamin D

UW-Madison/WARF

In the 1920s, Harry Steenbock at the University of Wisconsin-Madison discovered that irradiating food with ultraviolet light increased its vitamin D content, effectively preventing rickets. This breakthrough led to the widespread fortification of milk and other foods with vitamin D, drastically reducing cases of this debilitating bone disease.



Coumadin/Warfarin

UW-Madison/WARF

Karl Paul Link, a biochemistry professor at the University of Wisconsin-Madison, invented Warfarin in 1941. Warfarin is a blood thinner that's still widely used today and is one of the most widely prescribed drugs in the world. It is used to treat heart patients and prevent blood clotting.



Nicotine Patch

UCLA

The nicotine patch, a form of nicotine replacement therapy, was developed by researchers at the University of California, Los Angeles. Their research demonstrated that delivering nicotine through the skin could effectively reduce cravings and withdrawal symptoms associated with quitting smoking. This transdermal delivery system provided a steady dose of nicotine, helping smokers manage their dependence and increase their chances of successfully quitting.



E-ink

MIT

Joseph Jacobson at MIT developed e-ink, the basis for electronic readers. His innovative technology uses less power than liquid crystal displays and as anyone with a Kindle knows-looks remarkably like printed paper. Jacobson's invention sparked the mass market for eReaders, granting access to thousands of books through a single hand-held device.



Digital Music

Stanford

John Chowning from Stanford University developed FM synthesis, a technique for generating complex tones using frequency modulation, which revolutionized electronic music. This breakthrough led to the creation of new musical instruments and significantly impacted the sound of popular music in the 1980s.

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Peanuts

University of Georgia

The University of Georgia's peanut breeding program has developed numerous improved peanut varieties, including the 'Southeastern Runner 56-15', which significantly boosted yields. More recently, the program has released varieties like 'Georgia-06G', known for its high yield and disease resistance, and 'Georgia-ogB', valued for its high oleic acid content, which improves shelf life and nutritional value.



Bionic Ear

University of Melbourne

The bionic ear was the first cochlear implant to reliably give speech understanding to severely and profoundly deaf people, along with spoken language to children born deaf. This success led to commercial interest in the technology and, with the support of a federal government grant, in 1982 the Nucleus 22-channel was commercially produced by the Australian firm Cochlear Limited. This has led to further developments of cochlear implants.



Baby Cereal (Pablum)

University of Toronto

Pablum was co-created in 1931 by Mead Johnson & Company and researchers at the Hospital for Sick Children in Toronto. It was developed to address infant malnutrition, providing a fortified cereal with added vitamins and minerals. Pablum became a widely popular infant food, and its name even entered common language to describe bland or simplistic ideas.



NEXRAD Radar

University of Oklahoma

NEXRAD stands for Next-Generation Radar and was invented by a couple of professors from The University of Oklahoma's School of Meteorology. It provides better forecasting and the first operational prototype was finished in 1990 in Norman, Oklahoma.



Contraceptive Pill

University of Manchester

In 1961, researcher Herchel Smith at the University of Manchester developed an inexpensive method for producing the chemicals that prevent ovulation, revolutionizing women's health and family planning. This breakthrough invention of the contraceptive pill paved the way for the widespread availability of oral contraceptives and had a profound impact on society.

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Pacemaker

University of Minnesota

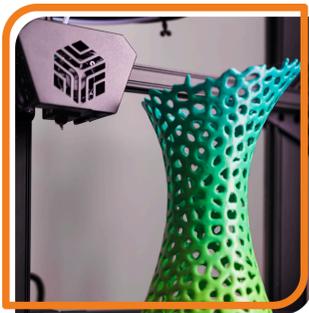
Earl Bakken invented the first wearable, battery-powered pacemaker at the University of Minnesota in 1958 after a power outage endangered the lives of open heart surgery patients. Previous pacemakers were bulky and plugged into electrical outlets.



Maraschino Cherries

Oregon State University

During Prohibition in the U.S., a non-alcoholic preservation method was developed at Oregon State University using brine and sugar syrup, creating the "virgin" maraschino cherry we know today. This new process, further refined with food coloring and almond flavoring, led to the bright red, sweet cherries commonly used in desserts and cocktails.



3D Printing

University of Texas at Austin

Dr. Joe Beaman and his student at the University of Texas at Austin, Carl Deckard, developed and patented Selective Laser Sintering (SLS). This process uses a laser to fuse powdered material into solid objects, offering a different approach to 3D printing that expanded its capabilities.



Plexiglas

McGill University

In the early 1930s, McGill University chemistry student William Chalmers developed a new method for producing methyl methacrylate, a key ingredient in Plexiglas. Chalmers' process, using readily available materials, made large-scale production of this plastic "glass" economically feasible. His patents were later sold to Imperial Chemical Industries, who used them to produce Perspex, the British equivalent of Plexiglas, which was vital during wartime.



Turf Grass

University of Georgia

The University of Georgia has been a leader in turfgrass research and development since the mid-20th century, where they have developed iconic bermudagrass varieties like Tifway and Tifgreen, which became widely used on golf courses and athletic fields worldwide.

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Emoticons

Carnegie Mellon University

In 1982, Scott Fahlman, a computer scientist at Carnegie Mellon University, proposed the use of :-) and :- (to distinguish jokes from serious posts on an online bulletin board. This simple yet ingenious idea provided a way to convey tone and emotion in text-based communication. Fahlman's creation is widely considered the birth of the emoticon, paving the way for the vast array of emojis and emoticons used today.



N95 Mask

University of Tennessee

Dr. Peter Tsai, from the University of Tennessee, revolutionized filtration. Tsai invented the electrostatically charged filter material, which significantly enhanced the capture of tiny particles and became a crucial component of the N95 masks and their effectiveness.



In Vitro Fertilization

Cambridge University

Robert Edwards developed the technique of In Vitro Fertilization in Cambridge University 10 years after he first proved the technique of fertilizing an egg outside the womb could work. The first 'test tube baby' was born in 1978 and Edwards won a Nobel Prize for his work in 2010.



Chicken Nuggets

Cornell University

Agricultural scientist Robert C. Baker invented chicken nuggets in a laboratory at Cornell University in 1963. They were among dozens of poultry products he developed during his career, including turkey ham and chicken hot dogs, helping to greatly expand the U.S. poultry industry.



Google

Stanford University

In 1996, two Stanford University students—Larry Page and Sergey Brin—created an internet search engine they called Page Rank. It was game changing. Today we know that invention as Google, one of the largest and most profitable tech companies in the world and one of the most financially successful inventions ever licensed by a university.

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Canine Parvovirus Vaccine

Cornell University

The canine parvovirus (CPV) spread worldwide, killing thousands of dogs and infecting millions more, before the first vaccine was developed at Cornell University's Baker Institute for Animal Health by Leland Carmichael and Max Appel. The scientists isolated the CPV virus after it emerged in the United States, Europe, Asia, and Australia.



Allegra

Georgetown University

Allegra, known generically as fexofenadine, is a popular antihistamine medication used to relieve allergy symptoms. It was developed as a safer alternative to terfenadine (brand name Seldane), an earlier antihistamine that was found to cause serious heart rhythm problems in some people. Dr. Raymond Woosley played a key role in the discovery of fexofenadine while investigating the safety concerns surrounding terfenadine at Georgetown University.



Fluoride Toothpaste

Indiana University

The invention of fluoride toothpaste is credited to Indiana University faculty members Joseph Muhler, William Nebergall, and Harry Day. The team's work led to the development of a toothpaste that used stannous fluoride and a calcium pyrophosphate abrasive. Procter & Gamble licensed the product and named it Crest, which was first sold nationally in 1956.



CPAP Machine

Sydney University

Professor Colin Sullivan of Sydney University developed the Continuous Positive Airflow Pressure (CPAP) mask. The CPAP system first developed by Sullivan has become the most common treatment for sleep disordered breathing. The invention was commercialised in 1989.



Efficient blue/white LEDs

Boston University

Theodore D. Moustakas, from Boston University, discovered and patented methods for making gallium nitride (GaN) films with high crystalline quality, which led to the development of blue LEDs and, eventually, white LEDs. The latter paved the way for modern smartphone and computer screens, and kicked off the ongoing transition from incandescent to LED bulbs (which now account for nearly half of the illumination market, according to a federal survey).

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Strawberry Varietals

University of California, Davis

Since the 1930s, UC Davis has developed and released more than 70 patented strawberry varieties, focusing on traits like disease resistance, yield, and fruit quality. Recently, they've released varieties like 'UC Monarch', specifically bred for mechanical harvesting, and others with resistance to Fusarium wilt, a devastating soilborne disease.



LASER Cataract Surgery

UCLA

Patricia Bath, an ophthalmologist at the University of California, Los Angeles (UCLA), invented a laserphaco device and technique for cataract surgery in 1988. Bath's laserphaco device was a minimally invasive technique that performed all steps of cataract removal, including making the incision, destroying the lens, and vacuuming out the fractured pieces.



Insulin

University of Toronto

In 1921, Frederick Banting, Charles Best, and James Collip at the University of Toronto successfully isolated and purified insulin, a hormone crucial for regulating blood sugar. This groundbreaking discovery transformed the treatment of diabetes from a fatal disease to a manageable condition, saving countless lives.



Obstetric Ultrasound

University of Glasgow

In the 1950s, Professor Ian Donald, a Scottish obstetrician, pioneered the use of ultrasound technology in Glasgow for medical purposes. Teaming up with engineer Tom Brown, they adapted industrial flaw detectors used in shipbuilding to create the first obstetric ultrasound machines. This groundbreaking invention from the University of Glasgow allowed doctors to visualize a fetus within the womb for the first time, revolutionizing prenatal care.



Filament LED "Edison" Light Bulb

University of California, Santa Barbara

UC Santa Barbara's "Edison" or "vintage" LED light bulbs resemble Edison's iconic light bulbs with glowing filaments visible inside glass bulbs. These bulbs may include a variety of filament LED configurations, such as different shapes of filaments, different numbers of filaments, and different lengths of filaments. The "vintage" lightbulb has become a staple in residential, commercial and industrial settings around the world.

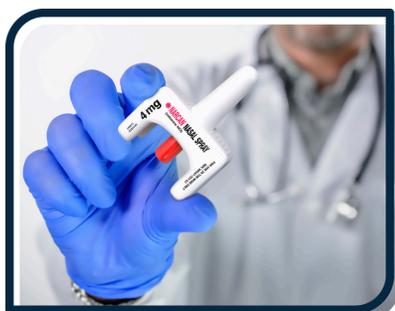
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Breathalyzer

Indiana University

The first practical breathalyzer was invented in 1954 by Robert Frank Borkenstein, a captain with the Indiana State Police and professor at Indiana University. Borkenstein's device used chemical oxidation and photometry to accurately measure blood alcohol content (BAC) from a breath sample. This invention provided law enforcement with a reliable and portable tool for roadside sobriety testing, significantly impacting efforts to reduce drunk driving.



Naloxone

University of Kentucky

Thanks to the University of Kentucky, today, you can go to the drugstore and buy a life-saving dose of Naloxone nasal spray as an over-the-counter purchase in the event a family member, friend, or stranger experiences an overdose. Previously, this overdose-reversing drug was only available by injection and only from trained medical professionals and first responders.



FluMist

University of Michigan

FluMist, a nasal spray flu vaccine, was developed by Dr. Hunein "John" Maassab at the University of Michigan. Maassab's research focused on creating a live attenuated influenza vaccine, meaning it uses weakened live viruses to stimulate an immune response without causing severe illness. This innovative approach offered an alternative to traditional flu shots, particularly beneficial for those with needle phobias.



Computer Animation

University of Utah

Ed Catmull and Jim Clark created the Catmull-Rom splines, a program that fused 3D realism to 2D computer graphics and opened the world's eyes to the power of computer animation. The computer animation program launched a world of computer-generated imagery and Catmull later went on to found Pixar.



Disposable Syringes

Johns Hopkins University

The nonreusable syringe, developed by APL engineer John Wozniak, in collaboration with Kam Leong, of the Johns Hopkins Biomedical Engineering Department, and Neal Halsey, M.D., of the University's School of Hygiene and Public Health, was developed to discourage syringe reuse by the action of a patented insert pressed within the syringe barrel.