MLP/BP-based MIMO DFEs for distorted 16-QAM signal recovery in severe ISI channels with ACI disturbances

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Abstract

In this work, we base on multi-layered perceptron neural networks with backpropagation algorithm (MLP/BP) to construct multi-input multi-output (MIMO) decision feedback equalizers (DFEs). The proposal is used to recover distorted 16-point quadrature amplitude modulation (16-QAM) signal. From the simulations, we note that the proposed approach can recover severe distorted signals as well as suppress intersymbol interference (ISI), adjacent channel interference (ACI) and background additive white Gaussian noise (AWGN). As compared with a set of LMS DFEs, the proposed scheme can provide better BER and PER performance.

Keyword：Neural Network, MLP/BP, MIMO, DFE, 16-QAM