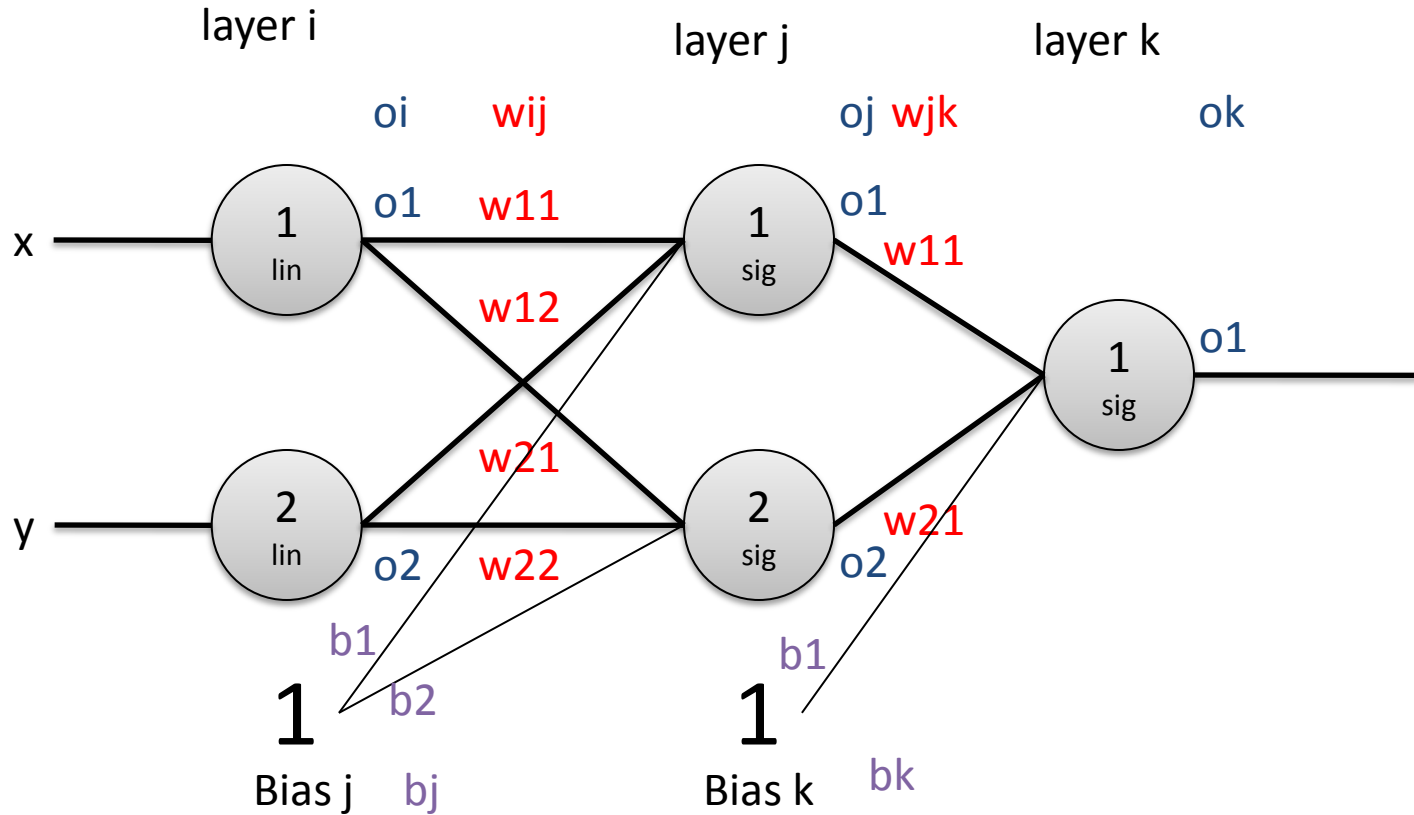


Backpropagation with 3 layer Perzeptron

Neuner Markus

2007

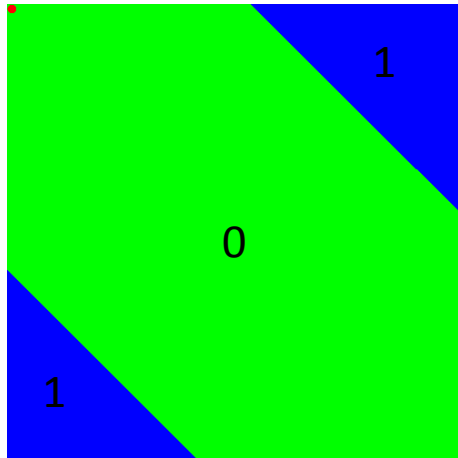
Topology



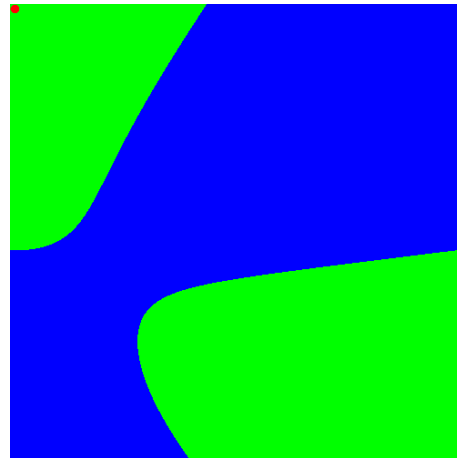
$$\delta_k = (t_k - o_k) o_k (1 - o_k); \Delta w_{jk} = \eta \delta_k o_j$$

$$\delta_j = o_k (1 - o_k) \sum_k \delta_k w_{jk}; \Delta w_{ij} = \eta \delta_j o_i$$

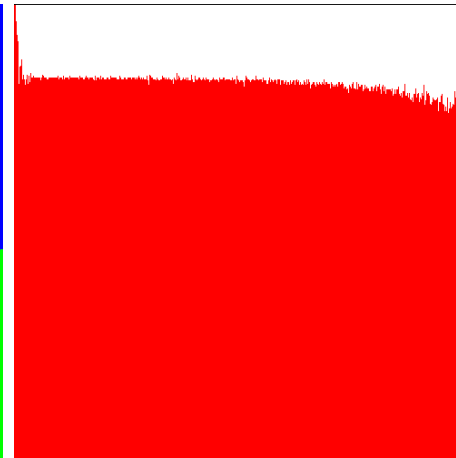
Test with XOR



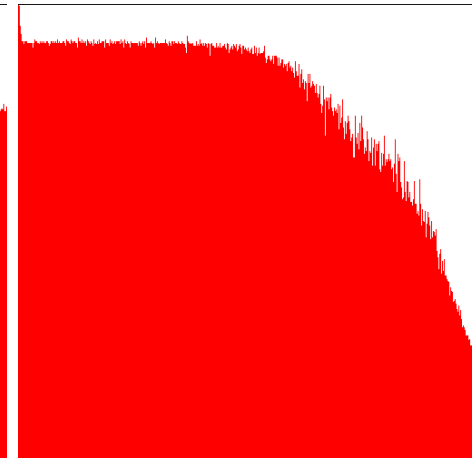
2-2-1



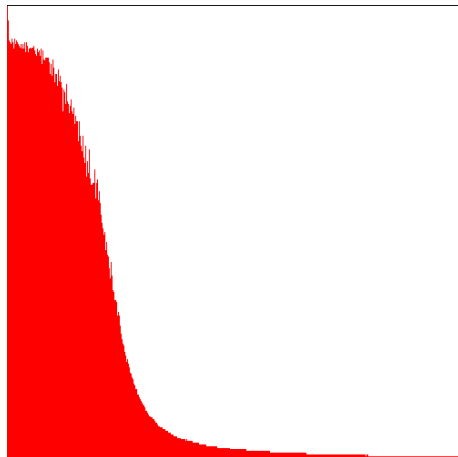
2-4-1



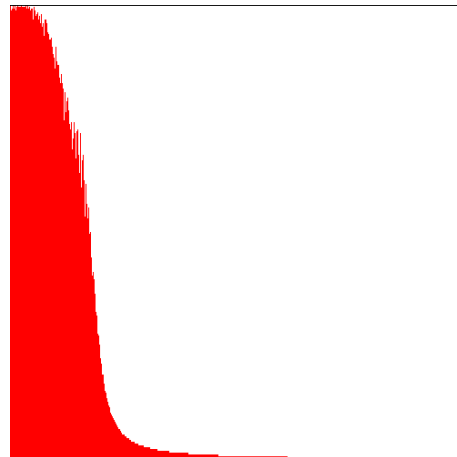
$\eta=0.01$



$\eta=0.025$



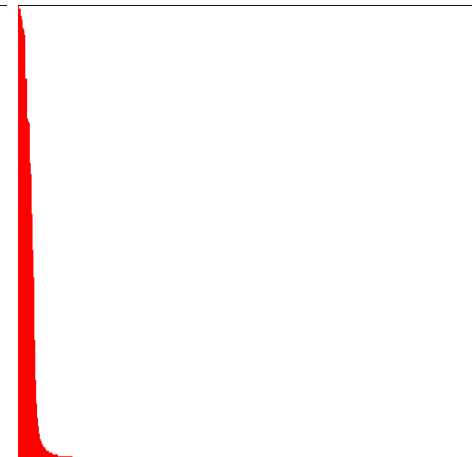
$\eta=0.05$



$\eta=0.1$



$\eta=0.2$



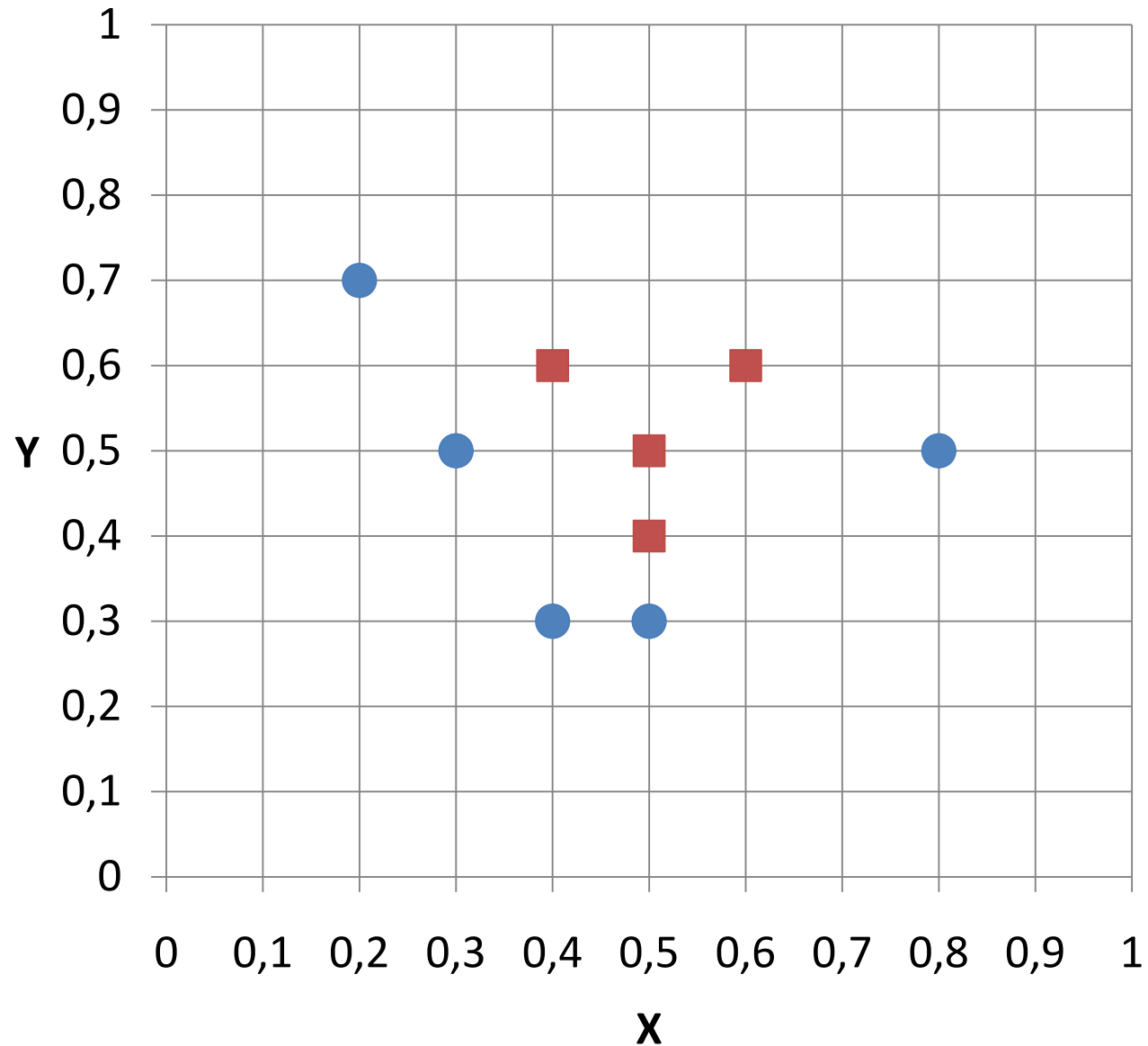
$\eta=0.6$

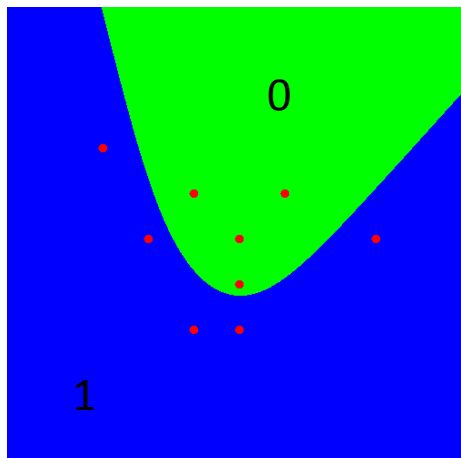
At 100.000 Trainingcycles

Classificationproblem

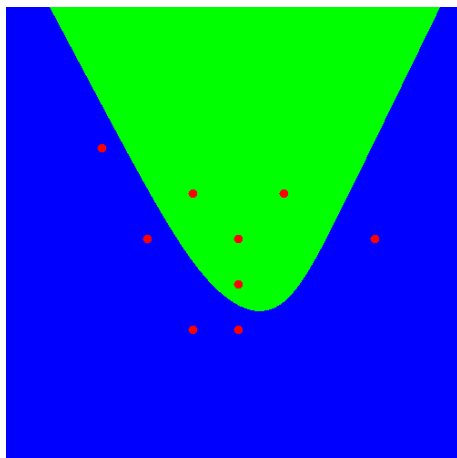
● Klasse 1 ■ Klasse 2

x	y	T
0,2	0,7	1
0,3	0,5	1
0,4	0,3	1
0,5	0,3	1
0,8	0,5	1
0,4	0,6	0
0,5	0,4	0
0,5	0,5	0
0,6	0,6	0

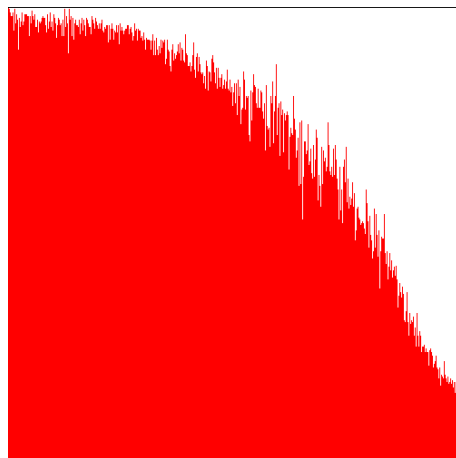




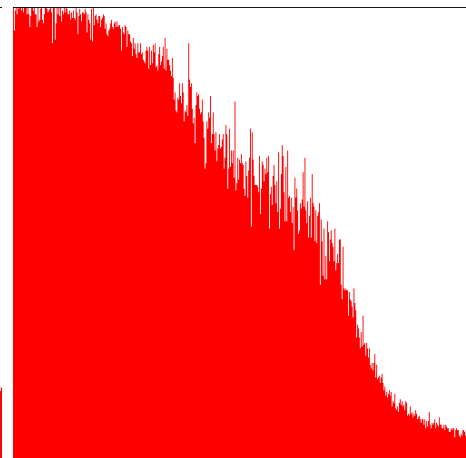
2-2-1



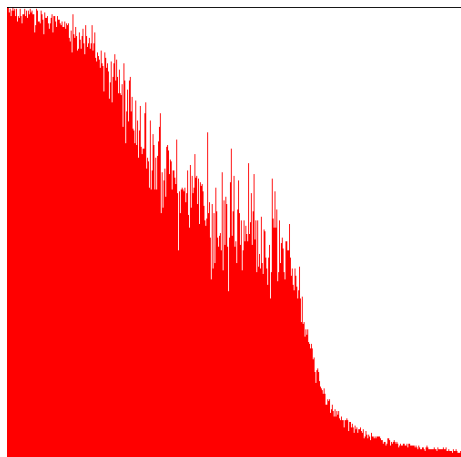
2-2-1



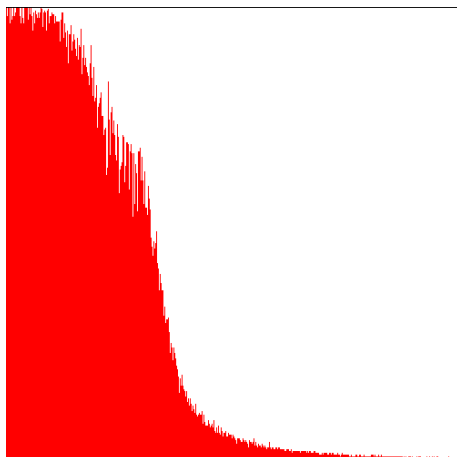
$\eta=0.075$



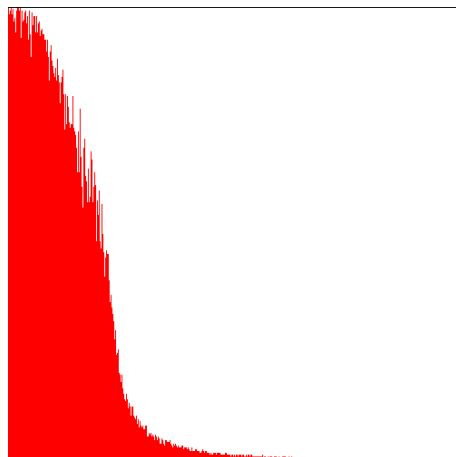
$\eta=0.1$



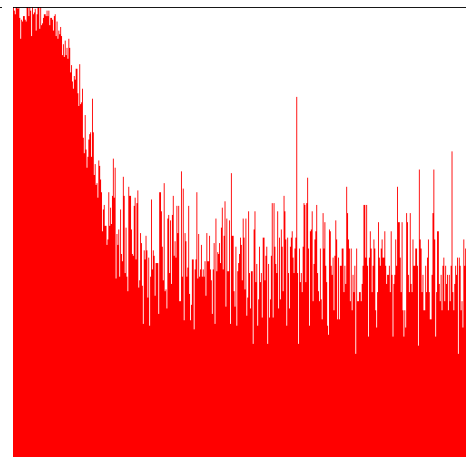
$\eta=0.15$



$\eta=0.2$



$\eta=0.3$



$\eta=0.4$

At 100.000 Trainingcycles