

Title: Compressive Sensing for Spread Spectrum Receivers: A Faster and Simpler Approach

Name: Fawaz A R
University of Calicut, Calicut Dsitrict, 673635, INDIA

The classical receivers which uses Shannon-Nyquist sampling rate has a low power efficiency due to the high sampling rate imposed by the same. Also the production cost and receiver complexity is also high due to high storage requirement and processing time. Compressive Sensing (CS) is a relatively newly introduced measurement method which enables the successful recovery of the signal at a very low sampling rate compared to the Shannon Nyquist. The use of compressive sensing in Spread Spectrum (SS) systems has already been analyzed. In this paper we propose a faster and simpler receiver structure using DCT based recovery algorithm which has a greater performance than the existing CS based receivers used in SS systems. In this the paper the application of DCT based recovery algorithm is discussed. Numerical experiments are conducted and Bit Error Rate (BER) is calculated for various Signal to Noise Ratios (SNR). We conducted numerical experiments using wavelet based recovery algorithm also. The numerical experiments shows that for high SNR applications the receiver performs much faster than the already proposed one using CS and also classical receivers. The wavelet based recovery algorithms has performance comparable to DCT based recovery algorithm and is much faster than the state of art CDAMA system and classical SS receivers .

Biography

Fawaz has completed his bachelor's degree in Electronics and Communication engineering in 2013from University of Calicut and is currently pursuing postgraduate degree in communication engineering from university of calicut which is expected to be completed in august 2016.

Presenting author details

Full name: FAWAZ A R
Contact number: +91 8137811193
Twitter account:
Linked In account: https://in.linkedin.com/in/fawaz-a-r-7956b7118
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