



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

Cross-System Design for Metaverse in 6G

by

Dr. Changyang She
University of Sydney, Australia

Date : 10 August 2023 (Thursday)

Time : 11:00am – 12:00pm

Venue : Rm 801, Ho Sin Hang Engineering Building, CUHK

Abstract

As an emerging concept, the Metaverse has the potential to revolutionize the social interaction in the post-pandemic era by establishing a digital world for online education, remote healthcare, immersive business, intelligent transportation, and advanced manufacturing. The goal is ambitious, yet the methodologies and technologies to achieve the full vision of the Metaverse remain unclear. In this talk, I will first introduce the three infrastructure pillars that lay the foundation of the Metaverse, i.e., human-computer interfaces, sensing and communication systems, and network architectures. By taking synchronization problem as an example, I will illustrate how to jointly design sampling, communications, and prediction. The goal is to minimize the required communication load to achieve a target synchronization accuracy. A constrained deep reinforcement learning algorithm is developed to solve this problem. We validate the effectiveness of the algorithm with real-world data obtained from our prototype. Finally, I will discuss how to extend the co-design method into more practical scenarios.

Biography

Dr. Changyang She received his B. Eng degree in Honors College of Beihang University, Beijing, China in 2012 and Ph.D. degree from the School of Electronics and Information Engineering of BUAA in 2017. From 2017 to 2018, he was a postdoctoral research fellow at the Singapore University of Technology and Design. From 2018 to 2021, he was a postdoctoral research associate at the University of Sydney. He is the recipient of the Australian Research Council (ARC) Discovery Early Career Research Award (DECRA). Since 2021, he serves as the ARC DECRA fellow (Level B, Lecturer) at the University of Sydney. His research interests lie in the areas of ultra-reliable and low-latency communications (URLLC), deep learning in wireless networks, mobile edge computing, energy-efficient communications, and interdisciplinary research in the metaverse.

**** ALL ARE WELCOME ****