SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
FACULTY OF ENGINEERING
Website: https://cde.nus.edu.sg/ece

Area: Communications & Networks

Host: Dr Mei Weidong

TOPIC	**:**	**Enabling Smart Reflection in Integrated Air-Ground Wireless Network**
SPEAKER	**:**	**Mr Kang Zhenyu** **Graduate Student, ECE Dept, NUS**
DATE	**:**	**Monday, 3 January 2022**
TIME	**:**	**10.00AM to 10.30AM**
WEBINAR	**:**	**Join Zoom** **https://nus-sg.zoom.us/j/81475431205?pwd=TmlROHluOW85NjA5dTVyWUxDRHJiZz09** **Meeting ID: 814 7543 1205** **Passcode: 603300**

ABSTRACT

Intelligent reflective surfaces (IRS) and unmanned aerial vehicles (UAV) have emerged as two promising technologies to enhance the performance of wireless communication networks by proactively modifying wireless communication channels through intelligent signal reflection and maneuver control, respectively. However, in practice, they encounter several limitations that restrict their future applications. In this seminar, we propose new methods to jointly deploy IRS and UAVs in integrated air-ground wireless networks by leveraging their complementary advantages. Specifically, the terrestrial IRS is used to improve drone-ground communication performance, while the UAV-mounted IRS is employed to assist in the terrestrial communication. We present their promising application scenarios, new problems in communication design, and possible solutions. In particular, we show that it is practically beneficial to use both terrestrial and aerial IRSs in future wireless networks to take advantage of smart reflections in three-dimensional (3D) space.

BIOGRAPHY

Zhenyu Kang received his B.Eng. degree in 2018 from Harbin Institute of Technology in communication engineering, and M.Sc. degree in 2019 from National University of Singapore in electrical engineering. He is currently pursuing the Ph.D. degree with the Department of Electrical and Computer Engineering, National University of Singapore. His research interests include UAV communications, intelligent reflecting surface, and convex optimization.