

In the spotlight

Performance Assessment of ChatGPT versus Bard in Detecting Alzheimer's Dementia

SUTD Authors: Dr. Balamurali B.T. & Dr. Jer-Ming Chen
Science, Mathematics & Technology (SMT)

Large language models (LLMs), such as OpenAI's Generative Pre-trained Transformer (GPT) and Google's Bard, show promise in healthcare applications, including early disease detection and clinical assessment, by leveraging their capabilities in processing complex medical data. Building on this foundation, SUTD team (Dr. Balamurali B.T. & Dr. Jer-Ming Chen) conducted an exploratory investigation of the potential of ChatGPT-3.5, ChatGPT-4, and Google's Bard in distinguishing Alzheimer's dementia (AD) from cognitively normal (CN) individuals based on transcriptions of spontaneous speech. When presented with the transcribed speech text and independent prompts at two levels eliciting "if the narration could be by a CN or AD subject", the chatbots, in their 'as-is' form, generated three predictions – "AD", "CN", or "Unsure". When positively identifying AD, Bard produced the highest true-positives (89%), but tended to misidentify CN as AD; for positively identifying CN, GPT-4 resulted in the highest true-negatives at 56%. Overall, the three LLM chatbots identify AD, CN, surpassing chance-levels with various confidence levels, but do not currently satisfy the requirements for clinical application.



"Large Language Models dominate, but domain transformation and adaptation hold the key to unlocking their full potential, with far-reaching implications for cross-disciplinary applications and breakthroughs."

- Dr Balamurali B.T.

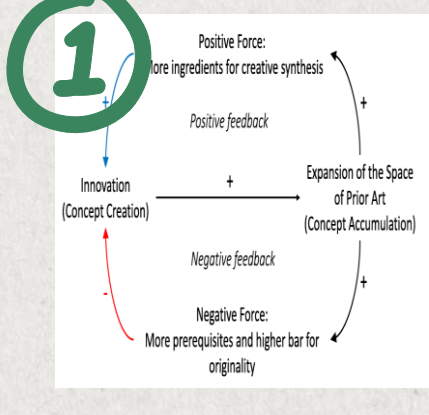


Congratulations! Assoc Prof. Yeo Kang Shua, ASD

for receiving two awards at the Singapore Institute of Architects Awards for his projects - Public Place Making Award and the Conservation Merit Award for the Bukit Timah Railway Station. This is in addition to the 2022 Singapore Institute Landscape Architects (SILA) awards: Gold Award in the Civic and Institutional Category.

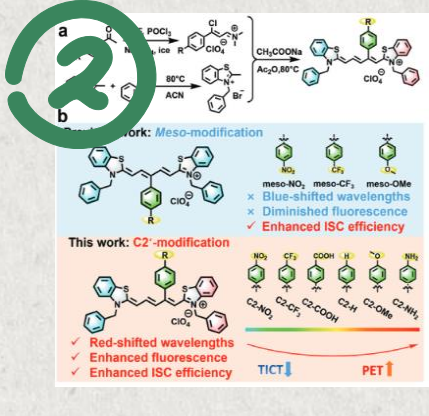


TRAILBLAZERS



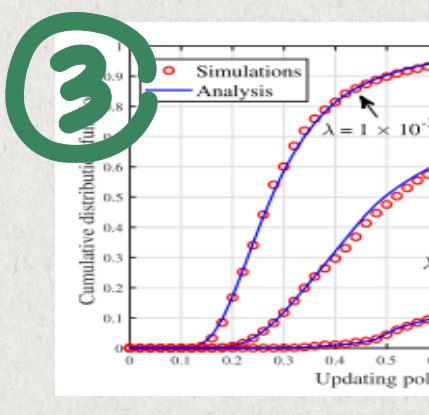
The innovation paradox: concept space expansion with diminishing originality and the promise of creative artificial intelligence

Design Science
SUTD Author: Serhad Sarica,
Data Driven Innovation Lab



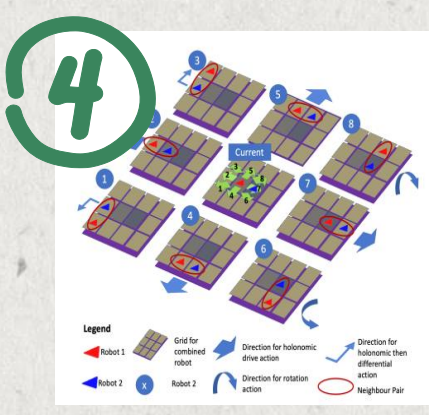
Aryl-Modified Pentamethyl Cyanine Dyes at the C2' Position: A Tunable Platform for Activatable Photosensitizers

Advanced Science
SUTD Authors: Syed Ali Abbas Abedi, Sphachok Chanmungkalakul, Liu Xiaogang
Fluorescence Research Group



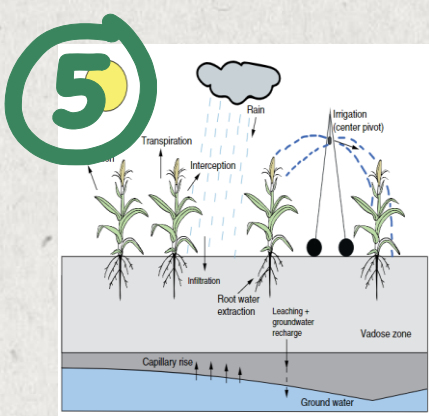
Locally Adaptive Status Updating for Optimizing Age of Information in Poisson Networks

IEEE Transactions On Mobile Computing
SUTD Author: Tony Quek Q. S.
Information Systems Technology and Design (ISTD)



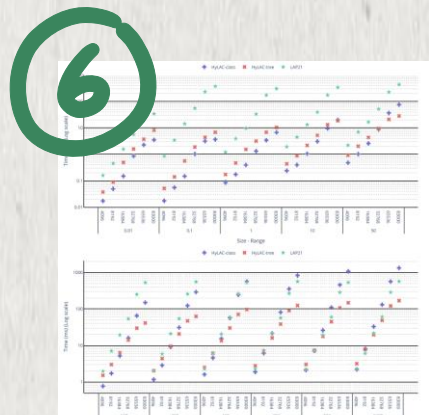
Inter-Reconfigurable Robot Path Planner for Double-Pass Complete Coverage Problem

Mathematics
SUTD Authors: Ash Wan Yaw Sang, Yang Zhenyuan, Yi Lim, Moo Chee Gen, Rajesh Elara Mohan
ROAR Lab, Engineering Product Development (EPD)



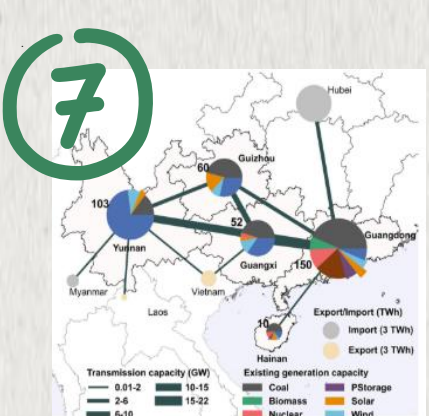
Data-driven parallel Koopman subsystem modeling and distributed moving horizon state estimation for large-scale nonlinear processes

AIChE Journal
SUTD Authors: Yan Qin
Engineering Product Development (EPD)



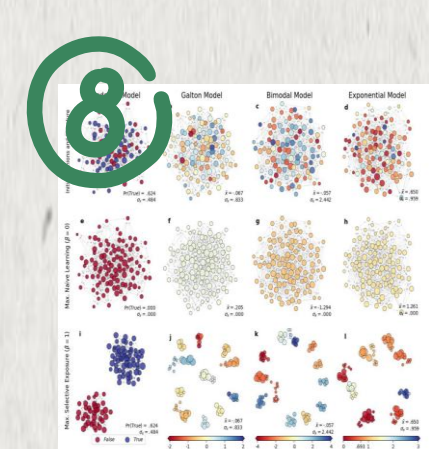
HyLAC: Hybrid linear assignment solver in CUDA

Journal Of Parallel And Distributed Computing
SUTD Author: Rakesh Nagi
Engineering Systems and Design (ESD)



China Southern Power Grid's decarbonization likely to impact cropland and transboundary rivers

Communications Earth & Environment
SUTD Author: Stefano Galelli
Engineering Systems and Design (ESD)



The functional aspects of selective exposure for collective decision-making under social influence

Scientific Reports
SUTD Author: Peh Jia Wang
Information Systems Technology and Design (ISTD)