



## ARTIFICIAL METAPLASTICITY CAN IMPROVE ARTIFICIAL NEURAL NETWORKS LEARNING

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**ABSTRACT**—Metaplasticity property of biological synapses is interpreted in this paper as the concept of placing greater emphasis on training patterns that are less frequent. A novel implementation is proposed in which, during the network learning phase, a priority is given to weight updating of less frequent activations over the more frequent ones. Modeling this interpretation in the training phase, the hypothesis of an improved training is tested on the Multilayer Perceptron type network with Backpropagation training. The results obtained for the chosen application show a much more efficient training, while at least maintaining the Multilayer Perceptron performance.

**Key Words:** Neural Networks, Backpropagation Training Algorithm, Metaplasticity, Binary Detection, Multilayer Perceptron