

# **Errata**

Textbook of Machine Learning and Data Mining  
with Bioinformatics Applications

Hiroshi Mamitsuka

March 11, 2019

©2018 by Global Data Science Publishing.

All rights reserved. No part of this book may be reproduced, stored, or transmitted by any means without written permission from the author. The information in this book is deemed highly reliable, but the author cannot be held responsible for any consequences of using the information it contains.

International Standard Book Number (ISBN): 978-4-9910445-0-2

Library of Congress Control Number: 2018956749

# Errata

## Chapter 2.

### P.4

1.19 do → does

1.19 variable → variables

### P.5

1.10 an → a

### P.7

1. 22 examples → example

## Chapter 3.

### P. 37

1. 15: (3.49)

$$\frac{\partial f(\mathbf{U}, \mathbf{V})}{\partial U} \rightarrow \frac{\partial L(\mathbf{U}, \mathbf{V})}{\partial U}$$

1. 16: (3.50)

$$\frac{\partial f(\mathbf{U}, \mathbf{V})}{\partial V} \rightarrow \frac{\partial L(\mathbf{U}, \mathbf{V})}{\partial V}$$

1. 95 the means → the mean

**P.39**

**1.2: (3.54)**

$$U_{i,k} \frac{(\mathbf{X}\mathbf{V})_{i,k}}{(\mathbf{U}\mathbf{V}^\top\mathbf{V})_{i,k}} \rightarrow U_{i,k} \frac{(\mathbf{X}\mathbf{V})_{i,k}}{(\mathbf{U}(\mathbf{V}^\top\mathbf{V} + \lambda\mathbf{I}))_{i,k}}$$

**1.3: (3.55)**

$$V_{j,k} \frac{(\mathbf{X}^\top\mathbf{U})_{j,k}}{(\mathbf{V}\mathbf{U}^\top\mathbf{U})_{j,k}} \rightarrow V_{j,k} \frac{(\mathbf{X}^\top\mathbf{U})_{j,k}}{(\mathbf{V}(\mathbf{U}^\top\mathbf{U} + \lambda\mathbf{I}))_{j,k}}.$$

**P. 85**

**1. 31: (3.205)**

$$\alpha_i y_i (\mathbf{w}^\top \mathbf{x}_i + b) \geq 1 \rightarrow y_i (\mathbf{w}^\top \mathbf{x}_i + b) \geq 1$$

**P. 103**

**1. 27: (3.261)**

$$\min_{\mathbf{w}} \left( \frac{1}{2} \sum_i (y_i - \mathbf{w}^\top \mathbf{x}_i) + \frac{\lambda}{2} \mathbf{w}^\top \mathbf{w} \right) \rightarrow \min_{\mathbf{w}} \left( \frac{1}{2} \sum_i (y_i - \mathbf{w}^\top \mathbf{x}_i)^2 + \frac{\lambda}{2} \mathbf{w}^\top \mathbf{w} \right)$$

Chapter 5.

**p. 155**

**1. 8: (5.6)**

$$= \sum_{\mathbf{z}} p(x_1|\mathbf{z}) \prod_{i=2}^{|\mathbf{x}|} p(x_i|x_{i-1}, \mathbf{z}). \rightarrow = \sum_{\mathbf{z}} p(\mathbf{z}) p(x_1|\mathbf{z}) \prod_{i=2}^{|\mathbf{x}|} p(x_i|x_{i-1}, \mathbf{z}).$$

**p. 162**

**1. 6**  $p_i \leq 0 \rightarrow p_i \geq 0$

Chapter 8.

**p. 241**

l. 10 matrix  $\rightarrow$  vector

## Chapter 9.

p. 268

l. 4 of **Algorithm 9.2**

$$C_{X_i X_j} \rightarrow C_{ij}$$