Frontier of Artificial Network

Department of Data Science
香港城市大學
City University of Hong Kong

Mobile Edge Intelligence: When AI Meets Mobile Edge Computing

Invited Speaker
Hai Dong
RMIT University

Date: July 15, 2025 (Tuesday)
Time: 9:00 am-10:30 am (Hong Kong Time)
Zoom Meeting: 985 5244 5445

Biography

Dr. Hai Dong is currently a Senior Lecturer in the School of Computing Technologies at RMIT University, Australia. He is the leader of the Smart Sensing and Services Research Area and the co-founder and co-director of the CloudTech-RMIT Green Cryptocurrency Joint Research Lab (Green Crypto Lab). He is a Senior Member of IEEE and currently serves as the Chair of the Deep Edge Intelligence Task Force under the IEEE Computational Intelligence Society. He has published one monograph and around 90 CORE-A*/A-ranked journal and conference papers, including TOSEM, TIFS, TMC, TSC, TSE, AAAI, ACM MM, ASE, ESORICS, ICML, ICSOC, ICWS, etc. He has received several awards, including the Best Paper Award at ICSOC 2016 and IEEE ICBC 2025, as well as the 2023 RMIT Research Engagement and Impact Award. He has secured over AUD 5 million in government and industry research funding as a chief investigator. His primary research interests include service computing, edge intelligence, blockchain, information security, and machine learning.

Abstract

The convergence of AI and Mobile Edge Computing offers transformative opportunities, with Federated Learning (FL) emerging as a pivotal technology. However, FL faces numerous challenges in mobile edge environments, including addressing the non-independent and identically distributed nature of data on edge devices and mitigating their significant computation and communication overheads without compromising model accuracy. This seminar presents our recent advancements in tackling these challenges, emphasizing strategies to optimize FL and personalized FL for reducing overall and client-specific resource consumption while maintaining accuracy and scalability. Additionally, we explore the development of FL and other types of collaborative machine learning models for predicting the quality of service and trust of IoT services within mobile edge environments, highlighting their potential to enhance intelligent distributed systems.