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**ROMAN VERSHYNIN**, University of California, Irvine

*Neural capacity*

How many Boolean functions can a given neural network compute? We find an formula that approximately determines this number for any fully-connected, feedforward network with any number of layers, virtually any sizes of layers, and with the threshold activation function. This capacity formula can be used to identify networks that achieve maximal capacity under various natural constraints. At the heart of our analysis is a fundamental question: how many different threshold functions are defined on a given subset  $S$  in  $\mathbb{R}^n$ ?