



December 2023

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

Mr. Associate Professor, Associate Head of Pillar (EPD) Foong Shaohui, for winning the Unmanned Systems Best Paper Award* 2022, Application Category, for his paper "Design of a Hybrid Aerial Robot with Multi-Mode Structural Efficiency and Optimized Mid-Air Transition".

*The Unmanned Systems Best Paper Award recognizes outstanding papers published in the Unmanned Systems.



Scan QR code to read the paper!



Bragg Solitons – Historical and Future Perspectives
Laser & Photonics Review

SUTD Author: Dawn Tan

"We review the history of Bragg solitons, followed by recent progress made in integrated photonic devices, facilitated by recent advancements in the design and fabrication of on-chip Bragg gratings. We further discuss the future outlook and their application towards amplifiers, optical storage, low loss delay lines, temporal compression systems, Bragg soliton lasers and high-speed communications."

--- [Dawn Tan](#)



A social science mixed-methods approach to stimulating and measuring creativity in the design classroom
Design Science

SUTD Authors: Nilanjan Raghunath, Arlindo Silva, Christine Yogiawan

"This study aimed to evaluate the effectiveness of using a social science mixed-methods approach to stimulate creativity and improve the attainment of creative outcomes in teaching design. In a focused study framed through a design collaborative experiment within a classroom context, sketches produced by a sample of 351 students were analyzed and the impact of stimuli was categorized by visual, physical, quantitative and contextual information on creative processes and outcomes in product design."

--- [Nilanjan Raghunath](#)



Exploring non-mandatory travel behavior in Jakarta City: Travel time, trip frequency, and socio-demographic influences
Transportation Research Interdisciplinary Perspectives

SUTD Author: Francisco Benita

"This study explores non-mandatory trips in Jakarta's Central, North, and West regions, analyzing mode choice, distance, and frequency with 1,187 survey responses. Notably, Central Jakarta relies on ride-hailing, while West Jakarta favors short-distance trips. A multinomial model reveals older individuals prefer walking despite motorcycle growth. Findings stress the need for a comprehensive transportation strategy, emphasizing vehicle ownership reduction, enhanced walkability, and age-friendly public transport."

--- [Francisco Benita](#)

A new perspective on cooperation through the lens of Parrondo's paradox
Physics Of Life Reviews

SUTD Author: Cheong Kang Hao

A technically feasible strategy using liquid-state thermocells to efficiently recover the waste heat released from proton exchange membrane fuel cells
Energy Conversion And Management

SUTD Author: Ang Yee Sin

AI-Enabled Vibrotactile Feedback-Based Condition Monitoring Framework for Outdoor Mobile Robots
Mathematics

SUTD Authors: Sathian Pookkuttath, Raihan Enjikalayil Abdulkader, Mohan Rajesh Elara, Prabakaran Veerajagadheswar

Capacity-aware fair POI recommendation combining transformer neural networks and resource allocation policy
Applied Soft Computing

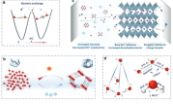
SUTD Author: Lim Kwan Hui

Dynamic Pricing for Client Recruitment in Federated Learning
IEEE-ACM Transactions on Networking

SUTD Author: Duan Lingjie


Efficient MP Decoding via Fast G-BADMM Approach for Binary LDPC Codes
IEEE Communications Letters

SUTD Author: Yuen Chau



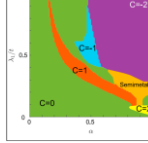
Electrolyte Modulation Strategies for Low-Temperature Zn Batteries
Small

SUTD Authors: Li Tian Chen, Yang Hui Ying



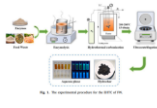
Formal Template-Based Generation of Attack-Defence Trees for Automated Security Analysis
Information

SUTD Author: Liew Lin Shen



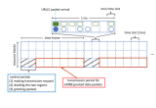
Interaction-driven Chern insulating phases in the alpha-T-3 lattice with Rashba spin-orbit coupling
iScience

SUTD Author: Fu Pei-Hao



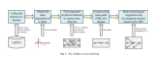
Methods for enhancing the properties of products from food waste via hydrothermal carbonation (HTC): Gradient-enzymatic-pretreatment-nitrogen-migration-strategy
Energy

SUTD Author: Yang Hui Ying



Resource allocation for URLLC and eMBB traffic in uplink wireless networks
Performance Evaluation

SUTD Author: Zhang Ruhui



Technological origination and evolution analysis by combining patent claims and citations: A case of surgical robot domain
Advanced Engineering Informatics

SUTD Author: Qiu Zhipeng

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