



September 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.

Assistant Professor Dr Nilanjan Raghunath

Humanities, Arts and Social Science (HASS)

On receiving the **Fulbright* research scholar award and grant for 2023**. She will be conducting research as a visiting scholar at Columbia University's department of sociology and presenting her research there. Her research will focus on understanding interdisciplinary scientific networks of female scientists and academics between Singapore and the United States.

She was also awarded **SGD45,500 research grant[^]** and a **research fellowship** by the **Social Mobility Foundation (SMF)** (LKYLSP, NUS). Her project title is '**Bridging the Gap: GenZ, Social Mixing and Social Equity in Singapore**'.

*The Fulbright Commission of the United States of America provides highly selective flagship programs to promote scientific and cultural exchanges around the world.
[^]The SMF foundation chaired by ESM Goh and Professor Danny Quah, funds policy relevant research on fostering inclusive social and economic growth in Singapore.



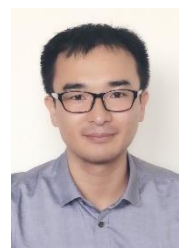
The adventure of running experiments with teenagers

Journal of Behavioral and Experimental Economics



Achieving Efficiency in Black-Box Simulation of Distribution Tails with Self-Structuring Importance Samplers

Operations Research



Deep learning based object detection from multi-modal sensors: an overview

Multimedia Tools and Applications

SUTD Author: Benjamin Prisse

"This paper is important to me because I come from an extremely rural French countryside and had little access to intellectual resources in my life. It was therefore important to me to orient my work toward people I could identify with, and I am proud to demonstrate that when you adapt your communication to them, these people have similar behavior than higher social status and urban members of society. I hope that this paper will increase the awareness of decision-makers on the fact that human resources are intrinsically available at all levels of society, and that you just need to understand what they value to communicate with them and engage them in the construction of society."

--- [Benjamin Prisse](#)

SUTD Author: Karthyek Murthy

"In the design of risk management tools for handling high-impact extreme events, can algorithms emulate the role of intricate instance-specific mathematical analysis in identifying the pathways by which such extreme events occur? In a first, this article presents a simple black-box algorithm for doing this, thereby opening the gates for accelerated measurement of the risks posed by high-impact black-swan events in complex financial and cyber-physical systems."

--- [Karthyek Murthy](#)

SUTD Author: Liu Jun

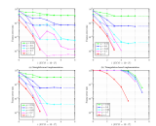
"Object detection with RGB cameras has made great progress. At the same time, people are more and more aware of the limitations of RGB cameras. Meanwhile, unmanned vehicles or mobile robot platforms are often equipped with various sensors besides RGB cameras, each of which has its own characteristics, and can expand the sensing range of RGB camera from different dimensions. For example, infrared thermal cameras and multispectral cameras broaden sensing range from spectral dimension, while LiDARs and depth cameras can broaden sensing range in the spatial dimension. This paper categorizes deep learning-based object detection methods under the condition of multi-modal sensors, and surveys methods from the perspective of data fusion manners."

--- [Liu Jun](#)



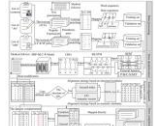
A Cooperative P2P Trading Framework: Developed and Validated Through Hardware-in-Loop
IEEE Transactions on Smart Grid

SUTD Author: Yuen Chau



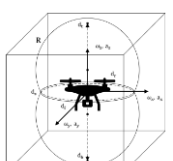
Basis-Finding Algorithm for Decoding Fountain Codes for DNA-Based Data Storage
IEEE Transactions on Information Theory

SUTD Author: Cai Kui



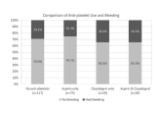
Disambiguation of medical abbreviations for knowledge organization
Information Processing & Management

SUTD Author: Su Tong



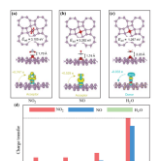
Enhancing UAV Flight Safety through Sensor-based Runtime Risk Assessment
IEEE World Forum on Internet of Things (WF-IoT)

SUTD Author: Lim Yong Zhi



Evaluation of factors associated with bleeding following haemodialysis catheter-related procedures and the risk with anti-platelet agents
Journal of Vascular Access

SUTD Authors: Khaw Jien-Yi, Foong Shaohui



Magnetic e-Phosphorene for Sensing Greenhouse Gas Molecules
Molecules

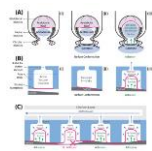
SUTD Author: Wu Qing Yun



Non-Intrusive Protection for Legacy SCADA Systems

IEEE Communications Magazine

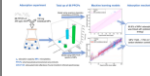
SUTD Author: Zhou Jianying



Passive Suction Enhanced Adhesion Pads for Soft Grippers

IEEE International Conference on Soft Robotics (RoboSoft)

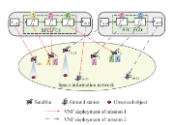
SUTD Authors: Chooi, A., Calais, T., Dontu, S.; Jain, S., Hiramandala, G., Kanhere, E., Valdivia y Alvarado, P., Ugalde, A. Castillo, Stalin, T.



Predicting adsorption capacity of pharmaceuticals and personal care products on long-term aged microplastics using machine learning

Journal of Hazardous Materials

SUTD Authors: Yao Jingjing, Yang Hui Ying



Space Information Network With Joint Virtual Network Function Deployment and Flow Routing Strategy With QoS Constraints

IEEE Journal on Selected Areas in Communications

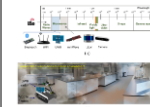
SUTD Author: Quek, Tony Q. S.



Utilizing Google Cardboard Virtual Reality for Visualization in Multivariable Calculus

IEEE Access

SUTD Authors: Cheong, Kang Hao, Joel Lai Weijia, Yap Jun Hong, Gideon Cheong Sian Wee, Stephanie Vericca Budiman, Omar Ortiz, Ankit Mishra



UWB Radar SLAM: An Anchorless Approach in Vision Denied Indoor Environments

IEEE Robotics and Automation Letters

SUTD Authors: Premachandra, H. A. G. C., Liu Ran, Tan U-Xuan

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