

**Errata:**  
**An Introduction to Optimization, Fifth Edition**  
**by**  
**Edwin K. P. Chong, Wu-Sheng Lu, and Stanislaw H. Zak**

Version: April 25, 2025

**Typos and minor changes: Printings 1–current**

- p. 31, middle of the page: Change  $Q < 0$  to  $Q \prec 0$ . Similarly, change  $Q \leq 0$  to  $Q \preceq 0$ .
- p. 76, Corollary 6.2, line 4: Change  $F(x^*) \geq 0$  to  $F(x^*) \succeq 0$ .
- p. 77, Theorem 6.3, condition 2: Change  $F(x^*) > 0$  to  $F(x^*) \succ 0$ .
- p. 238, middle of the page: Change 9781119877639111 to 1111111111111111.
- p. 354, lines 21 and 30: Change “row elementary” to “elementary row” (i.e., swap the order).
- p. 354, third tableau (just below the middle of the page): The element (3, 4) should be changed from 1 to  $-1$ . In other words, the third row of numbers should be 0 0 1  $-1$  1 2. [Thanks to Sarah Koskie, 5/16/2024].
- p. 362, three lines above Example 19.6: Change the sentence starting with “However” to the following: “However, if the ILP problem data were to have only integer values, then the slack variables and those introduced by the Gomory cuts would automatically be integer-valued (see also Exercise 19.9).” [Thanks to Sarah Koskie, 5/16/2024].
- p. 456, Section 23.6, 2nd line: Change “duality hold” to “duality holds” [Thanks to Nikica Hlupić, 5/13/2024].
- p. 456, proof of Theorem 23.2, 2nd line: Change “a convex” to “is a convex” [Thanks to Nikica Hlupić, 5/13/2024].
- p. 521, Example 26.3, line 8: Change “1, and 3” to “1, 2, and 3”. [Thanks to Lei Zhao, 8/19/2024].
- p. 524, last line: Change “ $h_x = [-1 \ 0 \ 0]$ ” to “ $h_x = [-1 \ 0 \ 1]$ ”. [Thanks to Lei Zhao, 8/19/2024].
- p. 538, line 2: Change “ $w_{k+1}$ ” to “ $w^{(k+1)}$ ”. [Thanks to Lei Zhao, 8/19/2024].
- p. 540, second line from bottom: Change “ $\tilde{w}_T$ ” to “ $\tilde{w}^{(T)}$ ”. [Thanks to Lei Zhao, 8/19/2024].
- p. 541, Step 2.4 of SVRG Algorithm: Change “ $\tilde{w}_T$ ” to “ $\tilde{w}^{(T)}$ ”. [Thanks to Lei Zhao, 8/19/2024].
- p. 541, four lines below SVRG algorithm: Change “For  $t = 1, \dots, T'$ ” to “For  $t = 0, \dots, T' - 1$ ”. [Thanks to Lei Zhao, 8/19/2024].

- p. 544, Step 2 of Distributed SVRG Algorithm, line 7: Change “2.3. At each node” to “2.4. At each node”. [Thanks to Lei Zhao, 8/19/2024].
- p. 544, Step 2 of Distributed SVRG Algorithm, line 8: Change “2.3.1.” to “2.4.1.”.
- p. 544, Step 2 of Distributed SVRG Algorithm, line 9: Change “2.3.2.” to “2.4.2.”.
- p. 544, Step 2 of Distributed SVRG Algorithm, line 10: Change “2.3.2.1.” to “2.4.2.1.”.
- p. 544, Step 2 of Distributed SVRG Algorithm, line 11: Change “2.3.2.2.” to “2.4.2.2.”.
- p. 544, Step 2 of Distributed SVRG Algorithm, line 12: Change “ $\nabla f_{j_n^{(t)}}(\tilde{\mathbf{w}}_n^{(t-1)})$ ” to “ $\nabla f_{j_n^{(t)}}(\tilde{\mathbf{w}}_n^{(t)})$ ”.
- p. 544, Step 2 of Distributed SVRG Algorithm, line 13: Change “2.3.3.” to “2.4.3.”.
- p. 544, Step 2 of Distributed SVRG Algorithm, line 14: Change “2.4. At the CC, compute  $\tilde{\mathbf{w}}_n^{(T)}, n = 1, \dots, N$ , and set” to “2.5. At the CC, set”.
- p. 547, line 5: Change “Y” to “y”. [Thanks to Lei Zhao, 8/19/2024].
- p. 559, last line of Example 28.2: add a period.
- p. 573, four lines before Section 29.1.4: Delete the minus sign in front of log. [Thanks to Lei Zhao, 8/19/2024].
- p. 574, five lines from bottom: Change “ $b^+$ ” to “ $b^*$ ”. [Thanks to Lei Zhao, 8/19/2024].
- p. 587, Exercise 29.10, first line of part a: Change “and as follows” to “and testing as follows”. [Thanks to Lei Zhao, 8/19/2024]
- p. 595, five lines from bottom: Change “Section 30.330.3” to “Section 30.3.3”. [Thanks to Lei Zhao, 8/19/2024].
- p. 598, lines 4 and 5: Change “ $L$ ” to “ $l$ ”.
- p. 599, four lines before Section 30.3.3: Change “ $\mathbf{x}_t$ ” to “ $\mathbf{x}_5$ ”.
- p. 600, lines 12, 13, and 14: Change “ $L$ ” to “ $l$ ”.
- p. 601, Example 30.4, line 3: Change “ $\mathbf{x}_i$ ” to “ $\mathbf{x}_1$ ”.
- p. 601, Example 30.4, line 9, first component of  $\mathbf{x}_{38}$ : Change “6.4” to “6.3”.
- p. 602, six lines before Section 30.4: Delete “of”.
- p. 605, six lines before Section 30.5.3.1: Change “0” to “0”. [Thanks to Lei Zhao, 8/19/2024].
- p. 607, Example 30.7, line 3: Change “defined” to “define”. [Thanks to Lei Zhao, 8/19/2024].
- p. 609, line 3: Change “ $\|\mathbf{W}\|_2^2$ ” to “ $\|\mathbf{W}\|_F^2$ ”. [Thanks to Lei Zhao, 8/19/2024].

- p. 612, *K*-Means Clustering Algorithm, Step 4: Change superscript  $(i + 1)$  to  $(t + 1)$  (3 corrections).
- p. 613, five lines from bottom: Change “ $C_1 = \{x_1, x_4, x_5, x_6\}$ ” to “ $C_1 = \{x_1, x_2, x_4, x_5, x_6\}$ ”. [Thanks to Lei Zhao, 8/19/2024].
- p. 620, line 13: Change “ $\sqrt{\frac{n_1}{P}}h_1 + \sqrt{\frac{n_2}{P}}h_1 + \cdots + \sqrt{\frac{n_K}{P}}h_1$ ” to “ $\sqrt{\frac{n_1}{P}}h_1 + \sqrt{\frac{n_2}{P}}h_2 + \cdots + \sqrt{\frac{n_K}{P}}h_K$ ” (i.e., the subscripts should not be all 1).
- p. 621, line 4: Change “ $U$ ” to “ $R$ ”.