Frequency Domain Estimation of Time Variant Channels in OFDM

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A Junior Project Proposal

Abstract

OFDM modulation combines the advantages of high achievable rates and relatively easy implementation. However, for proper recovery of the input, the OFDM receiver needs accurate channel information. Most algorithms proposed in literature perform channel estimation in the time domain. This increases the computational complexity especially for data aided algorithms and does not lend itself to multiaccess situations where the user is only interested in part of the spectrum. In this project, a frequency domain algorithm for channel estimation and tracking in OFDM is proposed. The algorithm is based on interpolating the spectrum (e.g., using piece-wise linear or quadratic interpolation) and tracking the interpolation parameters instead of tracking the actual response. The tracking algorithm proposed eventually boils down to a Kalman filter.