

February 2020

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!

Professor Tony Quek

ISTD Head of Pillar and Cheng Tsang Man Chair Professor

For serving as the Section Editor of *Wiley 5G REF.

*The Essential 5G reference Online is a large-scale, fully comprehensive, twice-yearly updating digital reference, planned for full release in 2020 to coincide with commercial deployment of 5G. This essential resource maps out a solid vision of emerging technologies widely foreseen to be adopted by 5G mobile systems, based on current business trends, proven technologies, and the latest international research.

CONGRATULATIONS!

Assistant Professor Carlos Banon and his team AIRLAB SINGAPORE for winning the ***German Design Award 2020 - Winner in the Excellent Product Design category** on their project -- ****AirTable**.

*The German Design Awards is one of the most renowned design competitions worldwide and enjoys an excellent reputation far beyond circles of experts. Those who beat out the high-calibre competitors have successfully proven that they are among the best.

**The winning table is a metal 3D Printed platform table is a sturdy yet feather light table, put together through a meticulous structural design and its concealed connection details to achieve a simple and elegant appearance with high performance.



Assistant Professor Carlos Banon and his team AIRLAB



Designing Ethics in Large-scale Socio-technical Systems
Ethics in Design and Communication Critical Perspectives

SUTD Author: Jeffrey Chan Kok Hui

"This chapter discusses the most recent developments in design ethics through two case studies namely on the dockless bikeshare program, and the development of autonomous vehicles (AV). Especially for the AV in situations of unavoidable harm, what are the moral algorithms involved and how should these algorithms be designed?"

--- Jeffrey Chan Kok Hui



Singapore's Multiculturalism: Evolving Diversity
Routledge

SUTD Author: Chan Heng Chee, Sharon Siddique, Ina Nurlina Masron and Dominic Cooray

"In the writing of this book, the author team set themselves the task of projecting the impact of current domestic and international social trends into the future, to anticipate what Singapore society might look like by around 2040."

--- Chan Heng Chee, Sharon Siddique, Ina Nurlina Masron and Dominic Cooray



The Role of Massive MIMO and Small Cells in Ultra - Dense Networks
Wiley 5G Ref

SUTD Author: Howard H. Yang and Tony Q. S. Quek

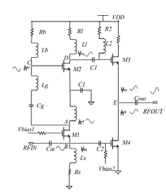
"This paper investigates the role of massive multiple -input multiple -output (MIMO) base station when deployed with small cells in ultra-dense networks setting by deriving the average downlink rate and providing the optimal small cell density that maximizes this rate, which can be used as a guideline for future small cell deployment."

--- Tony Q. S. Quek



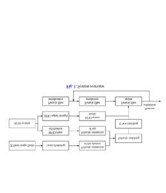
Ageing-Friendly Neighbourhoods in Singapore, Asia-Pacific, Europe and North America
Springer

SUTD Author: Belinda Yuen, Spela Mocnik, Freya Yu and Winston Yap



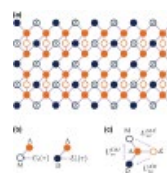
A High Gain, Noise Cancelling 3.1-10.6 GHz CMOS LNA for UWB Application
Computers Materials & Continua

SUTD Author: Chunpeng Ge



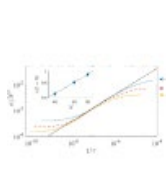
An Innovative Approach to Track Moving Object based on RFID and Laser Ranging Information
KSII Transactions on Internet and Information Systems

SUTD Author: Ran Liu



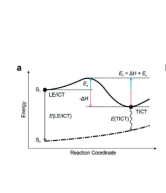
Holonomic Quantum Computation in Surface Codes
Physical Review Applied

SUTD Author: Chunfeng Wu



Interaction-impeded relaxation in the presence of finite-temperature baths
Physical Review A

SUTD Author: Ryan Tan, Xiansong Xu and Dario Poletti



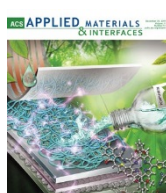
Quantitative Design of Bright Fluorophores and AIEgens by the Accurate Prediction of Twisted Intramolecular Charge Transfer (TICT)
Angewandte Chemie-International Edition

SUTD Author: Chao Wang, Weijie Chi, Davin Tan and Xiaogang Liu



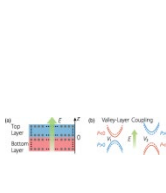
Sawtooth Method for Teaching Seismic Design Principles to Architecture Students
Journal of Architectural Engineering

SUTD Author: Elif E. Aydin



Simple-Structured NIR-Absorbing Small-Molecule Acceptors with a Thiazolothiazole Core: Multiple Noncovalent Conformational Locks and D-A Effect for Efficient OSCs
ACS Applied Materials & Interfaces

SUTD Author: Weijie Chi



Valley-Layer Coupling: A New Design Principle for Valleytronics
Physical Review Letters

SUTD Author: Zhiming Yu, Shan Guan, Xian-Lei Sheng, and Shengyuan A. Yang