

M.S. Apostolopoulou, D.G. Sotiropoulos, I.E. Livieris and P. Pintelas, [A Memoryless BFGS Neural Network Training Algorithm](#)

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Abstract - We present a new curvilinear algorithmic model for training neural networks which is based on a modifications of the memoryless BFGS method that incorporates a curvilinear linesearch. The proposed model exploits the nonconvexity of the error surface based on information provided by the eigensystem of memoryless BFGS matrices using a pair of directions; a memoryless quasi-Newton direction and a direction of negative curvature. In addition, the computation of the negative curvature direction is accomplished avoiding any storage and \bar{A} matrix factorization. Simulations results verify that he proposed modification significantly improves the efficiency of the training process.