

In the spotlight



Unifying Non-Markovian Characterization with an Efficient and Self-Consistent Framework

Physical Review

SUTD Author: Kavan Kishore Modi

Quantum computing holds great promise, but complex correlated noise is a major challenge. Unlike simple white noise, complex quantum noise includes correlations over space and time, scrambling quantum information to degrade the device performance. Traditional methods struggle to capture such noise fully. We present a new approach to characterize complex noise using only measurable and controllable experimental data. Our framework, built using tensor network learning, reconstructs the full noise landscape and captures intricate spacetime correlations missed by earlier models. We validate it through simulations and quantum hardware.

Our results show that we can now design quantum circuits that are better resistant to noise, leading to more accurate quantum operations. Ultimately, our work moves the field closer to building practical quantum devices that can better tolerate noise.



“Our results show that we can now design quantum circuits that are better resistant to noise, leading to more accurate quantum operations.”

- Kavan Kishore Modi

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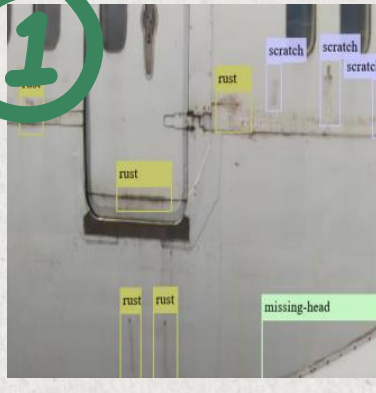


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Advances in Aircraft Skin Defect Detection Using Computer Vision: A Survey and Comparison of YOLOv9 and RT-DETR Performance

Aerospace

SUTD Authors: Nuchanon Suvittawat, Christian Kurniawan, Soh De Wen, Jetanat Datephanyawat, Liu Zhihao, Nuno Antunes Ribeiro, Jordan Tay

ISTD, ESD, ASI

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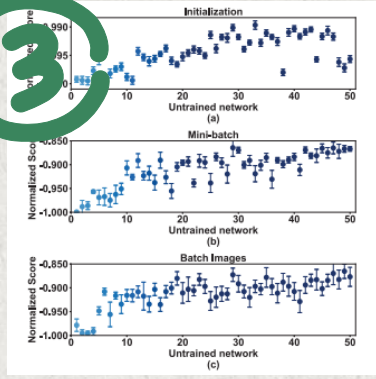
Spirits of Air and Goblins Damned: Life in the Light on the Six Realms Commentary

Religions

SUTD Author: Alastair Gornall

HASS

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RBFLX-NAS: Training-Free Neural Architecture Search Using Radial Basis Function Kernel and Hyperparameter Detection

IEEE Transactions On Neural Networks And Learning Systems

SUTD Authors: Tomomasa Yamasaki, Chen Niangjun, Wang Bo

ISTD

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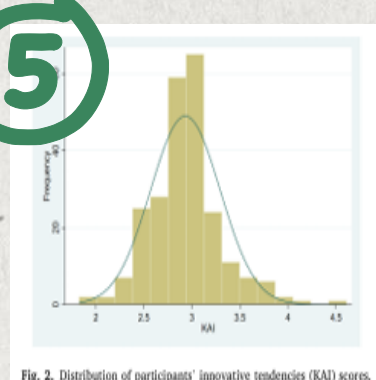
Sustainable and Selective Recycling of Lithium Metal from Spent Cathodes: Direct Pathway to Anode Regeneration

Advanced Functional Materials

SUTD Authors: Xu Yongtai, Li Wenjing, Li Xue Liang, Lin Congjian, Li Yifan, Lieu Wei Ying, Yang Liping, Li Yixiang, Yang Hui Ying

EPD

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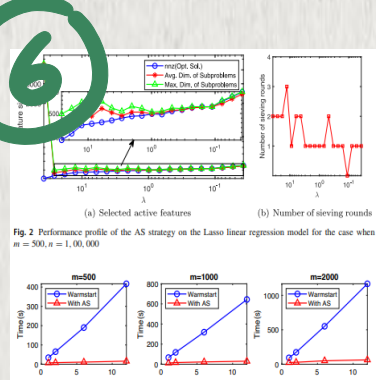
Adaptors' and innovators' failure tolerance and innovative tendencies in design-based learning

Thinking Skills And Creativity

SUTD Authors: Nachamma Sockalingam, Liu Shu Yuan, Huang Qian, Willems Thijs

Office of Strategic Planning, LKYCIC

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Adaptive sieving: a dimension reduction technique for sparse optimization problems

Mathematical Programming Computation

SUTD Author: Lin Meixia

ESD

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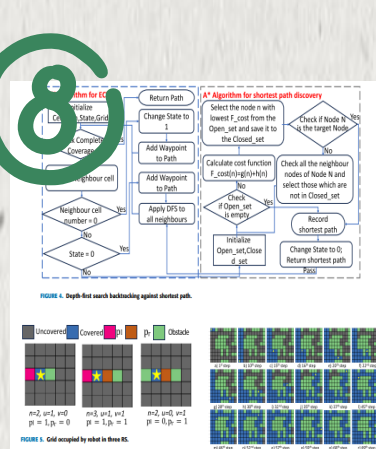
Decoherence-protected holonomic gates with reduced requirements for physical resources

Physical Review Applied

SUTD Authors: Wu Chunfeng, Feng Xun-Li

SMT

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Complete Coverage Path Planning Strategy for Reconfigurable Robot With Variable Footprint

IEEE Access

SUTD Authors: Tang Qinrui, Lim Yi, Wan Ash Yaw Sang, Abdullah Aamir Hayat, Mohan Rajesh Elara

EPD (ROAR Lab)

