

RESEARCH SEMINAR

Computationally Intelligent Problem-Solving in Complex Systems



Dr CHENG Ran

Associate Professor
Southern University of Science and Technology
China

Date : 25 July 2024 (Thu)
Time : 11:00 am - 12:00 nn
Venue : PQ703 / Online via Zoom

Abstract

Computational Intelligence (CI) is a major branch of AI that utilizes nature-inspired computational paradigms for complex problem-solving. Specifically, my research focuses on developing efficient and scalable CI approaches for solving optimization, decision-making, and modeling problems in complex systems. In this talk, I will first introduce some previous work, including representative algorithms and their applications in various scenarios. Then, I will present an ongoing project, EvoX, which aims to harness CI with advanced GPU computing technologies to enhance computational scalability and functional versatility. Finally, I will discuss potential future directions for broadening CI applications in modern engineering and scientific discovery, such as the synergy between CI and Large Language Models (LLMs) within the AI4Science framework.

About the Speaker

As the founder of the Evolving Machine Intelligence (EMI) Group and co-founder of the EvoX Project, Dr Cheng is currently a tenured Associate Professor with the Southern University of Science and Technology (SUSTech), China. Within the expansive realm of artificial intelligence (AI), his research delves into the intriguing study of Computational Intelligence, where the target is to deliver high-performance and intelligent computational approaches to optimization and modeling challenges in contemporary science and engineering.

Dr Cheng is the Founding Chair of IEEE Computational Intelligence Society (CIS) Shenzhen Chapter. He is serving as an Associated Editor/Editorial Board Member for several journals, including: ACM Transactions on Evolutionary Learning and Optimization, IEEE Transactions on Evolutionary Computation, IEEE Transactions on Emerging Topics in Computational Intelligence, IEEE Transactions on Cognitive and Developmental Systems, IEEE Transactions on Artificial Intelligence, etc.

Dr Cheng is the recipient of the IEEE Transactions on Evolutionary Computation Outstanding Paper Awards (2018, 2021), the IEEE CIS Outstanding PhD Dissertation Award (2019), the IEEE Computational Intelligence Magazine Outstanding Paper Award (2020). He has been featured as among the World's Top 2% Scientists (2021 - 2023) and the Clarivate Highly Cited Researchers (2023). I am a Senior Member of IEEE.