

April 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.



## CONGRATULATIONS!

**Assistant Professor Georgios Piliouras**

**For being awarded the Singapore National Research Foundation Fellowship\* 2018 for his study on "Algorithmic Prediction and Practical Control of Large Scale Population Dynamics"**

*\*The Singapore NRF Fellowship aims to attract outstanding young scientists to carry out independent researches in Singapore over a five-year period.*



**A Linear Dynamical Systems Approach to Streamflow Reconstruction Reveals History of Regime Shifts in Northern Thailand**  
*Water Resources Research*

SUTD Author: Hung T. T. Nguyen and Stefano Galelli

*"Streamflow reconstruction is the study of river discharge in the distant past. Our dynamic streamflow reconstruction, the first of its kind, is five times more skilful than conventional method, and reveals a history of regime shifts that paints a different picture from instrumental record."*

--- Hung T. T. Nguyen



**A rapid and meshless analytical model of acoustofluidic pressure fields for waveguide design**  
*Biomicrofluidics*

SUTD Author: Richard O' Rorke, David Collins and Ye Ai

*"Acoustic waveguides are a promising candidate to localise force fields in microscale for precise manipulation. We have developed a rapid and meshless modelling tool for simulating acoustic pressure fields and applied this tool to design waveguide structures for producing localised acoustic traps capable of single cell manipulation."*

--- Ye Ai

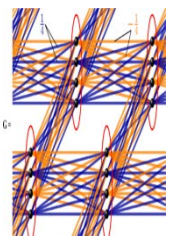


**Cytoskeleton Remodeling Induces Membrane Stiffness and Stability Changes of Maturing Reticulocytes**  
*Biophysical Journal*

SUTD Author: Trang Chu, Renugah Naidu and Rajesh Chandramohanadas

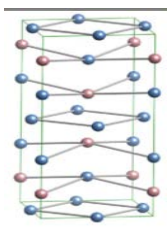
*"A collaborative research between SUTD, MIT and Brown University developed a new mathematical model that allows explaining molecular changes leading to morphological and mechanical alterations during human red blood cell maturation. This knowledge provides hitherto unavailable insights into pathological conditions wherein blood cell development and function are affected."*

--- Rajesh Chandramohanadas



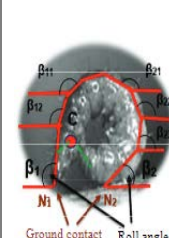
**Anonymous broadcasting of classical information with a continuous-variable topological quantum code**  
*Physical Review A*

SUTD Author: Tommaso F. Demarie



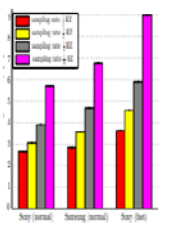
**Hybrid nodal loop metal: Unconventional magnetoresistance and material realization**  
*Physical Review B*

SUTD Author: Xiaoming Zhang, Zhi-Ming Yu, Xian-Lei Sheng, Hui Ying Yang and Shengyuan A. Yang



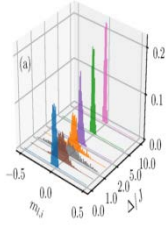
**Implementation of Caterpillar Inspired Rolling Gait and Nonlinear Control Strategy in a Spherical Robot**  
*Journal of Bionic Engineering*

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



**Indoor Positioning using Similarity-based Sequence and Dead Reckoning without Training**  
*IEEE 18th International Workshop on Signal Processing Advances in Wireless Communications*

SUTD Author: Ran Liu, Chau Yuen, Tri-Nhut Do and U-Xuan Tan



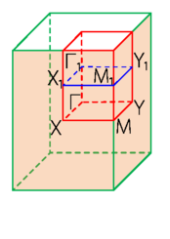
**Interplay of interaction and disorder in the steady state of an open quantum system**  
*Physical Review B*

SUTD Author: Xiansong Xu, Chu Guo, and Dario Poletti



**Leveraging the Trade-off between Accuracy and Interpretability in a Hybrid Intelligent System**  
*International Conference on Security, Pattern Analysis, and Cybernetics*

SUTD Author: Geok See Ng



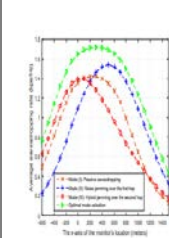
**Nodal surface semimetals: Theory and material realization**  
*Physical Review B*

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



**Pedagogical introduction to the entropy of entanglement for Gaussian states**  
*European Journal of Physics*

SUTD Author: Tommaso F Demarie



**Wireless Surveillance of Two-Hop Communications**  
*IEEE 18th International Workshop on Signal Processing Advances in Wireless Communications*

SUTD Author: Lingjie Duan