BUENAVENTURA SECTION

EDCAS CHAPTER

Compressive sensing techniques and their applications in spectrum sensing for cognitive radio applications

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Tues Oct 6, 2015 at 6:30 pm

Pizza 6:30 pm, talk 7 pm

Westlake Center, Room 107, 31416 Agoura Road #110

Westlake Village, CA 91361

Meetings are free and open to the public

Is it possible to reconstruct a signal using a limited number of samples below Nyquist theoretical limit? Under what conditions can this be possible? Is it possible to beat the speed of Fast Fourier Transform (FFT) implementations in estimating signal spectrum? Compressive sensing techniques have answers to those questions. Compressive sensing techniques have received recently a lot of attention in the signal processing research community as novel techniques to solve scalability problems and sampling limitations in many signal processing applications.

In this presentation, a gentle introduction to compressive sensing fundamentals will be provided. The introduction sheds the light o the conditions under which compressive sensing techniques can be applied. Then, the presentation will discuss the basic compressive sensing schemes and conclude with recent developments in building compressive Discrete Fourier Transform (DFT) algorithms.

Yahia Tachwali is an Research and Development Engineer at Keysight Technologies. He worked as a postdoctoral researcher at the Georgia Institute of Technology, in the Broadband Wireless Networking Lab under the supervision of Prof. Ian F. Akyildiz. He received his Ph.D. in Electrical and Computer Engineering from the University of Oklahoma in 2010. His doctoral research focused on building cognitive radios in small form factor platforms and investigated the use of compressive sensing techniques to perform efficient spectrum sensing operations. He has authored more than 20 journal articles and conference papers in the field of signal processing for cognitive radio applications. His research interests are: cognitive radio networks, the design and implementation of DSP algorithms on software radio platforms, spectrum sensing, machine learning, reconfigurable wireless systems, and compressive sensing techniques.