IMPact@SUTD

Impossible Made Possible by architects, catalysts and technologists

July 2021

IMPact@SUTD is a regular update featuring works by SUTD Faculty, Researchers, Students and Research Centres/Labs. We hope to create awareness of the Research by SUTD within the SUTD community and beyond. Share with us your SUTD works today so that we can include it in our next update.

CONGRATULATIONS!

Postdoctoral Research Fellow
Afm Kamal Chowdhury
(ESD)

Postdoctoral Research Fellow
Thanh Duc Dang
(ESD)

Associate Professor
Stefano Galelli
(ESD)

For publishing the paper **Solar energy and regional coordination as a feasible alternative to large hydropower in Southeast Asia in* Nature Communications.

***The study shows that only 82% of the planned hydropower dams in the Mekong River basin, a major biodiversity hotspot, are actually needed. In fact, it would be possible to halt the construction of all planned dams without major implications on the cost of electricity.**

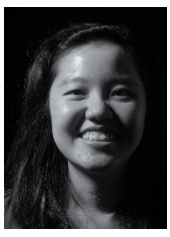
Intelligent Shifting Cues: Increasing the Awareness of Multi-Device Interaction Opportunities

UMAP 21

SUTD Author: Ngoc Thi Nguyen and Simon Tangi Perrault

"Shifting cues can inform users how available nearby devices can be used to enrich interaction, e.g., casting the web search results from your smart phone to an idle nearby smart display. This paper discusses how to design and deliver such cues to users while mitigating interruption to their tasks."

--- Ngoc Thi Nguyen



Versioning for parametric design exploration process

Automation in Construction

SUTD Author: Verina Cristie and Sam Conrad Joyce

"Versioning tool is typically used for managing software code versions. We presented a bespoke versioning tool for parametric models' version control, cross-iteration versions comparison, feedback platform, and design project analytics. Application in a design workshop showed student's positive responses to versioning as a personal documentation and group collaboration tool."

--- Verina Cristie

High-resolution light field prints by nanoscale 3D printing

Nature Communications

SUTD Author: John You En Chan, Qifeng Ruan, Hongtao Wang, Hao Wang, Wang Zhang and Joel K. W. Yang

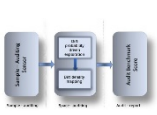
"A promising solution to create high-resolution LFPs is through the use of advanced nanofabrication techniques. Here, we use two-photon polymerization lithography as a one-step nanoscale 3D printer to directly fabricate LFPs out of transparent resin. Our LFP signifies a step towards hyper-realistic 3D images that can be applied in print media and security tags for high-value goods."

--- Joel K. W. Yang

AI-Assisted MAC for Reconfigurable Intelligent-Surface-Aided Wireless Networks: Challenges and Opportunities

IEEE Communications Magazine

SUTD Author: Xuelin Cao, Bo Yang and Chau Yuen



An Autonomous Robot-Aided Auditing Scheme for Floor Cleaning

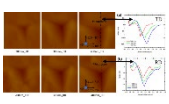
Sensors

SUTD Author: Thejus Pathmakumar, Manivannan Kalimuthu,Mohan Rajesh Elara and Balakrishnan Ramalingam

Assembling sustainability reporting in Singapore

Competition & Change

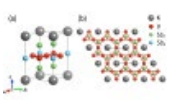
SUTD Author: Gordon Kuo Siong Tan



Berkovich nanoindentation study of 16 nm Cu/Nb ARB nanolaminate: Effect of anisotropy on the surface pileup

Mrs Advances

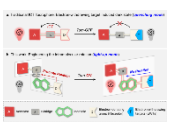
SUTD Author: Rahul Sahay, Arief S. Budiman, and Nagarajan Raghavan



Electronic correlations in the normal state of the kagome superconductor KV3Sb5

Physical Review B

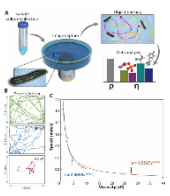
SUTD Author: Jianzhou Zhao, Weikang Wu and Shengyuan A. Yang



Fluorescence umpolung enables light-up sensing of N-acetyltransferases and nerve agents

Nature Communications

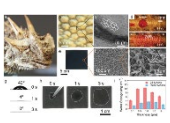
SUTD Author: Weijie Chi, Syed Ali Abbas Abedi and Xiaogang Liu



Measurements of the swimming speeds of motile microorganisms using object tracking and their correlation with water pollution and rheology levels

Scientific Reports

SUTD Author: Ashaa Preyadharishini Shunmugam and Javier G. Fernandez



Metal Ion-Induced Assembly of MXene Aerogels via Biomimetic Microtextures for Electromagnetic Interference Shielding, Capacitive Deionization, and Microsupercapacitors

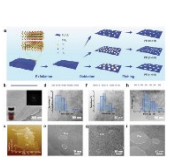
Advanced Energy Materials

SUTD Author: Lu Guo and Hui Ying Yang

On the Mean Residual Life of Cantor-Type Distributions: Properties and Economic Applications

Austrian Journal of Statistics

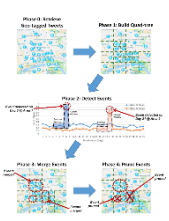
SUTD Author: Stefanos Leonardos



Porosity Engineering of MXene Membrane towards Polysulfide Inhibition and Fast Lithium Ion Transportation for Lithium-Sulfur Batteries

Small

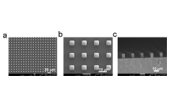
SUTD Author: Dongbin Xiong, Shaozhuan Huang, Daliang Fang, Dong Yan, Song Chen, Yilin Liu, Xueliang Li, Yew Von Lim, and Hui Ying Yang



Real-time spatio-temporal event detection on geotagged social media

Journal of Big Data

SUTD Author: Kwan Hui Lim



Superhydrophobic Polymer Topography Design Assisted by Machine Learning Algorithms

Acs Applied Materials & Interfaces

SUTD Author: Qiang Wang and Hong Yee Low

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