

Pre-Whitened Dithered Signed-Error Constant Modulus Algorithm For Efficient Blind Channel Equalization

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Summary

Blind channel equalization has gained great importance in the world of communications. Among a large number of available blind equalization algorithms, the CMA (constant modulus algorithm) enjoys widespread popularity because of its LMS-like complexity and robustness. Two important improvements on the CMA performance are the dithered signed-error CMA (DSE-CMA) and the pre-whitened CMA (PW-CMA). The DSE-CMA is an approach to reduce the computational complexity of the CMA while retaining its robustness and the PW-CMA aims at improving the convergence rate of the CMA in case of channels exhibiting large frequency response deviations. In this paper we review the two approaches and propose a new scheme combining the virtues of the two. The combined scheme is computationally simpler than the PW-CMA and provides better convergence than the DSE-CMA. It is particularly suited for the situations where ill-convergence needs to be treated with minimum additional complexity and without loss of robustness.

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