Dependence of Complexity of Neural Networks on Input Dimension

Vera Kurkova

Institute of Computer Science, Prague, Czech Republic
vera@cs.cas.cz

Abstract: The role of dimensionality in approximation by neural networks is investigated. Estimates from nonlinear approximation theory are used to describe sets of functions which can be approximated by neural networks with a polynomial dependence of model complexity on the input dimension. The results are illustrated by examples of Gaussian radial networks.

Keywords: neural networks, model complexity, input dimension