



# Comparing Deep Recurrent Networks Based on the MAE Random Sampling, a First Approach\*

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**Abstract**—Recurrent neural networks have demonstrated to be good at tackling prediction problems, however due to their high sensitivity to hyper-parameter configuration, finding an appropriate network is a tough task. Automatic hyper-parameter optimization methods have emerged to find the most suitable configuration to a given problem, but these methods are not generally adopted because of their high computational cost. Therefore, in this study we extend the MAE random sampling, a low-cost method to compare single-hidden layer architectures, to multiple-hidden-layer ones. We validate empirically our proposal and show that it is possible to predict and compare the expected performance of an hyper-parameter configuration in a low-cost way.

**Index Terms**—Deep learning, Recurrent neural network, MAE random sampling