
MS Thesis Announcement

USRP2 IMPLEMENTATION OF OFDM CHANNEL ESTIMATION USING COMPRESSIVE SENSING

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Radio channel impairment is a major concern in any wireless system. Channel estimation is performed at the receiver to obtain the channel response in order to calculate the multipath channel effects. However the traditional way of using pilots for channel estimation has a tradeoff between spectral efficiency and estimation accuracy. An increasing amount of research is being done on a novel signal processing technique called compressive sensing and its applications in the modern day wireless systems for channel estimation.

The aim of this thesis is to investigate various modulation schemes in a software based radio development kit, GNU Radio for a wireless system and build a Compressed Sensing based Channel Estimator for the OFDM module on a Universal Software Radio Peripheral 2 (USRP2). Simulations for compressed channel sensing were conducted to prove the effectiveness over traditional channel estimation. The time domain based compressed channel estimator was implemented as a signal processing package in GNU Radio and performance studies were done.

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Committee Members: Dr. E. J. Charlson
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