PRESENTS SEMINAR 221-3

Multiple RISs-Aided Networks: Performance Analysis and Optimization

Date: Tuesday, September 27, 2022
Time: 01: 30 PM – 02: 20 PM
Location: Bldg. 59-2018

Speaker:

Dr. Anas SALHAB
Electrical Engineering Department
King Fahd University of Petrpleum & Minerals
Dhahran, Eastern Province, Saudi Arabia

Abstract:

Reconfigurable intelligent surfaces (RISs) represent a new low-cost and less complicated solution to realize wireless communication with high energy/spectrum efficiencies. A RIS is an artificial surface, made of electromagnetic material, that is capable of customizing the propagation of the radio waves impinging upon it. It can reconfigure the propagation of incident wireless signals by adjusting the amplitude and phase shift of each element. As RISs do not require radio frequency (RF) chains, this remarkably reduces energy consumption and hardware costs, making RISs more economical and environmentally friendly than multi-antenna and relaying systems. In this talk, we investigate applying multiple RISs to aid a source in sending its message to destination. We first provide the signal and channel models, and then derive the required statistics needed for obtaining some performance metrics such as outage and symbol error probabilities. These achieved metrics are then used for formulating/solving some optimization problems and for evaluating the system performance. The effect of several system parameters on the system performance is addressed in this talk too.

Bio:

Anas M. Salhab was born in Hebron, Palestine. He received the Ph.D. degree in Electrical Engineering from King Fahd University of Petroleum & Minerals (KFUPM) in 2013. He served as an Assistant Director of Science & Technology Unit in the Deanship of Scientific Research in KFUPM for 7 years before joining in 2021 the Electrical Eningeering Dapartment in KFUPM where he is now an Assistant Professor. Dr. Salhab is a Senior Member of the IEEE. His current areas of research span various topics in wireless communications, including free space optical communications, reconfigurable intelligent surfaces, underwater wireless optical communications, mixed wireless communication systems, and unmanned aerial vehicles.

He was the head of the Digital Signal Processing Group at the EE Department. He is now the seminar coordinator of the Department. Member of Engineering Education Society, Signal Processing Society and Communications Society.