

Seventh printing

Chapter 2

page 34 Eq. 44: Change “ $\Phi\Lambda^{-1/2}$ ” to “ $\Phi\Lambda^{-1/2}\Phi^t$ ”

page 47 *third line after Eq. 75*: Change “that minimizes $e^{-k(\beta)}$ ” to “that minimizes $P^\beta(\omega_1)P^{1-\beta}(\omega_2)e^{-k(\beta)}$ ”

page 48 Example 2, *line +3*: Change “4.11,” to “4.11157,”

page 48 Example 2, *line +4*: Change “0.016382.” to “0.008191.”

page 48 Example 2, second paragraph: Change “A tighter bound” to “A slightly tighter bound”

page 48 Example 2, second paragraph, *line +2*: Change “0.016380” to “0.008190.”

page 59 *top equation*: Change

$$\begin{aligned} &= 0.25 \times 0.6 \times 0.4 \times 0.5 \times 0.4 \\ &= 0.012. \end{aligned}$$

to

$$\begin{aligned} &= 0.25 \times 0.6 \times 0.6 \times 0.5 \times 0.4 \\ &= 0.018. \end{aligned}$$

page 61 *third line after Eq. 101*: Change “ $\alpha 0.066$ ” to “ $\alpha 0.042$ ”

page 61 *fourth line after Eq. 101*: Change “ $P(x_1|c_1, b_2) = 0.63$ and $P(x_2|c_1, b_2) = 0.37$ ” to “ $P(x_1|c_1, b_2) = 0.73$ and $P(x_2|c_1, b_2) = 0.27$ ”

page 61 Eq. 102: Replace equation by “ $P(\mathbf{a}, \mathbf{b}|\mathbf{x}) = P(\mathbf{a}|\mathbf{x})P(\mathbf{b}|\mathbf{x})$ ”

Chapter 3

page 87 *line -5*: Change “ $l(\boldsymbol{\theta})p(\boldsymbol{\theta})$ ” to “ $l(\boldsymbol{\theta}) + \ln p(\boldsymbol{\theta})$ ”

page 97 *line +3*: Change “Problem 17” to “Problem 18”

page 102 *line 5*: Change “*invarinace*” to “*invariance*”

page 102 *first line after Eq. 54*: Change “paramter” to “parameter”

page 107 *2 lines above Eq. 71*: Change “Problem 30” to “Problem 31”

page 111 *line -6*: Change “its determinant is an $O(d^2)$ ” to “its determinant is an $O(d^3)$ ”

page 111 Eq. 74: Change the annotations above the equation from “ $O(dn)$ $O(nd^2)$ $O(1)$ $O(d^2n)$ $O(n)$ ” to “ $O(dn)$ $O(nd^3)$ $O(1)$ $O(d^3)$ $O(n)$ ”

page 126 *first line of the equation at the middle of the page*: Change “ $|\boldsymbol{\theta}^0; \mathcal{D}_g]$ ” to “ $|\mathcal{D}_g; \boldsymbol{\theta}^0]$ ”

page 127 *lines -2- -1*: Change “ $x_{41} = 2$, so that $\mathbf{x}_4 = \begin{pmatrix} 2 \\ 4 \end{pmatrix}$ ” to “ $x_{41} = 1$, so that $\mathbf{x}_4 = \begin{pmatrix} 1 \\ 4 \end{pmatrix}$ ”

Chapter 4

page 173 *Algorithm 1, line 5*: Change “ $\mathbf{x} \in \omega_i$ ” to “ $\mathbf{x}_j \in \omega_i$ ”

page 173 *line after Eq. 28*: Change “each output unit” to “each category unit”

page 173 *two lines above Eq. 29*: Change “activation function function” to “activation function”

page 185 *line 1*: Change “ $O(dn^2)$ ” to “ $O(dn)$ ”

page 192 *line -7*: Change “is that that in the extreme cases the” to “is that in the extreme cases when the”

page 194 *3 lines above numbered list*: Change “we should deman” to “we should demand”

page 194 *one line above numbered list*: Change “Cox-Jaynes axioms):” to “Cox-Jaynes axioms), which includes:”

page 196 *Algorithm 4, line 4*: Change the small element below from “ $\mathbf{x} \notin \omega_i$ ” to “ $\mathbf{x}' \notin \omega_k$ ”

page 196 *Algorithm 4, line 5*: Replace equation portion by “ $\lambda_j \leftarrow \min[\max[D(\hat{\mathbf{x}}, \mathbf{x}'), \epsilon], \lambda_m]$ ”

page 200 *line -8*: Change “Jayne” to “Jaynes”

page 213 Replace reference [23] with: “Edwin T. Jaynes and G. Larry Bretthorst, *Probability Theory: The Logic of Science*, Cambridge U. Press, 2003.”

Chapter 5

page 221 *line +8*: Change “Figure 5.6 shows” to “Figure 5.5 shows”

page 221 *line -11*: Change “ $O(\hat{d}^k)$ ” to “ $O(d^k)$ ”

page 229 *Caption to Figure 5.12, line +4*: Change “this sequence is $\mathbf{y}_2, \mathbf{y}_3, \mathbf{y}_1, \mathbf{y}_3$ ” to “this sequence is $\mathbf{y}_1 + \mathbf{y}_2 + \mathbf{y}_3, \mathbf{y}_2, \mathbf{y}_3, \mathbf{y}_1, \mathbf{y}_3$ ”

page 252 *second unnumbered equation below Eq. 84, middle*: Change “ $-\eta \mathbf{e}^t(k) \mathbf{e}^{+t}(k)$ ” to “ $-\eta \mathbf{e}^t(k) \mathbf{e}^+(k)$ ”

page 266 *line +3*: Change “that $\mathbf{y} \in \mathcal{Y}_1$ ” to “that $\mathbf{y}_k \in \mathcal{Y}_1$ ”

page 266 *Eq. 113*: Change “ $\hat{\mathbf{a}}_i^t \mathbf{y}_k$ ” to “ $\hat{\mathbf{a}}_1^t \mathbf{y}_k$ ”

page 266 *9 lines above Sect. 5.12.2*: Change “we construct $(c-1)c\hat{d}$ -dimensional” to “we construct $(c-1)c\hat{d}$ -dimensional” (that is, add a space)

page 266 *8 lines above Sect. 5.12.2*: Change “into $c\hat{d}$ -dimensional” to “int $c\hat{d}$ -dimensional” (that is, add a space)

Chapter 6

page 340 *Problem 26, equation*: Change “ $-b$ net” to “ $-2b$ net” in three places

Chapter 8

page 396 *2 lines above Sect. 8.3:* Change “knowledge if of greatest” to “knowledge is of greatest”

page 413 8.5, lines 3 – 4: Change “nucleic acids” to “bases”

page 424 *line -7, right-hand side of equation:* Change “ $\alpha x \beta$ ” to “ $\alpha \gamma \beta$ ”

page 242 *line -5:* Change “ x is an intermediate or terminal symbol” to “ γ is a string made up of intermediate or terminal symbols”

page 424 *line -4:* Change “as x in” to “as γ in”

page 425 *top equation:* Change “ x ” to “ γ ”

page 245 *line +1* Change “and x an intermediate or termal symbol” to “and γ is a string made up of intermediate or terminal symbols”

page 425 *line +3:* Change “rewriting of I by x .” to “rewriting of I by γ .”

Chapter 9

page 461 *Equation 6, in the lower limit on the summation:* Change “ $r-2$ ” to “ $r = 2$ ”

page 468 *two lines above Eq. 16:* Change “error rate $\Pr[g(\mathbf{x}; \mathcal{D})] = y$ ” to “error rate $\Pr[g(\mathbf{x}; \mathcal{D})] \neq y$ ”

page 468 *Eq. 16, lhs:* Change “ $\Pr[g(\mathbf{x}; \mathcal{D})] = y$ ” to “ $\Pr[g(\mathbf{x}; \mathcal{D})] \neq y$ ”

page 468 *Eq. 17, lhs:* Change “ $\Pr[g(\mathbf{x})] = y$ ” to “ $\Pr[g(\mathbf{x})] \neq y$ ”

page 468 *Eq. 17, rhs:* Change “ $\Pr[y_B(\mathbf{x}) = y]$ ” to “ $\Pr[y_B(\mathbf{x}) \neq y]$ ”

page 469 *Eq. 21:* Change “ $e^{-1/2u^2}$ ” to “ $e^{-u^2/2}$ ”

Chapter 10

page 529 *line -1:* Change “as given by Eq. 17.” to “that is, each point belongs in only one cluster.”

page 549 *Eq. 75, middle line, rhs, subscript on the summation:* Change “ $\mathbf{x} \in \mathcal{D}_i$ ” to “ $\mathbf{x} \in \mathcal{D}_j$ ”

page 552 *Algorithm 4, line 5:* Change “ $c = \hat{c}$ ” to “ $\hat{c} = c$ ”

page 553 *one line above The Nearest-Neighbor Algorithm:* Change “ $O(cn^2d)$ ” to “ $O(n^2(c+d))$ ”

page 556 *Algorithm 5, line 5:* Change “ $c = \hat{c}$ ” to “ $\hat{c} = c$ ”

page 557 *line 14 of Sect. 10.10:* Change “decrease rapidly until $\hat{c} = c$ ” to Change “decrease rapidly until $c = \hat{c}$ ”

page 559 *last three lines*: Change “For reasons that will become clear, each d -dimensional pattern is augmented (with $x_0 = 1$) and normalized” to “Each d -dimensional pattern is augmented (with $x_0 = 1$) and, for reasons that will become clear, normalized”

page 571 *line -1*: Change “Jacobean” to “Jacobian”

page 577 Chaption Figure 10.28, line -3: Change “sensed point, thought” to “sensed point, though”

page 577 Eq. 113: Change “ ϕ_i ” to “ $(\phi_i - \mathbf{w}_{ki}(t))$ ”