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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.



**Accurate profiling of blood components in microliter with position-insensitive coplanar electrodes-based cytometry**  
*Sensors and Actuators B: Chemical*

SUTD Author: Jianwei Zhong, Minhui Liang and Ye Ai

"Identification and counting of blood cell subtypes are essential for medical diagnosis, which is only accessible in centralized biomedical laboratories. Here, we developed a microfluidic single-cell electrical impedance measurement device that enables accurate profiling of blood components. This miniaturized device has great potential to provide point-of-care solution for blood analysis."

--- Ye Ai



**AI-Enabled Mosquito Surveillance and Population Mapping Using Dragonfly Robot**  
*Sensors*

SUTD Author: Archana Semwal, Lee Ming Jun Melvin, Rajesh Elara Mohan, Balakrishnan Ramalingam, and Thejus Pathmakumar

"This work presents an AI-enabled mosquito surveillance and population mapping framework using our in-house-developed robot, named 'Dragonfly', which uses the You Only Look Once (YOLO) V4 Deep Neural Network (DNN) algorithm and a two-dimensional (2D) environment map generated by the robot."

--- Archana Semwal



**Support vector machines as Bayes' classifiers**  
*Operations Research Letters*

SUTD Author: Peter L. Jackson

"We reformulate the problem of determining support vectors directly as an application of Bayes' classifiers rather than as the dual program to a binary geometric separation problem. The primary purpose of the reformulation is to create a simpler exposition of the support vector machines technique. A secondary advantage is that it immediately and naturally applies to multi-class classification problems where the kernel function can be normalized as a density."

--- Peter L. Jackson

**A practical physical watermarking approach to detect replay attacks in a CPS**  
*Journal of Process Control*

SUTD Author: Vishrut Kumar Mishra

**Automatic Microfluidic Cell Wash Platform for Purifying Cells in Suspension: Puriogen**  
*Analytical Chemistry*

SUTD Author: Xiaoguang Lu and Ye Ai

**Capacitance for fractal-like disordered dielectric slab**  
*Journal of Applied Physics*

SUTD Author: Samra Kanwal, Chun Yun Kee, Samuel Y. W. Low and Ang Lay Kee, Ricky

**Enhancing the MEP Coordination Process with BIM Technology and Management Strategies**  
*Sensors*

SUTD Author: Ya Hui Teo, Jun Hong Yap and Kang Hao Cheong

**Protecting Location Privacy by Multiquery: A Dynamic Bayesian Game Theoretic Approach**  
 IEEE Transactions on Information Forensics and Security

SUTD Author: Shu Hong and Lingjie Duan

**Resilience analysis of infrastructure systems in incremental design change**  
*Computers in Industry*

SUTD Author: Edwin C.Y. Koh

**Special issue introduction Public service motivation: global knowledge, regional perspective**  
*Asia Pacific Journal of Public Administration*

SUTD Author: Assel Mussagulova

**Understanding acceptance of shared autonomous vehicles among people with different mobility and communication needs**  
*Travel Behaviour and Society*

SUTD Author: Kristine Miller and Lynette Cheah

**Worst-Case Rigidity Analysis and Optimization for Assemblies with Mechanical Joints**  
*Computer Graphics Forum*

SUTD Author: Peng Song

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