

Weekly Discovery

We SHARE to inspire and ignite ideas!

5 - 9 September 2022

The Library publishes **9 alerts** focusing on Topics relevant to **growth and research areas** to SUTD.

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Artificial Intelligence & Data Science	Aviation	Cities
HealthCare	Robotics & Automation	Design & Innovation
Cybersecurity	Digital Design & Fabrication	Advanced Manufacturing

AERODYNAMICS
Engineers Study Bird Flight



"A new study uses modeling and aerodynamics to describe how gulls can change the shape of their wings to control their response to gusts or other disturbances. The lessons could one day apply to uncrewed aerial vehicles or other flying machines."

Source: [UNIVERSITY OF CALIFORNIA - DAVIS](#) (5 September 2022)

BATTERY
Fast Charging Over 10,000 Cycles: For Future Electric Vehicles, Harvard Engineers' Solid-State Battery Technology Points To A Leap In Performance And Reliability



"the lab-scale coin-cell prototype has achieved battery charge rates as fast as three minutes with over 10,000 cycles in a lifetime, with results published in Nature and other journals. It also boasts high energy density and a level of material stability that overcomes the safety challenges posed by some other lithium batteries."

Source: [HARVARD JOHN A. PAULSON SCHOOL OF ENGINEERING AND APPLIED SCIENCES](#) (1 September 2022)

CLIMATE CHANGE
The Power Of Compost - Making Waste A Climate Champion



"A new way of using compost could boost global crop production and deliver huge benefits to the planet, according to a study co-led by The University of Queensland."

Source: [UNIVERSITY OF QUEENSLAND](#) (5 September 2022)

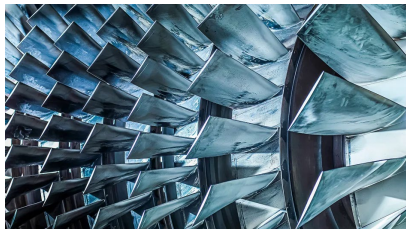
COMPUTING
Allen School Researchers Bring First Underwater Messaging App To Smartphones



"The team developed AquaApp, the first mobile app for acoustic-based communication and networking underwater that can be used with existing devices such as smartphones and smartwatches."

Source: [University of Washington](#) (29 August 2022)

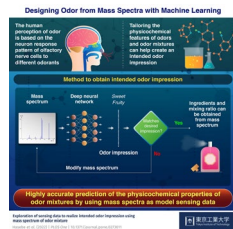
ENERGY
66% More Energy? This New Turbine Could Turn Old Power Plants Into Clean(Er) Machines



"A team of American scientists has developed a system for generating electricity that they say is a "game changer." It's a device that has the potential to radically increase the electrical output of any thermal power plant, be it fossil fuel, solar thermal, or nuclear."

Source: [Fast Company](#) (2 September 2022)

MACHINE LEARNING
A Novel Approach To Creating Tailored Odors And Fragrances Using Machine Learning



"Instead of predicting the smell from molecular data, this method predicts molecular features based on the odor impression. This is achieved using standard mass spectrum data and machine learning (ML) models. "We used a machine-learning-based odor predictive model that we had previously developed to obtain the odor impression. Then we predicted the mass spectrum from odor impression inversely based on the previously developed forward model,""

Source: [TOKYO INSTITUTE OF TECHNOLOGY](#) (5 September 2022)

NANOTECHNOLOGY
Recycling Greenhouse Gases



"CO2 and methane can be turned into valuable products. But until now the catalysts required for such reactions quickly lose their effectiveness. TU Wien has now developed more stable alternatives."

Source: [Vienna University of Technology](#) (31 August 2022)

QUANTUM PHYSICS
New Fur for The Quantum Cat. Quantum Materials: Entanglement of Many Atoms Discovered for the First Time



"Our quantum cat now has a new fur because we've discovered a new quantum phase transition in LiHoF4 which has not previously been known to exist," comments Matthias Vojta, Chair of Theoretical Solid State Physics at TUD."

Source: [Technische Universität Dresden](#) (2 September 2022)

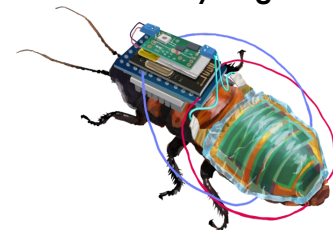
ROBOTS
Robots Can Be Used To Assess Children's Mental Wellbeing



"The researchers say that robots could be a useful addition to traditional methods of mental health assessment, although they are not intended to be a substitute for professional mental health support. The [results](#) will be presented today at the [31st IEEE International Conference on Robot & Human Interactive Communication \(RO-MAN\)](#) in Naples, Italy."

Source: [University of Cambridge](#) (1 September 2022)

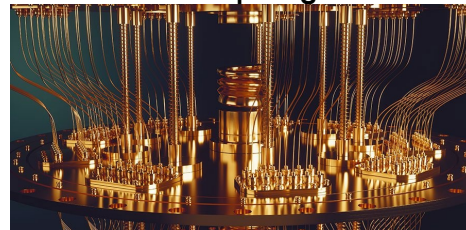
ROBOTICS
Robo-Bug: A Rechargeable, Remote-Controllable Cyborg Cockroach



"An international has engineered a system for creating remote controlled cyborg cockroaches, equipped with a tiny wireless control module that is powered by a rechargeable battery attached to a solar cell. Despite the mechanic devices, ultrathin electronics and flexible materials allow the insects to move freely."

Source: [EurekaAlert!](#) (5 September 2022)

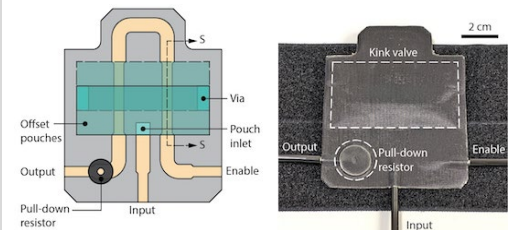
SPINTRONICS
From Bits to P-Bits: One Step Closer To Probabilistic Computing



"Their findings, published in the journal Nature Communications, could act as the foundation for engineering more advanced computers that can quantify uncertainty while interpreting complex data."

Source: [Tohoku University](#) (26 August 2022)

WEARABLES
Wearables Take 'Logical' Step Toward Onboard Control



"Rice engineers embed pneumatic circuits into fabric for assistive garments. For all the talk about embedding computers in clothing, here's an interesting option. Make the clothing the computer and do it without electricity."

Source: [Rice University](#) (30 August 2022)

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