Handbook of Monte Carlo Methods
Errata (Last Update July 18, 2017)

We thank Professors Masanori Fushimi and Hirotaka Sakasegawa for finding many of the errata below when writing the Japanese translation of the Handbook (published in 2014). Also thanks to Celestin de Villa for spotting the latest error on Page 107.

1. Page 5, Line -5: $\sum_{i=1}^{k} \ldots$
2. Page 6, final part of Section 1.2.3: matrix multiple recursive generators
3. Page 22, reference 22: Sparse
4. Page 63, Line -1: $\leqslant \ln f(b)$
5. Page 29, Algorithm 2.1, Step 3: replace b with b_k.
6. Page 29, Section 2.3, Line 5: d prime numbers.
7. Page 31, Caption of Figure 2.2: ... bases 167 and 173 with ...
8. Page 52, Line 4: Y is the remainder of X.
9. Page 64, 3rd paragraph: collection of points $x_1 < \cdots < x_{n+1}$.
10. Page 65, Steps 4 and 5 in Algorithm 3.12:
    4. If $U > p(Y)/\bar{p}_n(Y)$, construct $\mathcal{X}_{n+1} = \mathcal{X}_n \cup \{Y\}$ to be the point set $\mathcal{X}_n$ with the addition of point Y for a total of $n+2$ sorted points. Increment $n = n+1$ and go to Step 2.
    5. If $U < p(U)/\bar{p}_n(Y)$, output $X_t = Y$ as a random variable from f.
11. Page 81, Line 6: $\{w_i, i \neq J_1\}$.
12. Page 82. see `http://luc.devroye.org/rnbookindex.html`.
13. Page 88, Property 7: $Y_0, Y_1, \ldots \overset{\text{iid}}{\sim} \mathsf{Exp}(1)$.
14. Page 89, in Algorithm 4.5 and the preceding line: Algorithm 4.10 $\rightarrow$ Algorithm 4.11
15. Page 98, comment in MATLAB code: `NegBin(m,p)`
16. Page 105, Algorithm 4.22, Step 1: $S = U^2 + V^2$.
17. Page 107, Algorithm 4.27. Set $V = 2V - 1$ instead of $V = V - 1/2$.
18. Page 110, Table 4.12, Condition for variance: $n > 4$.
19. Page 123, Point 6: $\mathsf{Stable}(2, \beta) \rightarrow \mathsf{Stable}(2, 0)$.

20. Page 130, Line 2 under Figure 4.18: $\mathsf{Stable}(2,\beta)$ should be $\mathsf{Stable}(2,0)$.

21. Page 131, 1st line below Algorithm 4.56: $\mathsf{Stable}(2,\beta)$ should be $\mathsf{Stable}(2,0)$.

22. Page 149, Bartlett decomposition: lower triangular matrix.

23. Page 150, Algorithm 4.72: lower triangular matrix.

24. Page 155, Line 3 and Algorithm 5.2: $\mathbf{Y}$ should be solved from $\mathbf{Z} = D^\top \mathbf{Y}$, not from $\mathbf{Z} = D\mathbf{Y}$. Moreover, the proof on Line 5 should read:

$$\mathbb{E}\mathbf{Y}\mathbf{Y}^\top = (D^{-1})^\top \mathbb{E}\mathbf{Z}\mathbf{Z}^\top D^{-1} = (DD^\top)^{-1} = \Lambda^{-1} = \Sigma\,.$$

25. Page 161, Line 19: N should be n.

26. Page 163, Line 10: $\ldots X_{t+1}$ given $X_t = i \ldots$

27. Page 165, Line 1: the set of vertices of the unit hypercube, define

28. Page 167: second line below Fig 5.8: $\mu_4 \to \mu_2$.

29. Page 175, second line (5.7): $\exp\left(t \int (\mathrm{e}^{\mathrm{i}\mathbf{s}^\top \mathbf{y}} - 1)\, \nu(\mathrm{d}\mathbf{y})\right)$.

30. Page 175, Line -3: (δ_1, δ_2) should be (δ, ε).

31. Page 178, Line 6: t_{t+1} should be t_{i+1}.

32. Page 188, above Example 5.12: Y_{k+1} now has to be solved ...

33. Page 190, last line of assumption 5.6.1: for all $u \in \mathbb{R}$.

34. Page 192, Theorme 5.6.1: Weak Order $\to$ Strong Order

35. Page 200, Property 3: $X_t = B_t - \inf_{s \leqslant t} B_s = \sup_{s \leqslant t}(B_t - B_s)$.

36. Page 201, first Point 1.: Draw $Y \sim \mathsf{N}(0, h)$

37. Page 208, Line 9: $k \neq i, j$ instead of $j \neq i, j$

38. Page 212, Figure 5.26: $\alpha = 10$.

39. Page 212, Line -8: $\beta t + \int_0^t \int_0^\infty x N(\mathrm{d}s, \mathrm{d}x)$.

40. Page 213, Line 4: The characteristic function ....

41. Page 232, Line -8: `B` should be `B'`. This has been corrected in the accompanying code. Qualitatively the results remain the same.

42. Page 234: First displayed equation under the Proof of Theorem 6.2.1: $\mathrm{d}\mathbf{y} \to \mathrm{d}\mathbf{x}$

43. Page 248, Point 4: Output $\mathbf{X}_T$ as ...

44. Page 262, Line 5: "two uniform" should read "three uniform"

45. Page 274, last line of Section 6.4: Algorithm 14.10.

46. Page 322, definition of theta function: $\sum_{k=-\infty}^{\infty} \big(\varphi(\ ) + \varphi(\ )\big)$.

47. Page 323, Line -8: Thus, we have that $n\widehat{f}_k \approx$ ....

48. Page 231, Line -10: Replace "$\mathsf{t}_\nu(\boldsymbol{\mu}, \Sigma)$" with "Student".

49. Page 231, Line -9: Replace "The vector $\boldsymbol{\mu}$" with "The initial state of the random walk sampler".

50. Page 232, Line 1: Remove "$\mathsf{t}_\nu(\boldsymbol{\mu}, \Sigma)$".

51. Page 332. Figure 8.11. The legends are reversed: the solid line corresponds to the Bootstrap.

52. Page 341, Lines -12 and -11: $\mathbb{P}_{H_0}(T \geqslant t) \approx 1 - F(t)$, where F is the cdf of the χ^2_{k-1} distribution.

53. Page 342, Lines -2 and -1: $\mathbb{P}_{H_0}(T \geqslant t) \approx 1 - F(t)$, where F is the cdf of the χ^2_{k-1-r} distribution.

54. Page 349, Line -3: $Y_i \to Y_k$.

55. Page 361, Point 2: Generate d independent uniform permutations, $\boldsymbol{\Pi}_1, \ldots, \boldsymbol{\Pi}_d$, of $(1, \ldots, K)$.

56. Page 361, Point 3: Set

$$V_{kj} = \frac{\boldsymbol{\Pi}_{jk} - 1 + \mathbf{U}_{kj}}{K}, \quad j = 1, \ldots, d, \quad k = 1, \ldots, K.$$

57. Page 361. In the 10th line of the MATLAB code `+ 1- U` should be `-1 + U`. The code on the net was/is correct.

58. Page 361, Line 3 in Example 9.6: $n = 200$.

59. Page 376, Line 15: $2U_4, U_5 \to U_4, 2U_5$

60. Page 377. We state that quasi Monte Carlo performs here the best, but actually the control variable method is better, as it gives the lowest estimated variance.

61. Page 382, Line -1: Remove the absolute value ($|\ |$) sign.

62. Page 386, Lines -3 and -1. $\mathbb{E}$ should be $\mathbb{E}_{*\theta}$.

63. Page 387, Line 2. $\mathbb{E}$ should be $\mathbb{E}_{*\theta}$.

64. Page 388, Line 5: $S_n = S_{n-1} + B_n - A_n$

65. Page 395, Theorem 10.3.2: (10.14) should be replaced with (10.15) (three times).

66. Page 402, Figure 10.3: γ should be b. Also, the n on the horizontal axes should be k.

67. Page 403, Line 13: Replace "kernel" with "density".

68. Page 403, MATLAB code: replace `gamma` with `b`.

69. Page 404, Lines 16 and -5: $f(\mathbf{x})$ should be $f(\mathbf{x}; \mathbf{u})$.

70. Page 413, Point 5 (Final Estimator): $\prod_{t=1}^{T}(N_t/N)$.

71. Page 413, Line -3 interchange "smaller" and "larger".

72. Page 428, Lines 10, 13, and 14: $H(\mathbf{X})$ should be $H(\mathbf{x})$.

73. Page 454, Line -2: U_d should be U_n.

74. Page 466, Line 9: $\mathsf{Beta}(u_k/(1-u_k), 1)$.

75. Page 466, Line 5: The argument of ln() should be $v/(1-v)x^{v/(1-v)-1}$.

76. Page 466, Table 13.1: $v_t \to \mathbf{v}_t$.

77. Page 469, Line -8: when all $\{\widehat{p}_i\}$ ...

78. Page 470, Lines 12+13: $\mathbf{p}_t \to \widehat{\mathbf{p}}_t$ and $p_{tk} \to \widehat{p}_{tk}$

79. Page 484, Line -9: $2k \to 2k-1$.

80. Page 485, Caption of Figure 14.1: $2k \to 2k-1$.

81. Page 467, Line 9: `Beta(u/(1-u),1)`.

82. Page 467, Line 16: `Beta(v/(1-v),1)`.

83. Page 485, 2nd line in Section 14.2: "special case" should be "generalization"

84. Page 493, Line -2: Algorithm 14.4.

85. Page 499, Line -7: $\mathbf{x}^\top$ should be $\mathbf{z}^\top$

86. Page 505, last line of Algorithm 14.8: (14.16) $\to S$.

87. Page 506, Table 14.4: Algorithm 14.4 $\to$ Algorithm 14.8.

88. Page 506, Table 14.4. The constraint matrix was (incorrectly) read from the `Sento1.dat` file in column format, instead of row format. The first row of our constraint matrix starts with $47, 667, 73, 67, \ldots$, whereas in the original problem it starts with $47, 774, 76, 56, \ldots$.

89. Page 511, Line -2 above Algorithm 14.10: Remark 6.4 $\rightarrow$ Section 6.4.

90. Page 511, Algorithm 14.10: $M \times (T-1)$ matrix

91. Page 512, Point 2: "within row variance" should be "within column variance"

92. Page 529, displayed equation in Step 4: k should be i

93. Page 545, Line -6: Section 11.3 $\rightarrow$ Section 11.2

94. Page 595, Line 3: $\boldsymbol{\xi}$ should be $\boldsymbol{\xi}/|\mathscr{S}^2|$

95. Page 649, Line -7: (l, r) instead of $[l, r]$.

96. Page 672, Line 14: $(\widehat{\boldsymbol{\theta}} - \boldsymbol{\theta}_0)$ should be $(\boldsymbol{\theta}_0 - \widehat{\boldsymbol{\theta}})$.

97. Page 696, Line 9: delete "squared"

98. Page 707, Line -4: λ_s should be λ_t.

99. Page 708, Line 9: $\mathbf{X}_1$ and $\mathbf{X}_2$ are independent ....

100. Page 715, Line 4: $\sum \big(\widetilde{f}() + \widetilde{f}()\big)$.

101. Page 715, Line 6 $\sum \big(\mathrm{e}() + \mathrm{e}()\big)$.