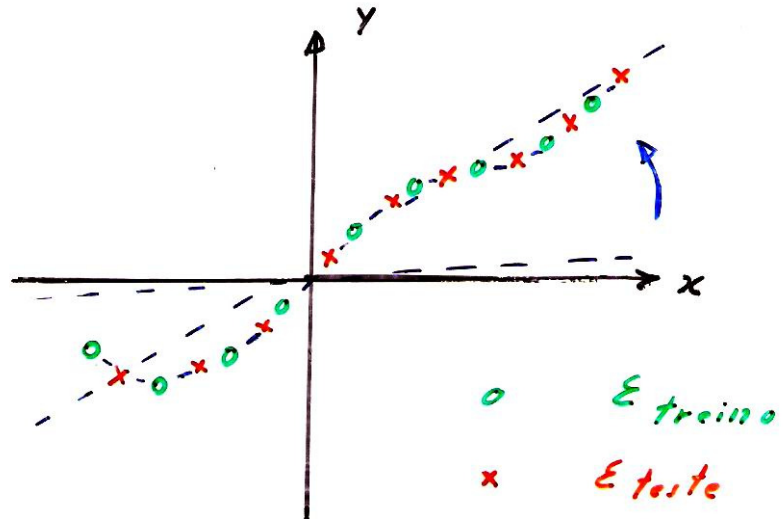


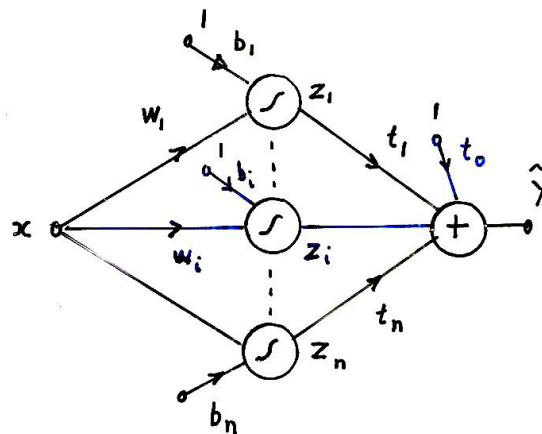
A rede neural como um aproximador (saídas contínuas)

Demo Aproximador

$$\begin{array}{ll} \underline{y} = \varphi(\underline{x}) & \tilde{y} = \varphi(\underline{x}) \\ y = \varphi(x) & \tilde{y} = \varphi(x) \end{array}$$

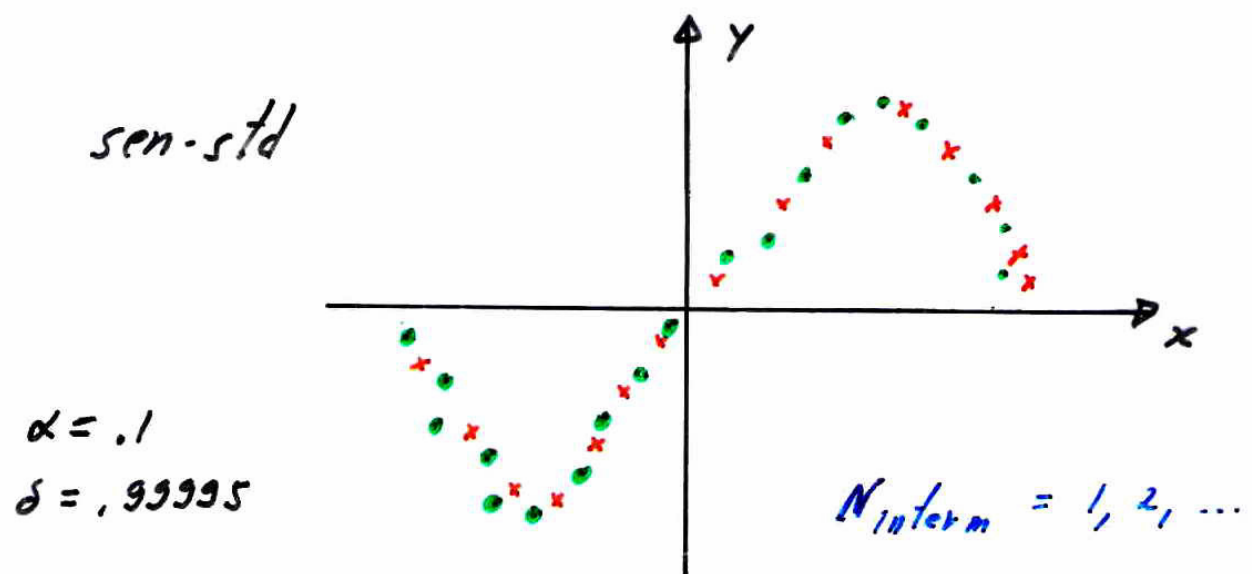


Rede Neural



numero de neurônios na camada intermediária ajustável
 passo treinamento α ajustável
 decaimento do passo α ajustável
 valores iniciais ajustáveis

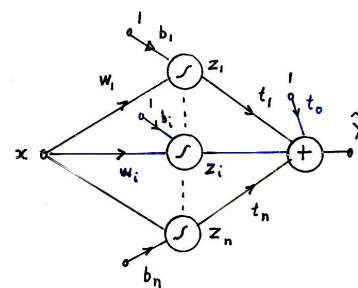
Exemplo 1



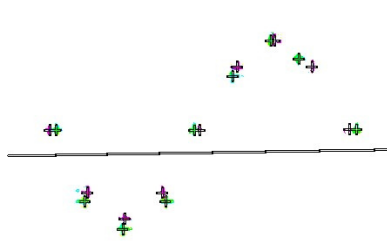
Evolução do treinamento e

Efeito do numero de neurônios na camada intermediária

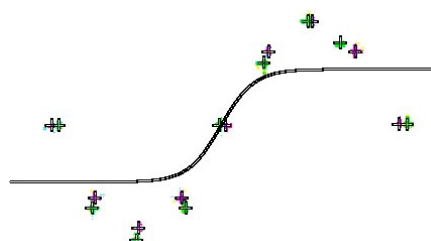
1 neurônio na camada intermediária



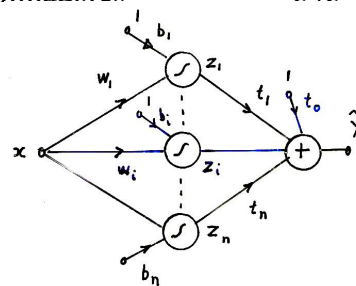
Início do treinamento



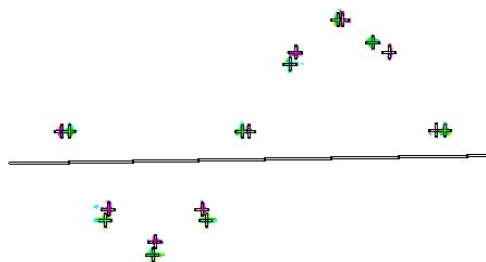
Fim do treinamento



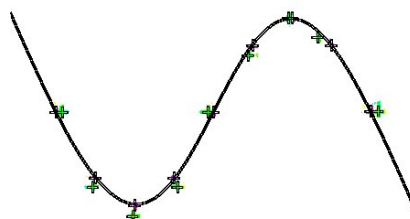
3 neuronios na camada intermediária



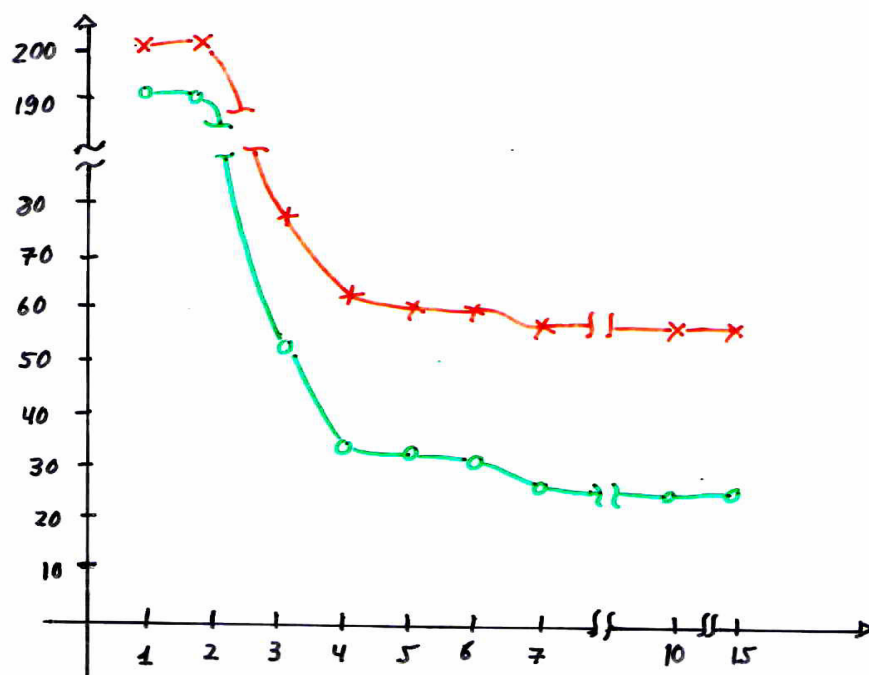
Início do treinamento



Fim do treinamento



Erro final vs número de neuronios

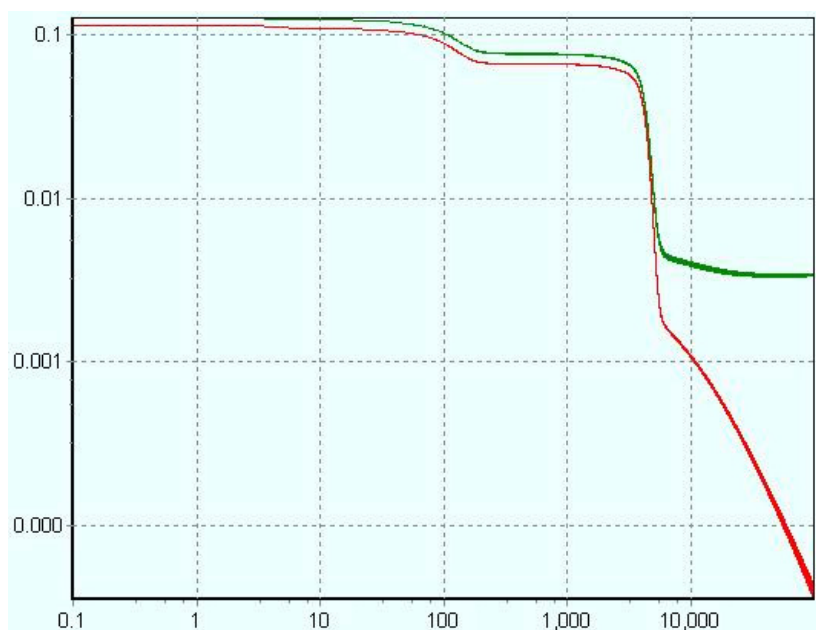


Evolução do erro ao longo do treinamento

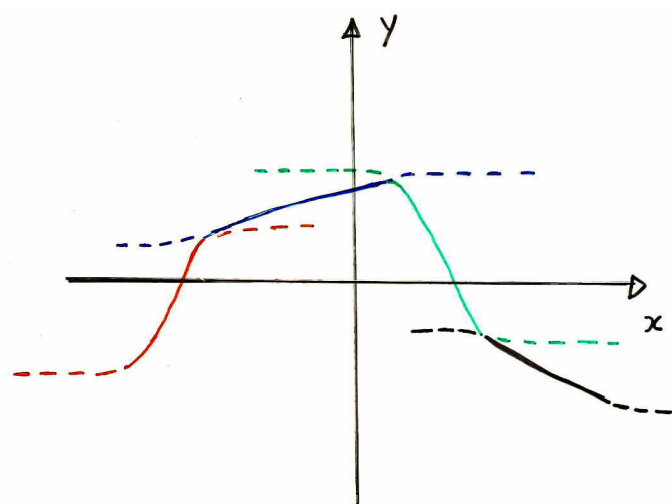
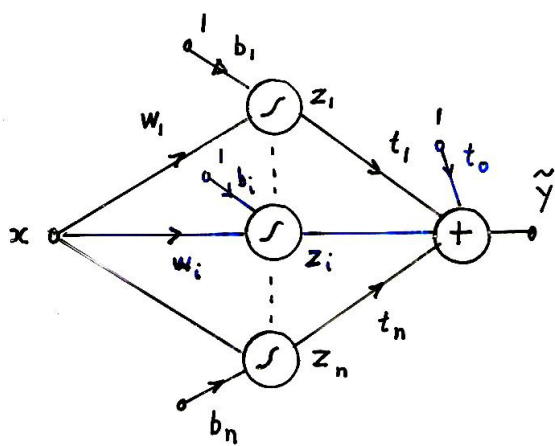
Erro vs passo

Decaimento do passo

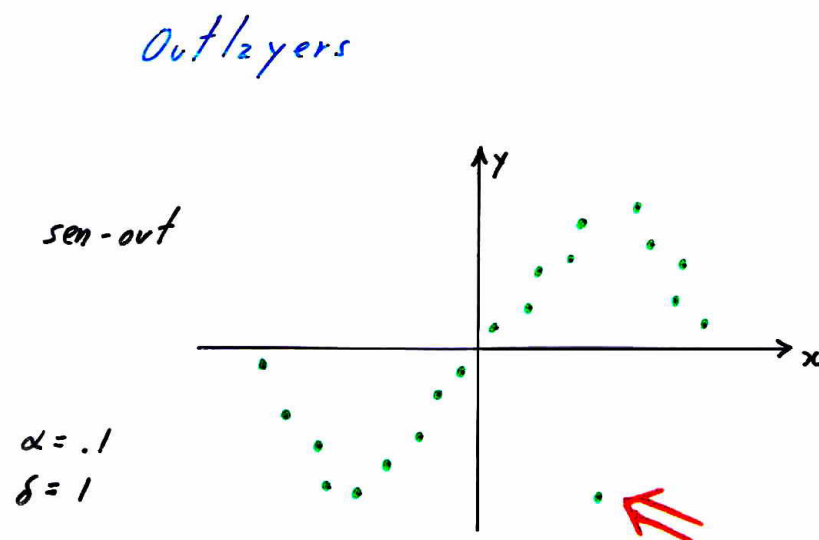
Overtraining



Composição da saída



Efeito de Outlayers



$$N_{int} = 3$$

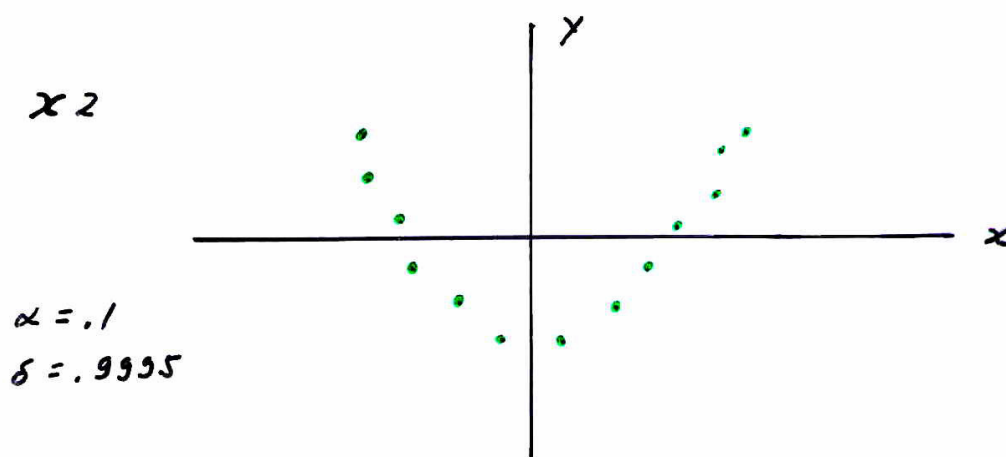
erros

$$N_{int} = 5$$

overtraining

Mínimos locais

Mínimos locais



$|W_{in}|$

.2

min. local

1

OK?

5

paralisa