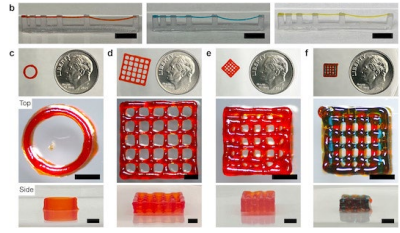


Weekly Discovery

We SHARE to inspire and ignite ideas!

6 - 10 February 2023

3D PRINTING
Peptide 3D-Printing Inks Could Advance Regenerative Medicine



"How do you build complex structures for housing cells using a material as soft as Jell-O? Rice University scientists have the answer, and it represents a potential leap forward for regenerative medicine and medical research in general."

Source: [RICE](#) (7 February 2023)

AI
How Duolingo's Ai Learns What You Need To Learn. The Ai That Powers The Language-Learning App Today Could Disrupt Education Tomorrow



"T'S LUNCHTIME WHEN YOUR phone pings you with a green owl who cheerily reminds you to "Keep Duo Happy!" It's a nudge from Duolingo, the popular language-learning app, whose algorithms know you're most likely to do your 5 minutes of Spanish practice at this time of day. The app chooses its notification words based on what has worked for you in the past and the specifics of your recent achievements, adding a dash of attention-catching novelty. When you open the app, the lesson that's queued up is calibrated for your skill level, and it includes a review of some words and concepts you flubbed during your last session."

Source: [IEEE](#) (4 February 2023)

AI
Image Recognition Has An Income Problem This Newly Available Dataset Will Help Fix It



"Image recognition neural networks are only as good as the data they're trained on. And that data, at least the easily available data, is heavy on images from high-income countries in Europe and North America. So, when confronted with everyday household items from lower-income countries, they get it right as little as 20 percent of the time, according to research presented in at NeruIPs 2022. But a set of training data released today by machine learning benchmarking organization MLCommons makes the image recognition neural network ResNet more than 50 percent more accurate. The goal is to "make machine learning work for everyone..."

Source: [IEEE](#) (2 February 2023)

EDUCATION
Can A Computer Teach Babies To Count?



"Recyclers already use near-infrared sorting systems that identify different materials according to their naturally occurring optical signatures—the PET plastic in a water bottle, for example, looks different under near-infrared light than the HDPE plastic in a milk jug. Different fabrics also have different optical signatures, but Brian Iezzi, a postdoctoral researcher in Shtein's lab and lead author of the study, explains that those signatures are of limited use to recyclers because of the prevalence of blended fabrics."

Source: [RUTGERS!](#) (6 February 2023)

ENERGY
Chameleon Skins Slash Building Energy Use Investment Of A Small Amount Of Energy Can Deliver Big Returns In Energy Savings



"Heating and cooling buildings consumes around 15 percent of the world's energy supply, and this use is slated to go up in coming decades. The International Energy Agency predicts that the energy demand for cooling will more than triple by 2050 if nothing is done to address energy efficiency."

Now, taking inspiration from the color-changing skins of chameleons, two research groups have made dynamic, color-changing materials for building facades that could significantly reduce the energy footprint of air-conditioning and heating."

Source: [IEEE](#) (7 February 2023)

EDUCATION
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Source: [RUTGERS!](#) (6 February 2023)

MATERIALS
Researchers: Energy-Efficient Construction Materials Work Better In Colder Climates



"The researchers from Lithuania and Cyprus claim that the energy payback period of using phase change materials, new technology in the construction industry, is the shortest in a colder climate. The optimal location for their usage is the interior on the northern side of the building. The study provides informed answers regarding the application of PCMs to improve buildings' energy efficiency."

Source: [KAUNAS UNIVERSITY OF TECHNOLOGY](#) (3 February 2023)

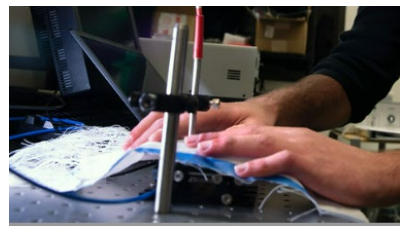
MATERIALS
This Injectable Biomaterial Heals Tissues From The Inside Out



"A new biomaterial that can be injected intravenously, reduces inflammation in tissue and promotes cell and tissue repair. The biomaterial was tested and proven effective in treating tissue damage caused by heart attacks in both rodent and large animal models. Researchers also provided proof of concept in a rodent model that the biomaterial could be beneficial to patients with traumatic brain injury and pulmonary arterial hypertension.."

Source: [UCSD](#) (2 February 2023)

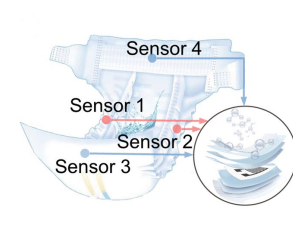
RECYCLING
A 'Game Changer' For Clothing Recycling?



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Source: [EurekAlert!](#) (6 February 2023)

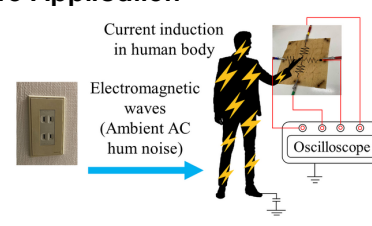
SENSOR
New Sensor Enables 'Smart Diapers,' Range Of Other Health Monitors



"The new sensor — so cheap and simple to produce that it can be hand-drawn with a pencil onto paper treated with sodium chloride — could clear the way for wearable, self-powered health monitors for use not only in "smart diapers" but also to predict major health concerns like cardiac arrest and pneumonia."

Source: [PENN STATE](#) (2 February 2023)

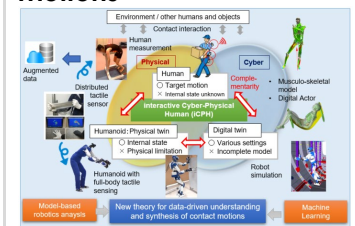
SENSOR
Tech That Turns Household Surfaces Into Touch Sensors Is A Touch Closer To Application



"Researchers from Tokyo Metropolitan University have developed a new calibration algorithm for technology that turns common materials into touch sensors. HumTouch detects the current that runs from our fingertips to any partially conductive surface and locates where it was touched. The new algorithm speeds up calibration for new users, solving a major drawback of existing versions of the technology. It also improves the accuracy, bringing HumTouch a step closer to practical application"

Source: [EurekAlert!](#) (4 February 2023)

WEARABLES
Interactive Cyber-Physical Human: Generating Contact-Rich Whole-Body Motions



"Professor Eiichi Yoshida of the Tokyo University of Science has put forward the idea of an interactive cyber-physical human (iCPH) platform to tackle this problem. It can help understand and generate human-like systems with contact-rich whole-body motions."

Source: [TOKYO UNIVERSITY OF SCIENCE](#) (6 February 2023)