

In the spotlight

Circular material systems for Soft Robotic Architectures

Gordon Research Conference
SUTD Author: Naresh Kumar Thanigaivel

Inspired by how bones, muscles, and skin work together in nature, this research explores new ways to design robots that are both soft and strong. The first phase of the work, published at IEEE RoboSoft 2025, introduced a rapid digital workflow for designing and 3D printing vertebrate-inspired soft robots. By embedding flexible internal skeletons inside soft outer skins, these robots could grip objects, carry loads, and move more naturally than traditional soft robots.

Building on this foundation, the extended work presented at the Gordon Research Conference 2026 on Multifunctional Materials and Structures, introduced sustainability into the same robotic framework. Waste-derived eggshells and seaweed-based polymers were developed as printable alternatives to conventional plastics used in robotic parts, enabling systems that are both functional and reusable.

Together, the research points to a future where robots are inspired by nature, efficiently built, and thoughtfully designed with sustainability at their core.



“From rapid robot prototyping to circular materials, this work shows how soft robots can be strong, adaptive, and sustainable.”

- Naresh Kumar Thanigaivel



BEFORE THEY'RE GONE

We'll be saying goodbye to a few resources as their subscriptions come to an end:

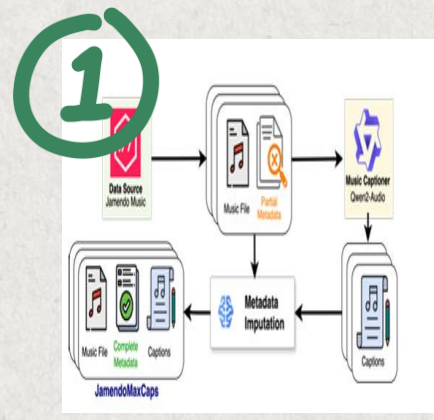
Newslink : access until 30 May 26

Avery Index to Architectural Periodicals : access until 31 May 26

LinkedIn Learning : access until 31 May 2026

If you're currently using these, do download or save any materials you may need ahead of time. Feel free to reach out to us if you'd like help with alternative resources.

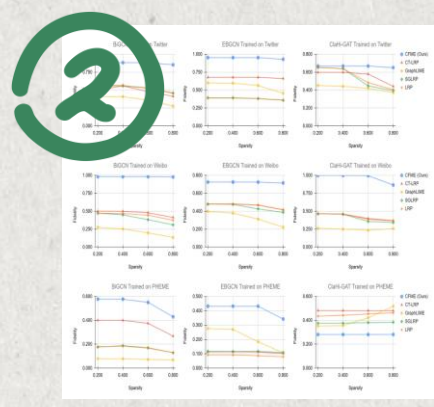
TRAILBLAZERS



JamendoMaxCaps: A Large Scale Music-caption Dataset with Imputed Metadata

2025 International Joint Conference On Neural Networks

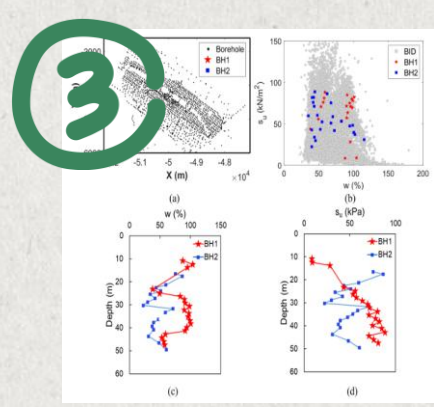
SUTD Authors: Abhinaba Roy, Liu Renhang, Lu Tongyu, Dorien Herremans
ISTD



Contrastive Fidelity-Maximised Explanations for Graph-Based Rumour Detection

IEEE Transactions On Knowledge And Data Engineering

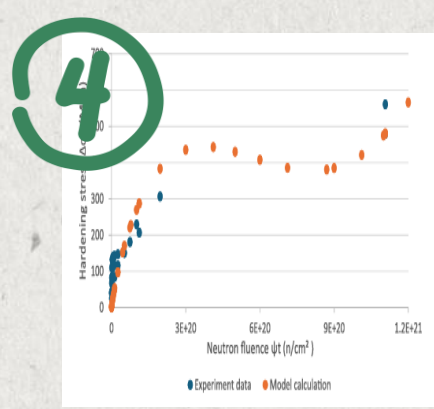
SUTD Authors: Daniel Chin Wai Kit, Roy Lee Ka-Wei
ISTD



Data-driven site demarcation using tailored Lego clustering - shape/size of site

Computers And Geotechnics

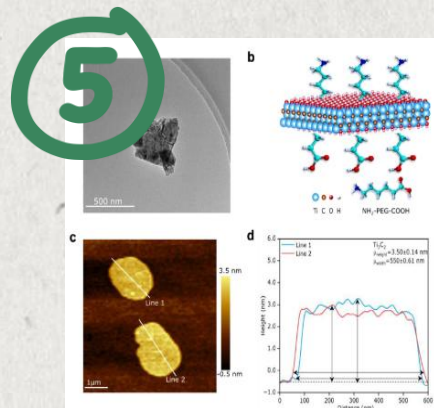
SUTD Authors: Cai Yongmin, Phoon Kok-Kwang
ASD



Uncertainty principle of dual entropy and the minimum accessible entropy-area: experimental validation in irradiated reactor pressure vessel steels

Physica Scripta

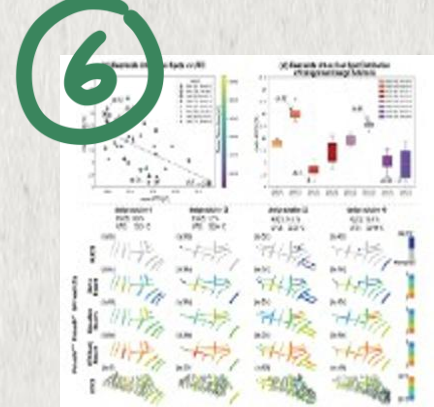
SUTD Author: Wu Ping
EPD



High-Efficiency, Short-Pulse Electrothermal Cancer Therapy Utilizing Polyethylene Glycol (PEG-) Based Titanium Carbide (Ti3C2) MXene Nanomaterials

Advanced Therapeutics

SUTD Authors: Welela M. Kedir, Go Shao-Xiang, Natasa Bajalovic, Desmond Loke
SMT, AI Mega Centre



Universal Thermal Climate Index (UTCI)-adjusted pedestrian accessibility: Urban design exploration for climate-resilience in tropical climates

Sustainable Cities And Society

SUTD Authors: Elif Esra Aydin, Chen Zebin, Peter Ortner, Ryan Chua
ASD



Designing Knowledge Tools: How Students Transition from Using to Creating Generative AI in STEAM classroom

IEEE International Conference on Teaching, Assessment and Learning for Engineering

SUTD Authors: Qian Huang, Nachamma Sockalingam, Thjis Willems, Poon King Wang
Office of Strategic Planning, LKYCIC



Bayesian Privacy Guarantee for User History in Sequential Recommendation Using Randomised Response

Proceedings Of The 34th Acm International Conference On Information And Knowledge Management

SUTD Authors: Mu Wenchuan, Lim Kwan Hui
EPD, SMT

