CMAI: Interface of Math and Artificial Intelligence Seminar
The Chinese University of Hong Kong

This CMAI Interface of Math and AI Seminar is organized by Centre for Mathematical Artificial Intelligence (CMAI), under Department of Mathematics at CUHK.

Date: May 15, 2024 (Wednesday)
Time: 10:00 am-11:30 am (Hong Kong Time)
Zoom Meeting: 905 330 9693

The AI Frontier in Protein Design: From Geometric Deep Learning to Large Models

Speaker: Prof. Yuguang Wang
Shanghai Jiao Tong University

Abstract: Since AlphaFold 2's breakthrough in solving the protein folding problem, a challenge that had perplexed human intelligence for over half a century, artificial intelligence has increasingly become a crucial and fundamental player in the fields of protein engineering and biopharmaceuticals. The application of geometric deep learning and large models in protein structure representation and protein sequence learning is bringing unprecedented changes to the field of protein design. These advanced technologies, through their close integration with biological experiments, not only provide powerful intelligent support tools for protein design and the entire synthetic biology production chain, but also continuously improve production efficiency, driving the development and creation of new synthetic biology products.

Bio: Yuguang Wang is currently an Associate Professor at the Institute of Natural Sciences and the School of Mathematical Sciences at Shanghai Jiao Tong University. He also holds adjunct associate professorships at the Shanghai Center for Applied Mathematics, Shanghai Artificial Intelligence Laboratory, and the University of New South Wales. Formerly a research scientist at the Max Planck Institute and a Ph.D. in Mathematics from the University of New South Wales. He has published over 60 top journal and conference papers in areas such as graph neural networks and large models, including in journals like Appl. Comput. Harmon. Anal., SINUM, FoCM, JMLR, Cell Reports Medicine, and top machine learning conferences such as ICML and NeurIPS, with three papers selected as spotlight articles at major AI conferences. In 2024, his team launched the first TourSynbio protein foundation model in China. In 2021, he was selected for the Shanghai Overseas High-Level Talent Plan.