Seminar by the IEEE Ottawa Section, **Communications Society, Consumer Electronics Society, and Broadcast Technology Society Joint Chapter (ComSoc/CESoc/BTS),** Instrumentation & Measurement Society Chapter (IMS), Reliability Society and Power Electronics Society Joint Chapter (RS/PELS), IEEE Ottawa Educational Activities (EA) and Algonquin College IEEE Student Branch

IEEE Ottawa Section is inviting all interested IEEE members and nonmembers to a distinguished Lecture

Drone-assisted Mobile Edge Computing
By
Nirwan Ansari, Distinguished Professor of Electrical and Computer Engineering at the New Jersey Institute of Technology (NJIT)

DATE: Thursday, March 19, 2020.
TIME: Refreshments, Registration and Networking: 6:00 p.m.; Seminar: 6:30 p.m. – 7:30 p.m.
PLACE: Ciena Optophotonics Lab, Room T129, T-Building, School of Advanced Technology, Algonquin College, 1385 Woodroffe Ave., Ottawa, ON Canada K2G 1V8.
PARKING: Parking at Lots 8 and 9 after 5 p.m. is $5 flat rate, pay at a machine and display the ticket on your dashboard. Please respect restricted areas.
ADMISSION: Free. Registration required. To ensure a seat, please register by e-mail contacting: Wahab Almuhtadi.
MORE INFO: Ottawa ComSoc/CESoc/BTS Chapter website.

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.

Bio

Dr. Nirwan Ansari, Distinguished Professor of Electrical and Computer Engineering at the New Jersey Institute of Technology (NJIT), received his Ph.D. from Purdue University, MSEE from the University of Michigan, and BSEE (summa cum laude with a perfect GPA) from NJIT. He is a Fellow of IEEE and a Fellow of National Academy of Inventors.

He authored Green Mobile Networks: A Networking Perspective (Wiley-IEEE, 2017) with T. Han, and co-authored two other books. He has also (co-)authored more than 600 technical publications. He has guest-edited a number of special issues covering various emerging topics in communications and networking. He has served on the editorial/advisory board of over ten journals including as Associate Editor-in-Chief of IEEE Wireless Communications Magazine. His current research focuses on green communications and networking, cloud computing, drone-assisted networking, and various aspects of broadband networks. He 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, is current Director of ComSoc Educational Services Board, has been serving in many committees such as the IEEE Fellow Committee, and has been actively organizing numerous IEEE International Conferences/Symposia/Workshops. He is frequently invited to deliver keynote addresses, distinguished lectures, tutorials, and invited talks. Some of his recognitions include several excellence in teaching awards, a few best paper awards, the NCE Excellence in Research Award, several ComSoc TC technical recognition awards, 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, the NCE 100 Medal, and designation as a COMSOC Distinguished Lecturer. He has also been granted more than 40 U.S. patents.