



Why

Definition

A *neural network* is a sequence of functions from with several properties. First, the codomain and domain of two subsequence functions in the sequence match. Second, each function is a composition of a function wit We associate a neural network with a predictor which is the composition of the functions in the sequence.

Notation

Let $g^1 : \mathbf{R}^d \rightarrow \mathbf{R}^k$, $g^2 : \mathbf{R}^k \rightarrow \mathbf{R}^k$, $g^3 : \mathbf{R}^k \rightarrow \mathbf{R}^m$. Then (g^1, g^2, g^3) is a neural network. Notice that the codomain of g^1 (\mathbf{R}^k

Activation functions

An activation function $h : \mathbf{R} \rightarrow \mathbf{R}$ is nonlinear.

