

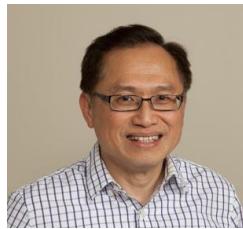
CITY UNIVERSITY OF HONG KONG

DEPARTMENT OF ELECTRONIC ENGINEERING & IEEE HK SECTION CAS/COM CHAPTER

Presents a seminar on

Drone-assisted Mobile Edge Computing

Prof Nirwan Ansari



IEEE Communication Society Distinguished Lecturer
New Jersey Institute of Technology (NJIT)

Date : 18 March 2019 (Monday)

Time : 10:30am - 11:30 am

Venue : G6315, 6/F, Green Zone, Yeung Kin Man Academic Building, CityU

Abstract

In mobile access networks, different types of Internet of Things (IoT) devices (e.g., sensor nodes and smartphones) will generate vast traffic demands, thus dramatically increasing the traffic loads of their connected access nodes, especially in the 5G era. Mobile edge computing enables data collected by IoT devices to be stored in and processed by local fog nodes as well as allows IoT users to access IoT applications via these nodes at the same time. In this case, the communications latency critically affects the response time of IoT user requests. Owing to the dynamic distribution of IoT users, drone base station (DBS), which can be flexibly deployed over hotspot areas, can potentially improve the wireless latency of IoT users by mitigating the heavy traffic loads of macro BSs. Drone-based communications poses two major challenges: 1) DBS should be deployed in suitable areas with heavy traffic demands to serve more users; 2) traffic loads in the network should be allocated among macro BSs and DBSs to avoid instigating traffic congestions. Therefore, we propose a TrAffic Load baLancing (TALL) scheme in such drone-assisted fog network to minimize the wireless latency of IoT users. In the scheme, we divide the problem into two sub-problems and design two algorithms to optimize the DBS placement and user association, respectively. Extensive simulations have been set up to validate the performance of TALL.

Biography

Nirwan Ansari is Distinguished Professor of Electrical and Computer Engineering at the New Jersey Institute of Technology (NJIT). He has also been a visiting (chair) professor at several universities.

Professor Ansari authored *Green Mobile Networks: A Networking Perspective* (IEEE-Wiley, 2017) with T. Han, and co-authored two other books. He has also (co-)authored more than 550 technical publications, over 250 published in widely cited journals/magazines. He has guest-edited a number of special issues covering various emerging topics in communications and networking. He has been serving on the editorial/advisory board of more than ten journals. His current research focuses on green communications and networking, cloud computing, drone-assisted networking, and various aspects of broadband networks. Professor Ansari was elected to serve in the IEEE Communications Society (ComSoc) Board of Governors as a member-at-large, has chaired some ComSoc technical and steering committees, has been serving in many committees such as the IEEE Fellow Committee, and has been actively organizing numerous IEEE International Conferences / Symposia / Workshops. He has frequently been delivering keynote addresses, distinguished lectures, tutorials, and invited talks. Some of his recognitions include IEEE Fellow, several Excellence in Teaching Awards, a few best paper awards, the NCE Excellence in Research Award, the ComSoc TC-CSR Distinguished Technical Achievement Award, the ComSoc AHSN TC Technical Recognition Award, the IEEE TCGCC Distinguished Technical Achievement Recognition Award, the NJ Inventors Hall of Fame Inventor of the Year Award, the Thomas Alva Edison Patent Award, Purdue University Outstanding Electrical and Computer Engineering Award, NCE 100 Medal, and designation as a COMSOC Distinguished Lecturer. He has also been granted 38 U.S. patents.

He received a Ph.D. from Purdue University, West Lafayette, IN, an MSEE from the University of Michigan, Ann Arbor, MI, and a BSEE (summa cum laude with a perfect GPA) from NJIT, Newark, NJ.

~~~ All are welcome ~~~