UAVs in The Next Generation of Wireless Communication and Sensing Networks

Hamid Jafarkhani
Distinguished Professor
University of California, Irvine

Friday, October 3
10:30 A.M. • MSEE 112

Zoom link: https://purdue-edu.zoom.us/j/96506302101 ~ Meeting ID: 965 0630 2101

Abstract
Wireless networks of the future are envisioned to be highly heterogeneous. They will include flying nodes like UAVs as base stations, relays, and sensors. We will discuss the characteristics of the future wireless communication and sensor networks and present the role of UAVs. We will consider the deployment and trajectory optimization of these networks and adapt quantization theory to address the corresponding challenges. We will also discuss the optimization of the existing cellular networks for supporting legacy ground users and UAV corridors. We will argue that new network structures, like cell-free networks, are more suitable for many UAV networks. In addition to fundamental design challenges, we will present applications like wildfire prediction, tracking, and monitoring.

Bio
Hamid Jafarkhani is a Distinguished Professor at the Department of Electrical Engineering and Computer Science, University of California, Irvine. Among his awards are the NSF Career Award, the UCI Distinguished Mid-Career Faculty Award for Research, the School of Engineering Excellence in Research Senior Career Award, the School of Engineering Faculty Service Award, the IEEE Marconi Prize Paper Award in Wireless Communications, the IEEE Communications Society Award for Advances in Communication, the IEEE Wireless Communications Technical Committee Recognition Award, the IEEE Signal Processing and Computing for Communications Technical Recognition Award, and the IEEE Eric E. Sumner Award. He is the 2017 Innovation Hall of Fame Inductee at the University of Maryland's School of Engineering.

Dr. Jafarkhani is listed as an ISI highly cited researcher. According to Thomson Scientific, he is one of the top 10 most-cited researchers in the field of "computer science" during 1997-2007. He is a Fellow of AAAS, an IEEE Fellow, a Fellow of NAI, and the author of the book "Space-Time Coding: Theory and Practice.

Host
David Love, djlove@purdue.edu

PURDUE UNIVERSITY | Elmore Family School of Electrical and Computer Engineering