

ERRATA

“Lessons in Estimation Theory for Signal Processing, Communications and Control”

by Jerry M. Mendel

There is something to be said for every error, but whatever be said for it,
the most important thing to be said about it is that it is erroneous.

G. K. CHESTERTON, *All is Grist*

A man who has committed a mistake and doesn't correct it is
committing another.

CONFUCIUS

Lesson 3

Page 28, Equation (3-2): change “ $\mathbf{Z}(k)$ ” to “ $\hat{\mathbf{Z}}(k)$ ”.

Page 30, line 1 of Eq. (3-4): change “ $w(1)\tilde{z}^2(1) + w(2)\tilde{z}^2(2) + \dots$ ” to
“ $w(k)\tilde{z}^2(k) + w(k-1)\tilde{z}^2(k-1) + \dots$ ”

Page 32, line 6: change “because $\mathbf{H}'(k)\mathbf{W}(k)\mathbf{H}(k)$ is invertible” to “because $\mathbf{W}(k)$ is positive
definite and $\mathbf{H}(k)$ is of maximum rank (see Comment 1)”.

Page 42, Problem 3-10 (b), line 2: change “ \mathbf{v}_0 ” to “ \mathbf{v}_0 ”.

Lesson 4

Page 45, SVD section, line 2: change “... be two unitary matrices.” to “... be two $K \times K$ and
 $M \times M$ matrices, respectively.”

Page 48, line 3: delete “which means that matrix U_1 is unitary” (a rectangular matrix cannot be
unitary).

Page 48, line 4: change “ $K \times M$ ” to “ $K \times K$ ”.

Page 48, change last sentence of the proof to: “Finally, to obtain the partitioned matrix on the third
line of (4-22), we used (4-16a).”

Page 50, Theorem 4-3, Proof, line 3: change bold-faced superscript 1 to non bold-faced superscript
1.

Lesson 5

Page 61, item 3, line 6: add “This can only be done when $\mathbf{h}(k + 1)$ does not depend upon measurements, and, unfortunately, in many engineering applications, $\mathbf{h}(k + 1)$ does depend upon measurements (see the examples in Lesson 2).”

Page 65, 2 lines below Eq. (5-37): $\mathbf{P}^{-1}\{1\}$ should be $\mathbf{P}^{-1}\{1\}$.

Page 67, Paragraph 2, line 5, and Eq. (5-41): change “ $\mathbf{z}^a[i]$ ” to “ $\mathbf{z}^a[-i]$ ”.

Page 67, Eq. (5-42): Change, in 3 places, \mathbf{z}^a to \mathbf{z}^a

Page 72, Problem 5-7, Paragraph 3, line 3; change “(5-25)” to “(5-31)”.

Lesson 6

Page 77, Theorem 6-2, line 3: replace the word “in” by “is”.

Page 86, Proof of Theorem 6-4, line above Eq. (6-61): change (6-47) to (6-46).

Page 87, line 2: in the integrand of the integral, eliminate “{“.

Page 89, Problem 6-7, line 2: change “for μ ” to “for population mean μ ”.

Page 89, Problem 6-11, line 2: replace the bold-faced tilde over σ by a smaller light-faced tilde.

Page 90, Problem 6-17, line 2: the last two letters in the word “that” are broken and need to be fixed.

Lesson 7

Page 92, Stochastic Convergence, line 4: broken letter in the word “course.”

Page 102, line 15: after “standardized sum”, insert “(i.e., Z_k)”.

Page 103, Def. 7-10, last line: change (6-48) to (6-47).

Lesson 8

Page 112, Theorem 8-3, line 3: change “linear estimators” to “linear unbiased estimators.”

Page 115, Proof of Theorem 8-5, lines 3 and 4: change “(7-15), (7-16) and (7-17)” to “(7-14), (7-15) and (7-16)”.

Page 116, Theorem 8-7: change σ_v^2 to σ_v^2 in (8-45), (8-46/ two times), and in the line below (8-46).

Page 117: change σ_v^2 to σ_v^2 in lines 1, 4 and 5.

Page 119, Problem 8-5, line 4: insert a comma after $\hat{\sigma}_{IV,LS}[N]$.

Page 120, Problem 8-12, line 4: change “ $\hat{\sigma}_{IV,LS}[k]$ ” to “ $\hat{\sigma}_{IV,LS}(N)$ ”.

Page 120, Problem 8-12, replace line 5 with: “Assume that $v[k]$ are identically distributed, statistically independent, zero-mean, and have unity variance”.

Page 120, Problem 8-12, line 6: change “ $\theta_{1v,1s}(k)$ ” to “ $\theta_{1v,1s}(k)$ ”.

Page 120, Problem 8-15, Part (b): in two places, change “ σ_x^2 ” to “ $\sigma_{x_n}^2$ ” and in one place change “ $h^2(k)$ ” to “ $h_m^2(k)$ ”.

Lesson 9

Page 124, first line after Eq. (9-15): change “Observe from (9-14) that” to “Observe from (9-15) and (9-14) that”.

Page 125, Theorem 9-2, proof, line 1: “Using (9-24)”.

Page 126, Corollary 9-2, proof, line 1: change “Equation (4-13)” to “Equation (5-13”.

Page 127, line 2 below Eq. (9-35). change $\mathbf{F}_a \mathbf{H}_a$ to $\mathbf{F}_a \mathbf{H}$.

Page 130, Theorem 9-7, line 6: after $\mathbf{P}(n)$ add “[where $\mathbf{P}(k)$ is $\text{cov}[\tilde{\theta}_{BLU}(k)]$, given in (9-26)]”.

Lesson 10

Page 140, Equation (10-7): change “ $\mathcal{P}(R|K_2)$ ” to “ $\mathcal{P}(R|K_2)$ ”, i.e., add a r.h., parenthesis.

Page 144, line 8: change “(10-15)” to “(10-16)”.

Page 145, Problem 10-3, line 2: change “ $\mathcal{P}(R|\lambda) = \lambda^N e^{-\lambda/k}$ ” to “ $\mathcal{P}(R = k|\lambda) = \lambda^k e^{-\lambda/k}$ ”.

Page 146, Problem 10-5, second paragraph, line 5: change the italic “v” in Dave to a Roman “v”.

Page 147, Problem 10-6: change $(x - \mu_x)$ to $(x - \mu_x)^2$.

Lesson 11

Page 148, (11-1): change this equation to read “ $\mathbf{Z} = \text{col}(z(N), z(N - 1), \dots, z(1))$ ”.

Page 153, next to last paragraph, line 1: change “Theorem 4-1” to “Theorem 5-1”.

Page 153, next to last paragraph, line 6: change “(and 4-1)” to “(and 5-1)”.

Page 160, Problem 11-16, in the Equation for $p(z)$: change “ $(\partial/\partial z_j)z$ ” to “ $\partial/\partial z_j$ ”, i.e., delete the l. h. parenthesis.

Page 161, Problem 11-19, part (5), line 2: change “ $\mathbf{E}\{\partial^2 \ln p(z(i)|\theta) / \partial \theta^2 | \theta\}$ ” to “ $\mathbf{E}\{\partial^2 \ln p(z(i)|\theta) / \partial \theta^2 | \theta\}$ ”, i.e., add the slash.

Lesson 12

Page 165, Equation (12-3): it should be $\mathbf{m}_y = \mathbf{E}\{\mathbf{y}\}$ and not $\mathbf{m}_y = \mathbf{E}\{y\}$.

Page 166, first two lines below Eq. (12-10): change to “if \mathbf{x} and \mathbf{y} are marginally Gaussian and statistically independent, they are jointly Gaussian.”

Page 172, Problem 12-3: restate the problem as follows:

Prove that if \mathbf{x} and \mathbf{y} are independent and marginally Gaussian, then they are jointly Gaussian.

Page 172, Problem 12-5: add the word “jointly” after “ \mathbf{x} and \mathbf{y} are ...”.

Lesson 13

Page 174, Introduction, line 7: change “are measurements” to “are $m \times 1$ measurements”.

Page 179, next to last line: change “ $\mathbf{V}(k)$ is white Gaussian noise with known covariance” to “ $\mathbf{V}(k)$ is Gaussian noise with known invertible covariance”.

Page 180, first and second lines after Equation (13-19): in two places, change “mutually uncorrelated” to “statistically independent.”

Page 180, Theorem 13-2, line 2: change “ $\mathbf{V}(k)$ is white Gaussian noise with known covariance” to “ $\mathbf{V}(k)$ is Gaussian noise with known invertible covariance”.

Page 180, Theorem 13-2, line 3: change “mutually uncorrelated” to “statistically independent.”

Page 180, second line below Equation (13-26): change “ $\mathbf{0}_{M \times 1}(k)$ ” to “ $\mathbf{E}\{\mathbf{0}_{M \times 1}(k)\} = \mathbf{0}$ ”.

Page 181, Example 13-1, line 3: the “a” in the second “and” is a broken letter.”

Page 181, Example 13-1, line 14: change “in which case” to “and.”

Page 182, line 2: change “with covariance” to “with invertible covariance”.

Page 183, first line after Equation (13-49): replace “(13-42)” by “(13-48)”.

Page 187, Specht’s quote in middle of the page, lines 2, 8 (2 places) and 9: change \mathbf{Z}^L to \mathcal{Z} .

Page 189, Summary Question 6, in both (b) and ©: change “ $\mathbf{f}(\mathbf{Z}(r))$ ” to “ $\mathbf{f}(\mathbf{Z}(r))$ ” i.e., add a r.h. parenthesis.

Page 190, Problem 13-7, after the formula: add “where $0 < \theta < \pi$.”

Page 191, Problem 13-8, line 8: change “are uncorrelated” to “are statistically independent”.

Page 191, Problem 13-9, line 1 after first vector equation: change “mutually uncorrelated” to “statistically independent”.

Page 191, Problem 13-9, line 2 after first vector equation: change “power $\mathbf{m}_a =$ ” to “power, $\mathbf{m}_a =$ ”.

Lesson 14

Page 193, line 1 after Eq. (14-2): change “uncorrelated” to “statistically independent.”

Page 193, General Results, line 10: after the word ‘distributed’ add “over the range of values of θ for which $p(\mathbf{Z}(k)|\theta)$ is significantly different from zero (e.g., we have no a priori knowledge about θ other than it is in a given region)”.

Page 193, last paragraph, line 6: change $p(\theta)$ to $p(\phi)$.

Page 193, last paragraph, line 7: change $\mathbf{g}^{-1}(\phi)$ to $\mathbf{g}(\theta)$.

Page 194, Paragraph 2, line 3: change the word “the” to “then”.

Page 194, Example 14-1, line below Equation (14-8): change “do not depend μ ” to “do not depend upon μ ”.

Page 195, line 2: add right-hand parenthesis to “(11-19)”.

Page 195, two lines above Equation (14-16): before “, it” add “and the fact that θ and $\mathbf{V}(k)$ are jointly Gaussian”.

Page 199, Equation (14-39): change it to $\mathbf{u} = \text{col}\{u(N-1), \dots, u(1), u(0)\}$.

Page 199, first line below Equation (14-39): change “ $n \times (N+1)$ ” to “ $n \times N$ ”.

Page 199, Equation (14-41): change it to $\mathbf{v} = \text{col}\{v(N), \dots, v(2), v(1)\}$.

Lesson 15

Page 212, Introduction, line 1: change “Lesson” to “Lessons.”

Page 213, last line of Eq. (15-9): the left hand side should be $p[\mathbf{s}(k_2), \mathbf{s}(k_1)]$.

Page 216, Item 4.c, first line: spelling error: should be “translation”.

Page 216, Theorem 15-4, line 2: change “ $\mathbf{x}(k), k = 0, 1, \dots$ ” to “ $\{\mathbf{x}(k), k = 0, 1, \dots\}$ ”, i.e., add a l. h. brace.

Page 216, Paragraph after Theorem 15-4, line 2: delete “(or uncorrelated)”.

Page 217, line 13: spelling error: should be “quantities.”

Page 218, Proof, part b, one line above (15-31): change “(15-17) to “(15-23)”.

Page 218, Proof, part c, line 1: change “We leave to proof,” to “We leave the proof”.

Page 219, next to last paragraph, change second line to: “...must each be the same for all ...”

Page 222, Computation section, line 1: change Lesson E to “Lesson D.”

Lesson 16

Page 228, Introduction, line 1: spelling error: should be “a number of times ...”

Page 228, Eq. (16-1): close the brace on the rhs ... }

Page 228, Eq. (16-2): change $\text{col}(\mathbf{z}(k-1), \mathbf{z}(k-2), \dots, \mathbf{z}(1))$ to $\text{col}(\mathbf{z}(1), \mathbf{z}(2), \dots, \mathbf{z}(k-1))$

Page 228, one line below (16-3): change “k” to “k”.s

Page 233, line 6: change “equal \bar{p} ” to “equal to \bar{p} , ...

Page 236, Fig. 16-2: change all “u” to “y”

Page 237, Fig. 16-3: change all “ u ” to “ y ”

Lesson 17

Page 243, Equation (17-2), rhs: $\mathbf{E}\{\mathbf{x}(k+1)|\mathbf{Z}(k), \mathbf{z}(k+1)\}$

Page 250, Item 5, line 1: the “r” in “recursive” is broken.

Page 251, Item 7, second paragraph, line 6: change “(Problem 17-9)” to “(Problem 17-17).”

Page 251, Item 9, line 3: change “(5-25)” to “(5-31)”.

Page 257, Problem 17-13, line 3: change “ $z(k+1)$ ” to “ $z(k)$ ”.

Page 257, Problem 17-13, part (a), line 2: change “ $p_1(k|k)$ ” to “ $p_{11}(k|k)$.”

Lesson 18

Page 266, Example 18-3, line 4: change 17-13) to (17-13).

Page 267, line 9: change “coeffients” to “coefficients.”

Page 268, Equation (18-21), third term: the line between the numerator and the denominator is broken; it should be a fully-connected line.

Page 268, second paragraph up from the bottom, line 4: “(of fixed length $M+1$).

Page 273, last line of top paragraph: change “reasonable” to “reasonably.”

Page 277, Summary Question 7 (c): change the second “ $\Phi = \mathbf{0}$ ” to “ $\Psi = \mathbf{0}$ ”.

Page 277, Problem 18-1, line 2: change “Problem 25-1” to “Problem 25-2”.

Page 278, Problem 18-6, end of Part (a), add: “For purposes of this problem assume that $\mathbf{m}_x(j) = \mathbf{0}$ for all j . The mean of the state vector will cancel out in Step (b).”

Lesson 19

Page 279, Summary, paragraph 5, line 5: change “... and that the ...” to “... but that the ...”

Page 279, Summary, paragraph 5, line 6: change “... is a FIR ...” to “... is not a FIR ...”

Page 282, section heading “**SINGLE-CHANNEL STEADY-STATE KALMAN FILTER**”: the letter A in the word “**STEADY**” is broken.

Page 282, SSKF section, paragraph 2, line 1: after “impulse response,” add “(IR).”

Page 282, last line: delete last word “if.”

Page 283, line 1: delete “then $\hat{\mathbf{z}}(k|k) = \mathbf{h} \hat{\mathbf{x}}(k|k)$.”

Page 283, Eq. (19-14): change “ $\hat{\mathbf{z}}(k|k)$ ” to “ $z_{F,IR}(k)$ ”.

Page 283, Eq. (19-24): change “ $\hat{\mathbf{z}}(k|k-1)$ ” to “ $z_{P,IR}(k)$ ”.

Page 286, Section title: change it to: **RELATIONSHIPS BETWEEN THE STEADY-STATE KALMAN FILTER AND A DIGITAL WIENER FILTER**

Page 290, paragraph 3, line 1: change “To relate this ...” to “To try to relate this ...”

Page 291, Theorem 19-2, line 2: change “... is a FIR ...” to “... is not a FIR ...”

Page 291, Proof of Theorem 19-2, second paragraph: change “... is proved in a similar manner.” to “... is proved by means of a counter-example in problem 19-13.”

Page 292, line 9 up from the bottom: the word “in” has a broken “n”.

Page 293, last paragraph, line 1: change “... of the FIR digital ...” to “... a digital ...”

Page 299, first line below (19-76c): change “(19-61)” to “(19-75)”.

Page 299, first line after end of top section: change “**Equation (19-53)**” to “**Equation (19-54)**”.

Page 299, first line above (19-78a): change “(19-53)” to “(19-54)”.

Lesson 20

Page 306, first line of (20-8): change $\mathbf{P}(k|k) \quad (k+1, k)\mathbf{H}(k+1)$ to $\mathbf{P}(k|k) \quad (k+1, k)\mathbf{H}(k+1)$

Page 313, Table 20-1, left-hand column, line 1: the “1” in $\mathbf{x}[M-1|M]$ should not be italicized.

Page 313, Table 20-1, left-hand column, third block: delete “Single-Stage”.

Page 313, Table 20-1, right-hand column, third block: delete “Double-Stage”.

Lesson 21

Page 322, (21-35): change the minus sign to a plus sign.

Page 328, line 5: add “**fis** can also be used to implement MVD.”

Page 329, Paragraph 3, line 1: change “ $\hat{\mathbf{x}}[M]$ ” to “ $\hat{\mathbf{x}}[M]$ ”.

Page 338, line above Equation (21-91): change “Problem 21-13” to “Problem 21-12”.

Page 338, last line: change “Problem 21-13” to “Problem 21-12”.

Page 340, last line: change bold-faced $\hat{\mathbf{q}}$ to italic $\hat{\mathbf{q}}$.

Page 342, Problem 21-6, line 3: change “ $k = 0, 1, \dots$ is” to “ $k = 0, 1, \dots, \text{is}$ ”, i.e., add a comma.

Page 343, Problem 21-9, line 5, in the \mathbf{H} matrix, line 2: change “1 2” to “1 1”.

Page 344, Problem 21-12, Parts (a) and (b): in (a), change “(21-92)” to “(21-91)”, and in (b), change “(21-95)” to “(21-94)”.

Lesson 22

Page 346, **Biases**, line 6: add “jointly” after “uncorrelated”.

Page 350, after the proof at the top of the page: add a new paragraph,

“To compute $\tilde{\mathbf{z}}(k+1|k)$ using Corollary 22-2 we must do it *recursively*, because $\hat{\mathbf{x}}(k+1|k)$ is not available. Use $\tilde{\mathbf{z}}(k+1|k) = \mathbf{z}(k+1) - \mathbf{H}(k+1)\hat{\mathbf{x}}(k+1|k)$ and (22-12) to do this.”

Page 351, first line after Eq. (22-35): change “(22-25)” to “(22-35)”.

Page 356, next to last line: at the end of this line, replace “;” with “,”.

Page 356, last line: eliminate the comma after “that is”.

Lesson 23

Page 368, (23-19): change “ $\mathbf{F}_x[$ ” to “ $\mathbf{F}_u[$ ”.

Page 369, line 1 of Equation (23-22): In the second term, the subscript on f is “ i ” and not “1”.

Page 370, last line: change “planet” to “plant.”

Page 371, first line after Eq. (23-35): change “ $\frac{\partial \mathbf{x}(t)}{\partial \mathbf{x}}$ ” to “ $\frac{\partial \mathbf{x}(t)}{\partial \mathbf{x}^T}$ ”.

Page 373, last 2 lines: change the last sentence to “Note, also, that under the piecewise constant and uniform sampling conditions, the double arguments for \mathbf{H} , \mathbf{Q}_d and \mathbf{Q}_d are not needed.”

Page 374, “Computation”, second paragraph, line 2: change “in (23-31)” to “in (23-23)”.

Page 378, Problem 23-6, line 6: change “and \mathbf{u}_k control inputs” to “and \mathbf{u}_k are control inputs”.

Lesson 24

Page 389, last line: add at the very end of the sentence “to compute \mathbf{H}_x, Φ , and \mathbf{Q}_x ”.

Page 391, (24-31b): change “ $v(t)$ ” to “ $\mathbf{v}(t)$ ”.

Lesson 25

Page 401, line after (25-18): change “pseudo-Hessian” to “Hessian.”

Page 401, last line of (25-20): change “}” to “}”.

Page 402, Figure 25-1: change the line in the right-hand column block (just above the “Converge?” block), from $L(\hat{\theta}_{ML}^{i+1} | \mathbf{Z}) > L(\hat{\theta}_{ML}^i | \mathbf{Z})$ to $L(\hat{\theta}_{ML}^{i+1} | \mathbf{Z}) > L(\hat{\theta}_{ML}^i | \mathbf{Z})$.

Page 403, last paragraph, line 2: change “The ...” to “A ...”

Page 405, line 1 after Eq. (25-28): change “(26-33)” to “(25-33).”

Page 406, third line from the bottom of the page: in the first expression, change “ $\hat{\phi}_T$ ” to “ ϕ_T ”; in the second expression change “ $\tilde{\mathbf{z}}_{\phi}(j|j-1)$ ” to “ $\tilde{\mathbf{z}}_{\phi_T}(j|j-1)$ ”.

Page 409, **leastsq**, line 3: change “Lesson 25” to “this lesson”.

Page 410, Summary Question 3, line 1: the right-hand parenthesis in “(25-9)” is broken and needs to be fixed.

Page 411, Problem 25-8, line 4: change “and $\mathbf{E}\{v^2(k)\}$ are unknown” to “and $r = \mathbf{E}\{v^2(k)\}$ are unknown”.

Lesson 26

Page 420, first line after Eq. (26-48): change “using (26-46),” to “using (26-46) and (26-45),”

Page 423, Figure 26-2: In two places, change “ \mathbf{q}/r ” to “ \mathbf{q}/r ”.

Page 425, sentence before Equation (26-83): Change this sentence to: “The steady-state value of $\mathbf{p}_e(t)$, $\mathbf{p}_e(\infty)$, computed as described above, is”

Page 427, Equation (26-90): add a large brace, $\}$, at the end of the equation.

Page 430, Equation (26-105): remove the equal signs on lines 2 - 6 of this equation (there are 5 of them).

Lesson A

Page 438, Equation in Example A-2: after the second equal sign, change the first bold-faced theta to an italics theta.

Page 447, line 1: change \mathbf{R}^{-1} to $\mathbf{R}^{-1}(k)$

Page 447, line 7: change $[\mathbf{H}(k)\mathbf{R}^{-1}(k)\mathbf{H}(k)]^{-1}\mathbf{E}\{\mathbf{T}(\mathbf{Z}(k))\} = \theta$ to
 $[\mathbf{H}(k)\mathbf{R}^{-1}(k)\mathbf{H}(k)]^{-1}\mathbf{E}\{\mathbf{T}(\mathbf{Z}(k))\} = \mathbf{E}\{[\mathbf{H}(k)\mathbf{R}^{-1}(k)\mathbf{H}(k)]^{-1}\mathbf{H}(k)\mathbf{R}^{-1}(k)\mathbf{Z}(k)\} = \theta$

Lesson B

Page 453, Example B-1. last line: three lines from the original manuscript were not printed; they are: “where this last result follows from probability theory [recall that $\Phi\{v_1, v_2\}$ is the joint characteristic function of the random variables x_1 and x_2 , and that joint moments can be determined from their joint characteristic function (Papoulis, 1991)].”

Page 453, Equation (B-4): delete the 2 minus signs.

Page 454, fourth paragraph, line 2: change “ $(k - 1)$ ” to “ k ”.

Page, 455, Equation (B-17) and the sentence below it should be:

$$C_{kx}(r_1, r_2, \dots, r_{k-1}) = m_{kx}(r_1, r_2, \dots, r_{k-1}) - m_{kg}(r_1, r_2, \dots, r_{k-1}) \quad (\text{B-17})$$

where $m_{kx}(r_1, r_2, \dots, r_{k-1})$ is the k th-order moment function of $x(r)$, defined in (B-1), and $m_{kg}(r_1, r_2, \dots, r_{k-1})$ is the k th-order moment function of an equivalent Gaussian process, $g(r)$, that has the same mean value and autocorrelation function as $x(r)$.

Page 456, Figure B-1, part c: change the font on the subscript “1” of the horizontal axis from italics to non-italics.

Page 465, Theorem B-3, [CP3], line 1: change “i.e.,” to “e.g.,”.

Page 467, Table B-1, Column 6, line 9: change “ $\mathbf{E}\{x_2, x_4\}$ ” to “ $\mathbf{E}\{x_2 x_4\}$ ”, i.e., remove the comma.

Page 468, **Property [CP4]**, lines 5, 7 (in 2 places) and 9: delete 1/k!

Page 468, line 10: delete] .

Page 468, **Property [CP6]**, line 5 (in 2 places): delete 1/k!

Page 470, Problem B-5, line 2: change “B-5” to “B-6”.

Page 472, Problem B-13: At end of first paragraph, add the sentence: “Here we assume $A = 1$.”

Page 472, Problem B-13, part ©, line 4: change “ S_{ω_1, ω_2} ” to “ S_{ω_2, ω_1} ”.

Lesson C

Page 475, line 17: change “exponentally” to “exponentially.”

Page 475, last paragraph, lines 1, 3 and 5: change “sampled estimates” to “sample statistics”.

Page 476, “**Indirect Method**,” line 1: change “}, be” to “} be”, i.e., remove the comma.

Page 480, Equation (C-20), line 1, left-hand side: change “ $v[k-1]$ ” to “ $v[k-1]$ ”.

Page 480, Paragraph 3, line 2: change “ N ” to “ n ”.

Page 480, Paragraph 4, third line after Equation (C-23): change “correlation function” to “cumulant function”.

Page 484, Paragraph 2, last line: change “(Problem C-21)” to “(Problem C-20)”.

Page 490, top paragraph, last sentence: Change this sentence to “See Problem C-17 for some of the details.”

Page 490, last line: change “Problem C-21” to “Problem C-20”.

Page 491, line 2: change “Problem C-20” to “Problem C-19”.

Page 491, line 4: change “Problem C-18” to “Problem C-17”.

Page 496, Problem C-17, Part (a), line 3: change “two-dimensional transform” to “two-dimensional z transform”.

Lesson D

Page 502, Example D-3, last equation, right-hand side: change “ $w[n]$ ” to “ $x[n]$ ”.

Page 511, Equation D-57: change this equation to

$$\begin{bmatrix} z & 0 & 0 & 1 \\ 0 & z & -\alpha_2 & -\alpha_1 \end{bmatrix} \begin{bmatrix} X_1(z) \\ X_2(z) \end{bmatrix} = \begin{bmatrix} 0 \\ 1 \end{bmatrix} U(z)$$

Page 511, second line below Equation (D-58): change “ $\{x_1[k]\}$ ” to “ $\{x_2[k]\}$ ”.

Answers to Summary Questions

Page 539, Lesson 4, answer to question 1: change “a” to “b”.

Page 541, Lesson 20, answer to question 7: change “a” to “c”.
