Abstract

This paper mainly concentrates on different mixture structures which include affine and convex combinations of several parallel running adaptive filters. The mixture structures are investigated using their final MSE values and the tracking of the nonlinear system is done using an ANN model that updates the filter weights using nonlinear learning strategies (it uses stochastic gradient descent to update the filter weights based on MSEs of mixture structures). The mixture structures greatly improve the convergence and performance of the constituent filters compared to traditional adaptive methods. The mixture structures employed in this paper can be applied to the constituent filters that employ different adaptation algorithms. We describe an adaptive neural network model that updates the weights of the filter using nonlinear methods.

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