Convergence Analysis Of The Variable Weight Mixed-Norm LMS-LMFadaptive Algorithm

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Summary

In this work, the convergence analysis of the variable weight mixed-norm LMS-LMF (least mean squares-least mean fourth) adaptive algorithm is derived. The proposed algorithm minimizes an objective function defined as a weighted sum of the LMS and LMF cost functions where the weighting factor is time varying and adapts itself so as to allow the algorithm to keep track of the variations in the environment. Sufficient and necessary conditions for the convergence of the algorithm are derived. Furthermore, bounds on the step size to ensure convergence of the LMF algorithm are also derived