

December 2019

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.



Automation versus Nationalism: Challenges to the Future of Work in the Software Industry
The SAGE Handbook of Media and Migration

SUTD Author: Raghunath Nilanjan

"This chapter uses a sociological lens to examine the loss of jobs within the computer industry due to the rise of automation. It also looks at the rise in protectionism of jobs in the computer industry through visa restrictions and software work being outsourced to countries with cheaper labour costs."

--- Raghunath Nilanjan



Experimental investigation of robotic 3D printing of high-performance thermoplastics (PEEK): a critical perspective to support automated fibre placement process
The International Journal of Advanced Manufacturing Technology

SUTD Author: Rajkumar Velu, Nahaad Vaheed, Murali Krishnan Ramachandran and Felix Raspall

"PEEK (polyetheretherketone): High-performance polymers that have better thermal and mechanical properties. Though fused deposition modelling was attempted earlier, more promising approaches such as robot-based extrusion method attained in this research. In particular, 3D printing mould structures using high-performance materials for automated fibre placement (AFP) process to fabricate composite structures."

--- Rajkumar Velu

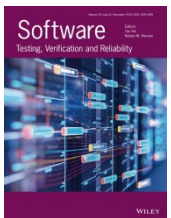


TechNet: Technology semantic network based on patent data
Expert Systems with Applications

SUTD Author: Serhad Sarica, Jianxi Luo and Kristin L.Wood

"We constructed a technology semantic network (TechNet) that covers the elemental concepts in all domains of technology and their semantic associations by mining the complete USPTO patent database. The TechNet may serve as an infrastructure to support a wide range of applications in the context of engineering and technology, and complement or enrich existing semantic databases."

--- Serhad Sarica



An exploration of effective fuzzing for side-channel cache leakage
Software Testing Verification & Reliability

SUTD Author: Chundong Wang and Sudipta Chattopadhyay



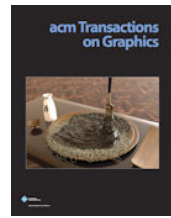
Containment and Connectivity in Dutch Urban Systems: A Network-Analytical Operationalisation of the Three-Systems Model
Tijdschrift Voor Economische En Sociale Geografie

SUTD Author: Ate Poorthuis



Data-Driven Intelligence on Innovation and Competition: Patent Overlay Network Visualization and Analytics
Information Systems Management

SUTD Author: Serhad Sarica, Bowen Yan and Jianxi Luo



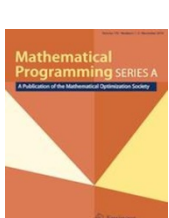
Design and Structural Optimization of Topological Interlocking Assemblies
ACM Transactions on Graphics

SUTD Author: Peng Song



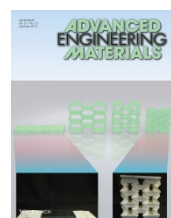
Design Multifunctional Catalytic Interface: Toward Regulation of Polysulfide and Li₂S Redox Conversion in Li-S Batteries
Small

SUTD Author: Shuang Fan, Shaozhan Huang, Mei Er Pam, Song Chen, Qingyun Wu, Junping Hu, Lay Kee Ang and Huiying Yang



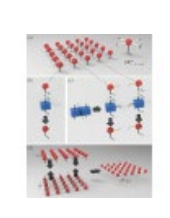
Exploiting partial correlations in distributionally robust optimization
Mathematical Programming

SUTD Author: Divya Padmanabhan, Karthik Natarajan and Karthyek Murthy



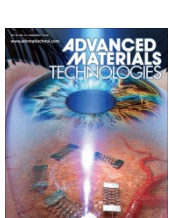
Fabrication of Complex 3D Fluidic Networks via Modularized Stereolithography
Advanced Engineering Materials

SUTD Author: Terry Ching and Michinao Hashimoto



General-Purpose Quantum Circuit Simulator with Projected Entangled-Pair States and the Quantum Supremacy Frontier
Physical Review Letters

SUTD Author: Junhua Liu and Dario Poletti



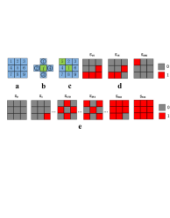
Induction Sintering of Silver Nanoparticle Inks on Polyimide Substrates
Advanced Materials Technologies

SUTD Author: Hong Wei Tan and Chee Kai Chua



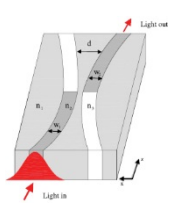
Microstructure evolution and mechanical property response via 3D printing parameter development of Al-Sc alloy
Virtual and Physical Prototyping

SUTD Author: Chee Kai Chua



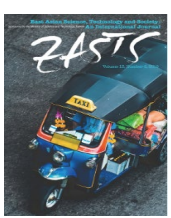
Ratcheting based on neighboring niches determines lifestyle
Nonlinear Dynamics

SUTD Author: Jin Ming Koh and Kang Hao Cheong



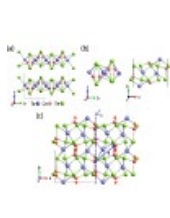
Shortcut to adiabatic light transfer in waveguide couplers with a sign flip in the phase mismatch
Journal of Physics D: Applied Physics

SUTD Author: Lay-Ke Ang



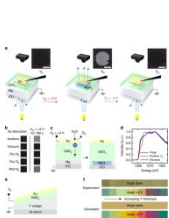
The Imagination of Singapore's Smart Nation as Digital Infrastructure: Rendering (Digital) Work Invisible
East Asian Science Technology and Society - an International Journal

SUTD Author: Thijs Willems



Two-dimensional antiferromagnetic Dirac fermions in monolayer TaCoTe₂
Physical Review B

SUTD Author: Si Li, Ying Liu, Zhi-Ming Yu, Yalong Jiao, Xian-Lei Sheng and Shengyuan A. Yang



Voltage-gated optics and plasmonics enabled by solid-state proton pumping
Nature Communications

SUTD Author: Hailong Liu, Qifeng Ruan, Joel K. W. Yang

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