CONSTANT NORM ALGORITHMS FOR MIMO COMMUNICATION SYSTEMS (WedAmOR2)

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Abstract :

In this paper we present a new algorithm for blind source separation (BSS) based on the Constant Norm (CN) criterion for Multiple−Input Multiple−Output (MIMO) communication systems. The treated problem consists in blindly recovering (i.e. without the use of training sequences) the signals transmitted over a linear MIMO memoryless system, which introduces only Inter−User Interference (IUI). From the proposed algorithm, we deduce two other new algorithms designed especially for QAM modulation. The first one is named Constant sQuare Algorithm (CQA) and the second one, which is a weighting between the Constant Modulus Algorithm (CMA) and the CQA to get the advantages of both, is named Constant Dynamic Norm Algorithm (CDNA). At each iteration, the algorithms combine a stochastic gradient update and a Gram−Schmidt orthogonalization procedure. The simulation results show that the proposed algorithms have better performances compared to CMA and Multiuser Kurtosis Algorithm (MUK) with comparable complexity.

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