



Department of Engineering
Seminar Program
Wednesday, Mar 8, 2017
Shanahan Teaching and Learning Center
Lecture Hall 1430, 4:15pm

“Spread Spectrum Principles and Applications”

Ahmad Adib Shaar

Summary:

In this seminar I will review the principles of spread spectrum techniques and the original motivation behind spectrum spreading. I will also talk about the new motivations behind those techniques, especially in mobile communications. The talk will cover: sequential spreading, instantaneous spreading, chirp radar modulation, and processing gain. We will present the required properties of spreading sequences and the need for code-division multiple access CDMA. We will give an idea about the basic types of SSS sequence sets. After that, we will talk about the modern applications of CDMA in: fiber optics channels, radars, collision resolution algorithms, and in E-voting.

Bio:

AA Shaar gained his BSc. in Electronics-Radar, from the Military Technical College-Cairo in 1974. Gained his MSc. in digital communications in 1981, and his PhD. in computer networks in 1985, both from University of Kent at Canterbury, UK. He occupied the academic ranks: Lecturer, Assistant Prof, and full Professor. He had been appointed as: Head of department, College Vice Dean, Dean of research. He had joined the academic staff of: Military Engineering Academy (Syria), King Khaled University (Saudi Arabia), and Mamoun Private University (Syria). He taught, with love, Programming, Computer Science Algorithms, and Cryptography. He taught Radar Theory and Communication Theory for several years. He supervised a lot of BSc., MSc. and PhD. projects.

He published several papers in the reputational journals of IEE and IEEE. He is a Senior Member of IEEE. Invented (with PA Davies) Prime Codes. Developed the theory of one-coincidence sequence sets. Co-invented a new collision resolution algorithm. His engineering research interests include different aspects of coding, especially Code-Division-Multiple-Access. He has research interests in the field of intangible heritage, especially that of Aleppo. HMC in 2016 hosted him as a visiting prof. at HMC, 2016, after spending one year as a visiting professor at Salisbury University.