

# Errata for *Computational Statistics*, Second Edition

Geof H. Givens and Jennifer A. Hoeting

March 25, 2014

Here is a list of corrections and other notes for the second edition. We appreciate comments from our careful readers, including Jim Albert, Shan Ba, Jim Brennan, Shoja'eddin Chenouri, Hugh Chipman, Mark Delorey, Stephanie Fitchett, Doug Gorman, Andrew Hill, Michael Höhle, Quiming Huang, Mori Jamshidian, Yueyang Jiang, Wentao Li, Keh-Shin Lii, Duncan Murdoch, Jason Song, and Rebecca Taylor.

## Website, Data, and R Code:

- The `facerecognition.dat` dataset on the website is slightly different than the one used in the book, but the results are very similar.
- See the notes for Chapter 8 below regarding an error in the R code for example 8.1.

## Chapter 4:

- Section 4.2.3. We have received the following email from Mori Jamshidian expressing his view of the SEM algorithm.

I'm using your text for my computational stats class, and it's been very good, especially in terms of the topics covered. When covering Chapter 4, Section 4.2.3 on EM variance estimation, I noticed that you cover SEM algorithm as one of the main algorithms for EM standard error estimation. In a paper that you have also cited in your book (Jamshidian and Jennrich 2000, JRSS-B) we have noted that SEM does not have a solid theoretical foundation, and have explained why it's prone to all sorts of numerical inaccuracies. Thus, we recommend that the SEM method not be used at all. You mention the method in Jamshidian and Jennrich (2000) as a "more sophisticated numerical differentiation strategy." It turns out that implementation of the methods in Jamshidian and Jennrich (2000) are much simpler than that of SEM, and as we show in our paper they result in highly accurate results. In our view, SEM is a somewhat unsuccessful attempt in using numerical differentiation in the context of EM, as we explain in our paper. Just thought to bring it up, in case you may find this useful for your future editions of the book.

## Chapter 7:

- Page 230. In the caption to Figure 7.10,  $p_1$  should be  $\alpha_1$ .

## Chapter 8:

- Page 241. The years should be  $y \in \{14, 21, 63, 91, 93, 100\}$ , i.e. they should include 91. The R code and the results shown in the book for this example reflect this.
- Page 243, equation for step **3.b** at the bottom of the page has the proposal distribution terms reversed. In other words, the final part of the ratio  $R_K$  should be

$$g_{\epsilon_K}(-\epsilon_K^{(t+1)}|K^*)/g_{\epsilon_K}(\epsilon_K^{(t+1)}|K^{(t)})$$

instead of the inverse.

- Page 244, equations for steps **4.b** and **5.b** have the same error as in the above bullet. The R code for this example has been commented but not yet changed. The results are similar, however, since the proposal distributions nearly cancel, except near the boundaries.

## Chapter 9:

- Page 307. In Example 9.10, in the penultimate sentence, the words “moving” and “nonmoving” should be switched.