

June 2018

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.



Experiments in Robust Trajectory Following of a Miniature Rolling and Spinning Robot on Outdoor Surfaces
Robotics and Autonomous Systems

SUTD Author: Abhra Roy Chowdhury, Gim Song Soh Shaohui Foong and Kristin L. Wood

"This research presents motion planning of a miniature surveillance robot in practical outdoor conditions. It is inspired from the locomotory patterns of insects in unstructured environment. Experimental results show that proposed nonlinear robust control strategy precisely tracks different paths on these irregular surfaces amidst parameter uncertainties and external disturbances."

--- Abhra Roy Chowdhury



Sheathless inertial cell focusing and sorting with serial reverse wavy channel structures
Microsystems & Nanoengineering

SUTD Author: Yinning Zhou, Zhichao Ma and Ye Ai

"Isolation of specific cell populations from complex biological samples is an essential process in various biological studies and clinical applications. We developed a high-throughput and label-free microfluidic cell sorting technology by simply flowing cells through a wavy microchannel. We have applied this technology to separate cancer cells from whole blood."

--- Ye Ai



Stock optimization for service differentiated demands with fill rate and waiting time requirements
Operations Research Letters

SUTD Author: Oguzhan Vicil and Peter Jackson

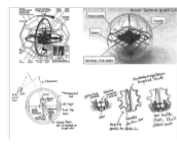
"Third-party logistics providers often maintain stocks of service parts on behalf of clients to satisfy their equipment repair needs. These providers enter into service contracts in which some clients pay for higher service levels than others. We show how to optimize the stock levels to meet these differentiated service levels."

--- Peter Jackson



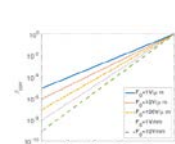
A 1-V to 0.29-V sub-100-pJ/operation ultra-low power fast-convergence CORDIC processor in 0.18- μ m CMOS
Microelectronics Journal

SUTD Author: Chao Wang



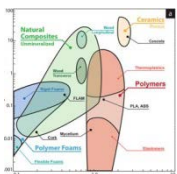
Does Analogical Distance Affect Performance of Ideation?
Journal of Mechanical Design

SUTD Author: Binyang Song, Jianxi Luo, Karupppasamy Subburaj, Mohan Rajesh Elara, Lucienne Blessing and Kristin L. Wood



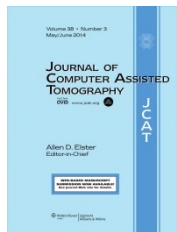
Fractional Fowler-Nordheim Law for Field Emission From Rough Surface With Nonparabolic Energy Dispersion
IEEE Transactions on Electron Devices

SUTD Author: Muhammad Zubair, Yee Sin Ang and Lay Kee Ang



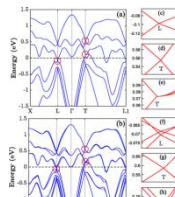
Large-scale additive manufacturing with bioinspired cellulosic materials
Scientific Reports

SUTD Author: Naresh D. Sanandiya, Yadunund Vijay, Marina Dimopoulou, Stylianos Dritsas, and Javier G. Fernandez



Multidetector Computed Tomography Imaging: Effect of Sparse Sampling and Iterative Reconstruction on Trabecular Bone Microstructure
Journal of Computer Assisted Tomography

SUTD Author: Karupppasamy Subburaj and Mookiah Muthu Rama Krishnan



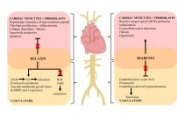
Nonsymmorphic cubic Dirac point and crossed nodal rings across the ferroelectric phase transition in LiOsO₃
Physical Review Materials

SUTD Author: Shengyuan A. Yang



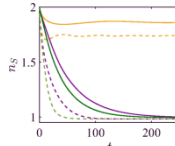
Quadratic systems with a symmetrical solution
Electronic Journal of Qualitative Theory of Differential Equations

SUTD Author: Kooij Robert



Relaxin as a Therapeutic Target for the Cardiovascular Complications of Diabetes
Frontiers in Pharmacology

SUTD Author: Chen Huei Leo



Stable-unstable transition for a Bose-Hubbard chain coupled to an environment
Physical Review A

SUTD Author: Chu Guo and Dario Poletti