

# ON THE EXISTENCE OF OPTIMAL SHALLOW NETWORKS

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In this talk, we discuss existence of global minima in optimisation problems over shallow neural networks. More explicitly, the function class over which we minimise is the family of all functions that can be expressed as artificial residual or feedforward neural networks with one hidden layer featuring a specified number of neurons with ReLU (or Leaky ReLU) activation. We give existence results. Moreover, we provide counterexamples that illustrate the relevance of the assumptions imposed in the theorems.

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