Creativity *the next generation*

Snapshots of our featured innovators

Ben Silbermann
Internet entrepreneur

Ben Silbermann is pinning down social networking with "Pinterest", a website where a "pin" (image or other media content) is saved, uploaded, or sorted to a "pinboard" (a collection of pins that is theme-based, such as those relating to travel, cars or food). Beyond uploading their own "pins", users can "like" pins, follow other users' "pinboards" to display them for browsing on the "pin feed" (main page), and "repin" (where a user pins another user's image to their own pinboards).

Pinterest is revolutionary in that it allows people to collect and organize their interests in both their personal and professional lives. With over 48 million users, Ben Silbermann has created the third largest social networking website after Facebook and Twitter. He has become a "kingpin" among Internet entrepreneurs.

Massoud Hassani
Product designer

Massoud Hassani is protecting the safety of others, one step at a time. Inspired by a childhood toy he used growing up in Afghanistan, Massoud Hassani created the "MineKafon", a landmine decommissioning device.

The process of manually detecting and removing landmines is expensive, slow and dangerous. The MineKafon solves each of these problems. Consisting of large poles and suction cups made from bamboo and biodegradable plastic, it travels like wind-blown tumbleweed across landmined zones to detonate them. With a built-in GPS the MineKafon tracks the landmines back to a website to help map out a safe course. Massoud Hassani hopes to use the MineKafon to remove landmines from Afghanistan and across the world.
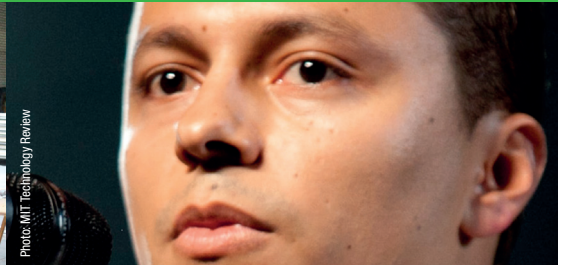
Juan Sebastián Osorio
Biomedical engineer

Juan Sebastián Osorio's innovation, the "Diapneu", is a device designed to monitor and prevent sleep apnea; a condition that can be fatal for premature babies. Unlike other similar devices, the Diapneu is well adapted to the small size of premature babies and records heart rate, electrical signals from the diaphragm and blood oxygen for more precise monitoring of a baby's breathing.

The Diapneu has been approved for patient use. Juan Sebastián Osorio also intends to market the Diapneu as a home breathing monitor, thereby reducing medical costs and barriers to quality health care. With a humanitarian passion and enormous creativity, Juan Sebastián Osorio's work promises to save lives for generations to come.

Hugh Herr
Engineer and biophysicist

Hugh Herr gives new meaning to the term "able-bodied". A prodigy rock climber, he has been climbing since the age of eight. By his late teens, he was acknowledged as one of the best climbers in the US. On a climb in 1982, however, he was caught in a blizzard and forced to spend three nights in sub-zero conditions. The resulting frostbite led to the amputation of both of his legs below the knee.

Within months Hugh Herr achieved the unthinkable: using a prosthesis that he designed, he started climbing again, doing climbs similar to those he had done before his accident. He is the first climber with a major amputation to climb at the same level as an elite, able-bodied climber.

Hugh Herr is the creator of a number of award-winning inventions, including the computer-controlled knee, the robot ankle foot and running blades. His creativity is boundless.
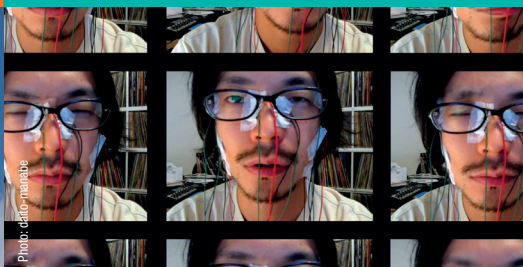
Daito Manabe
Artist, programmer and VJ

Daito Manabe is facing the music. In live performances, digital musicians normally use turntables to control sound with their hands and then present that sound visually, with lights, lasers or video. Daito Manabe takes a new approach. He uses his face to produce sound and provide a visual performance.

Daito Manabe connects electrodes to his face and synchronizes them with a soundtrack. The tiny electrical shocks he experiences are displayed as a live choreography of grimaces and twitches that also produce sound. The performance has been described as playful, strange, funny and, at times, uncomfortable.

Whatever the perception, Daito Manabe's creativity is in demand and transcends categorization. He has been invited to over 30 art, film and music festivals.

Nanshu Lu
Aerospace engineer

Nanshu Lu's electronic tattoo, which offers more accurate monitoring of a patient's vital signs, is opening the door to improved medical treatment. The electronic tattoo overcomes a major obstacle in integrating electronics with human tissue: silicon semiconductors are flat, rigid and brittle whereas human tissue is soft and pliable. The two do not bond well. However, the electronic tattoo is a soft, stretchable electronic chip akin to a temporary transferable tattoo. These ultra-thin electronic patches easily bond with skin and can be used to track brain activity, heart rate and muscle activity.

Whether issuing commands to other electronic devices, tracking signs of disease or treating problems automatically, the potential benefits of the electronic tattoo make it a breakthrough technology for the future of medical care.

Anthony Atala
Surgeon and regenerative medicine researcher

Anthony Atala is working at the frontiers of regenerative medicine which seeks to repair diseased tissues and organs using the body's own healthy cells. He does more than just practice; he revolutionizes. Anthony Atala is the creator of the world's first lab-grown organ, a bladder, which was successfully transplanted into a human. He has also invented a modified 3-D printer capable of printing organs.

The creations of Anthony Atala offer rapid medical treatment—seeking to shorten organ transplant waiting lists or even eliminate them altogether. His work has huge potential to improve and save lives.

Rana el Kaliouby
Facial recognition software designer

Rana el Kaliouby is making computers emotionally intelligent with her facial expression recognition technology, "Affdex", which scientifically measures emotional responses unobtrusively and cost-effectively.

Affdex focuses on 24 different points on the face and tracks how these change in response to different emotions and cognitive states, such as enjoyment, attention or confusion. Affdex uses the largest database of naturally occurring facial expressions as the basis for its facial recognition algorithms which generate useful insights about our emotional responses to what we see. It is particularly useful to marketers seeking to identify the likes and dislikes of consumers.

Imagine the possibilities: cheerful music played when you're sad, or alerts when you're tired, all thanks to a new generation of computer technology created by Rana el Kaliouby.

Marc Fornes
Architect and sculptor

Marc Fornes is taking us into the generation of the previously unseen. Practicing in a field known as computational architecture, he is creating entirely new architectural designs generated by computer algorithms which are then printed using fabrication technology.

Thanks to advances in computer technology, these models can be visualized, evaluated and tweaked by the architect before printing for optimal appearance. Marc Fornes leads the way in developing optimizing protocols and has developed a niche for constructing pavilions and galleries with twisting, curvilinear outlines similar to underwater organisms. His creativity is limited only by his own imagination, which continues to surprise and inspire awe.

Geoffrey von Maltzahn
Biomedical engineer

Geoffrey von Maltzahn is engineering solutions for global challenges in nutrition, environmental sustainability and medicine. His creativity has resulted in over 25 patent applications for breakthroughs in biology, chemistry, engineering and medicine.

At only 28 years old, Geoffrey von Maltzahn developed ways to selectively kill cancer cells. Since then, he has invented new mass spectrometric methods for detecting and monitoring complex diseases, remote-controlled materials and methods for nanosurgery, and new classes of biomaterials.

A scientific "whiz kid", Geoffrey van Maltzahn has co-authored over 20 scientific papers, received over 20 awards for his inventions and has co-launched multiple companies dedicated to improving therapeutics and health technologies. His creativity is resolute and revolutionary.

Ren Ng
Inventor and entrepreneur

A picture is worth a thousand words, or maybe even more thanks to Ren Ng.

The Lytro camera developed by Ren Ng is a new kind of camera made with a special microlens that is capable of capturing all the rays of light—up to 11 million of them— in a scene (the so-called "light field") regardless of where the rays are coming from. After the photo has been taken and downloaded onto a computer equipped with Lytro software, users can change and select the depth of field, perspective and, using Lytro's range of filter effects, change the level of detail in an image. Billed as "the next evolution in visual storytelling", the Lytro camera offers new and exciting ways to create and share images.

David Kobia
Software engineer

David Kobia's web platform "Ushahidi" (Swahili for "testimony") is helping communities facing conflict and disaster to share information and submit eyewitness accounts, when regular news channels are often unavailable. Ushahidi collects information via e-mail, blogs, text messages, photos, audio and video, and posts them on Google Maps within minutes, making it possible to track events and coordinate responses. It is a user-friendly, reliable and evolving platform that is proving decisive in alleviating crises, such as the January 12, 2010, earthquake in Haiti.

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