

June 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!**

SCDF X IBM  
LIFESAVERS' INNOVATION CHALLENGE: CALL FOR CODE 2021

1ST PRIZE WINNER

25 JUNE 2021  
MARINA BAY SANDS  
INVENTION CENTRE

\*Held as a case competition, students will form teams including team leader, coder, designer, engineer & researcher to develop and deploy innovative lifesaving solutions to tackle problem statements concerning the Nation's civil defence readiness.

**Team Seviours members, Tan Wai Hong (alumnus), Jack Ng Guang Jie (alumnus), Ong Xiang Qian (EPD), and Ian Lim Li Ern (EPD)**

**For winning the first prize in the \*SCDF X IBM Lifesavers' Innovation Challenge with their idea of a system that leverages Internet-of-Things (IoT) sensors, Artificial Intelligence (AI), and automation to enable early and efficient response to high-voltage charging fires.**



**3D Printing Architecture: Workflows, Applications, and Trends**  
SpringerBriefs in Architectural Design and Technology

SUTD Author: Carlos Banon and Felix Raspall

"This book investigates how architectural design advances as a result of the rapid developments in 3D Printing. As this technology become more powerful, faster and cheaper, novel workflows are becoming available and revolutionizing all stages of the design process, from early spatial concepts, to subsequent project development, advanced manufacturing processes, and integration into functional buildings."

--- Carlos Banon and Felix Raspall



**Geographies of outdoor play in Dhaka: An explorative study on children's location preference, usage pattern and accessibility range of play spaces**  
Children's Geographies

SUTD Author: Md Rashed Bhuyan

"The preferences for outdoor play and intensity of use of the play spaces were significantly lower among girls compared to boys. The frequency of access to play spaces decreased exponentially with the distance between children's home and play space (exponent of distance-decay = 0.346 per 100 metre)."

--- Md Rashed Bhuyan



**Assessing Programming Skills and Knowledge During the COVID-19 Pandemic: An Experience Report**  
Proceedings of the 26th ACM Conference on Innovation and Technology in Computer Science Education

SUTD Author: Norman Tiong Seng Lee, Oka Kurniawan, Kenny Tsu Wei Choo

"We describe how the on-campus final exam for 10.009 The Digital World was replaced with a programming assignment coupled with an online oral exam, due to Covid-19 in 2020. We reflect on our experience and describe how the lessons learnt were applied to a subsequent programming course."

--- Norman Tiong Seng Lee

**2D-Material-integrated hydrogels as multifunctional protective skins for soft robots**  
Materials Horizons

SUTD Author: Tien Van Truong and Pablo Valdivia y Alvarado

**Acoustic Effect of Face Mask Design and Material Choice**  
Acoustics Australia

SUTD Author: B. T. Balamurali, Tan Enyi, Christopher Johann Clarke, Sim Yuh Harn, and Jer-Ming Chen

**Ageing and digital technology in the COVID-19 response**  
Town Planning Review

SUTD Author: Yuen Belinda

**Collision Avoidance and Stability Study of a Self-Reconfigurable Drainage Robot**  
Sensors

SUTD Author: Rizuwana Parween, M. A. Viraj J. Muthugala, Karthikeyan Elangovan, and Mohan Rajesh Elara

**Conformal coating of lithium-zinc alloy on 3D conducting scaffold for high areal capacity dendrite-free lithium metal batteries**  
Carbon

SUTD Author: Xue Liang Li and Hui Ying Yang

**Correlations between random projections and the bivariate normal**  
Data Mining and Knowledge Discovery

SUTD Author: Keegan Kang

**Design and fabrication of a flexible glucose sensing platform toward rapid battery-free detection of hyperglycaemia**  
Journal of Materials Chemistry C

SUTD Author: Kento Yamagishi, Wenshen Zhou, Shao Ying Huang and Michinao Hashimoto

**Design of Robot-Inclusive Vertical Green Landscape**  
Buildings

SUTD Author: Matthew S. K. Yeo, S. M. Bhagya P. Samarakoon, Qi Boon Ng, M. A. Viraj J. Muthugala and Mohan Rajesh Elara

**Giant rectification in segmented, strongly interacting spin chains despite the presence of perturbations**  
Physical Review E

SUTD Author: Kang Hao Lee, Viniha Balachandran, and Dario Poletti

**Modern cities modelled as "super-cells" rather than multicellular organisms: Implications for industry, goods and services**  
Bioessays

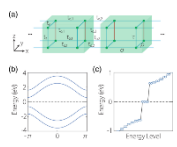
**Multigap superconductivity in centrosymmetric and noncentrosymmetric rhenium-boron superconductors**  
Physical Review B

**Schizophrenia: A Survey of Artificial Intelligence Techniques Applied to Detection and Classification**  
International Journal of Environmental Research and Public Health

SUTD Author: Kang Hao Cheong

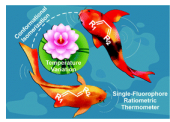
SUTD Author: J. Z. Zhao

SUTD Author: Joel Weijia Lai, Candice Ke En Ang and Kang Hao Cheong



**Switching Spinless and Spinful Topological Phases with Projective PT Symmetry**  
*Physical Review Letters*

SUTD Author: Shengyuan A. Yang



**Thermal equilibria between conformers enable highly reliable single-fluorophore ratiometric thermometers**  
*Analyst*

SUTD Author: Tianruo Shen, Xia Wu, Davin Tan and Xiaogang Liu



**Toward obstacle-specific morphology for a reconfigurable tiling robot**  
*Journal of Ambient Intelligence and Humanized Computing*

SUTD Author: S. M. Bhagya P. Samarakoon, M. A. Viraj J. Muthugala and Mohan Rajesh Elara

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