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Research Letter

Recursive Estimation and Identification of Time-Varying Long-Term Fading Channels

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Abstract

This paper is concerned with modeling of time-varying wireless long-term fading channels, parameter estimation, and identification from received signal strength data. Wireless channels are represented by stochastic differential equations, whose parameters and state variables are estimated using the expectation maximization algorithm and Kalman filtering, respectively. The latter are carried out solely from received signal strength data. These algorithms estimate the channel path loss and identify the channel parameters recursively. Numerical results showing the viability of the proposed channel estimation and identification algorithms are presented.