

List of Errata for the Book

Mathematical Pictures at a Data Science Exhibition

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This list was last updated on April 9, 2025. Please notify me of further errors by sending an e-mail to foucart@tamu.edu.

Chapter 4: Support Vector Machines

- Page 25, Theorem 4.1: one can even conclude that

$$T \leq \left\lfloor R^2 \|\tilde{w}^*\|_2^2 \right\rfloor,$$

i.e., replace the ceiling by the floor. To see this, at the end of the proof, notice that a contradiction arises if $T > R^2 \|\tilde{w}^*\|_2^2$, which leads to $T \leq R^2 \|\tilde{w}^*\|_2^2$ and in turn, since T is an integer, to $T \leq \left\lfloor R^2 \|\tilde{w}^*\|_2^2 \right\rfloor$

- Page 28, Line 8: In the first summation, the upper limit should read m , not n

Chapter 5: Reproducing Kernel Hilbert Spaces

- Page 40, Exercise 5.5: one should also assume the subspace \tilde{H} to be closed

Chapter 20: Snippets of Linear Programming

- Page 172, Line 31: the supports S^{k+1} and S^k should be indexed using superscripts, not subscripts
- Page 175, Exercise 20.2: $k \in [1 : n]$ should read $k \in [1 : d]$ instead

Chapter 25: Expressiveness of Shallow Networks

- Page 217, Lines 14 and 16: the set $\{\exp(\langle v_i, x \rangle), x \in \mathcal{X}\}$ should be replaced by the set $\{\langle v_i, x \rangle, x \in \mathcal{X}\}$

Appendix B: Probability Theory

- Page 269, Line 9: an opening parenthesis is missing before ρ

- Page 270, Line 14: The assertion that the $\varepsilon_{i,j}$ are independent is unjustified and, in fact, incorrect. Refer to the original argument of [T. Cai, A. Zhang, ROP: Matrix recovery via rank-one projections. The Annals of Statistics, 43/1, 102–138, 2015] while I rectify the proof of Theorem B.12

Appendix D: Matrix Analysis

- Page 295, Line 13: a factor 2 is missing for the middle sum

Appendix E: Approximation Theory

- Page 299, Line 8: instead of ' $u(z) \neq 0$ ', one should read ' $u(y) \neq 0$ '
- Page 301, Line 15: $\|F\|_{\mathcal{X} \times \mathcal{X}}$ should be $\|F\|_{C(\mathcal{X} \times \mathcal{X})}$