

Errata for *Machine learning with neural networks*
Bernhard Mehlig, Cambridge University Press (2021)

- p. 32 l. 3 $'\partial H/\partial s_m'$ should be replaced by $'-\partial H/\partial s_m'$.
- p. 32 l. 11 $'w_{ii} > 0'$ should be replaced by $'w_{ii} = 0'$.
- p. 32 l. 21 should read: $'H = -\frac{1}{2} \sum_{ij} w_{ij} g(b_i)g(b_j) + \sum_i \theta_i g(b_i) + \int_0^{b_i} db b g'(b),$
with $b_i = \sum_j w_{ij} n_j - \theta_i$, cannot increase...'
- p. 37 l. 16 replace $'\sqrt{N}'$ by $'N^{-1/2}'$.
- l. 17 replace $'\langle b_i(t) \rangle \sim N'$ by $'\langle b_i(t) \rangle = O(1)'$.
- p. 48 eq. (3.46) replace $'\langle n_i \rangle'$ by $'\langle s_i \rangle'$.
- p. 54 eq. (4.5c) replace $'-\beta b_m'$ by $'2\beta b_m'$.
- p. 55 eq. (4.5d) replace $'\beta b_m'$ by $'-2\beta b_m'$.
- p. 61 eq. (4.18) the sum should be over *distinct* patterns \mathbf{x} .
- p. 67 alg. 3 add superscripts $'(\mu)'$ to $'\delta w_{mn}'$, $'\delta \theta_n^{(v)}'$, and $'\delta \theta_n^{(h)}'$.
- p. 72 l. 12 the list should read '1, 2, 4, and 8'.
- p. 85 fig. 5.11 switch the labels '10' and '50'.
- p. 86 fig. 5.12 permute the axis labels clockwise for consistency with fig. 5.8.
- p. 93 fig. 5.22 switch the labels '1111' and '1101' in the right panel.
- p. 97 eq. (6.6a) insert $'V_n^{(\mu)}'$ before the $'\equiv'$ sign.
- p. 106 l. 18 should read 'a compromise, reducing the tendency of the network to overfit at the expense of training accuracy'.
- p. 117 fig. 7.5 the hidden neurons should be labeled ' $j = 0, 1, 2, 3$ ' from bottom to top.
- p. 118 fig. 7.6 exchange labels '1' and '2'.
- eq. (7.9) should read $'O_1 = \text{sgn}(-V_0 + V_1 + V_2 - V_3)'$.
- p. 121 fig. 7.10 change $'w^{(L-2)}'$ to $'w^{(L)}'$.
- p. 122 eq. (7.17) replace $'\mathbb{J}'$ by $'\mathbb{J}''$, also in the two lines above the equation.
- p. 123 eq. (7.19) should read $'\tilde{\delta}^{(\ell)} = \tilde{\delta}^{(L)} \mathbb{J}_{L-\ell}$ with $\mathbb{J}_{L-\ell} = [\mathbb{D}^{(L)}]^{-1} \mathbb{J}'_{L-\ell} \mathbb{D}^{(\ell)}'$.
- p. 131 eq. (7.45) replace $'O_i'$ by $'O_i'$.
- p. 139 l. 33 replace 'the Lagrangian (7.57)' by $'\frac{1}{2} \delta \mathbf{w} \cdot \mathbb{M} \delta \mathbf{w}'$.
- p. 160 l. 15 delete 'then $L_{ij} = \delta_{ij}$. In this case'.
- p. 161 l. 19 replace 'negative' by 'positive', and 'positive' by 'negative' in the next line.
- p. 171 l. 23 the upper limit of the second summation should be ' M '.
- p. 197 alg. 10 replace $'s_j = 0'$ by $'s_j = 1'$ in line 2 of Algorithm 10.
- p. 202 l. 37 replace 'positive' by 'non-negative'.
- p. 203 l. 21 should read 'Alternatively, assume that $\mathbf{w}^* = \mathbf{u} + i\mathbf{v}$ can be written as an analytic function of $\mathbf{r} = r_1 + ir_2 \dots'$.
- l. 27 add 'See Ref. [2]'
- p. 204 l. 5 replace $'\sin(2\pi x_1)'$ by $'\sin(\pi x_1)'$. Same in caption of fig. 10.17.
- p. 225 l. 5,6 replace 'two' by 'two (three)' and 'lost' by 'lost (drew)'.

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