Errata Sheet (29 June 2016)

p. xx: The entry for $\{g_{j,l}\}$ should say 'with $\{g_{1,l}\} = \{g_l\}$' rather than 'with $\{g_{1,l}\} = \{g_j\}$'. The entries for $\{\tilde{g}_{j,l}\}$, $\{h_{j,l}\}$ and $\{\tilde{h}_{j,l}\}$ need similar corrections also (spotted by Phil Reiss).

p. 25: In the first line, 'the convolution of $\{a_t^*\}$' should be replaced by 'the time reverse of the convolution of $\{a_t^*\}$' (spotted by Himadri Ghosh).

p. 46: In the first and second lines above Exercise [46a], there are two instances where $\mathcal{O}_{j,\bullet}$ should be $\mathcal{O}_{j\bullet}$ (i.e., no comma in the subscript).

p. 50: In the last line, the plus sign before B_k should be a minus sign (spotted by Weiwei Chung).

p. 51: In the last sentence, 'Plots (b) and (c) of Figures 50 and 51' should be 'The second and third columns of Figures 50 and 51' (spotted by Michael Keim).

p. 72: Immediately below Equation (72), 'As discussed in Section 2.5' should be 'As discussed in Section 2.6' (spotted by William Hamilton).

p. 84: The last sentence of the first paragraph should be replaced by the following (spotted by Eric Aldrich):

> Hence the coefficients at frequencies $f_k \in [-1/4, 1/4]$ in the Fourier representation for $\{X_t\}$ map onto the coefficients at $f_k' \in [-1/2, 1/2]$ in the approximate Fourier representation for $\{V_{1,t}\}$.

p. 85: The last two sentences in the first paragraph should be replaced by the following (spotted by Eric Aldrich):

> Note that $\mathcal{X}_{k+\frac{N}{2}}$ and $\mathcal{X}_k'$ correspond to each other; $\mathcal{X}_{k+\frac{N}{2}}$ corresponds to frequency $f_{k+\frac{N}{2}} = \frac{k}{N} + \frac{1}{2}$; and $\mathcal{X}_k'$, to $f_k' = k/N' = 2k/N = 2f_k$. As k ranges from 0 to $N'/2$, f_k' ranges over the interval $[0, 1/2]$, while $f_{k+\frac{N}{2}}$ ranges from $\frac{1}{2}$ to $\frac{N'}{2N} + \frac{1}{2} = \frac{3}{4}$, i.e., over the interval $[1/2, 3/4]$. For a real-valued sequence, the Fourier coefficient at a frequency f_k in the interval $[1/2, 3/4]$ is the complex conjugate of the coefficient associated with frequency $1 - f_k$, which is in the interval $[1/4, 1/2]$. This mapping from $[1/2, 3/4]$ to $[1/4, 1/2]$ is in reverse order; i.e., as we sweep from left to right in $[1/2, 3/4]$, we sweep from right to left in $[1/4, 1/2]$. Hence the complex conjugates $\mathcal{X}_k^*$ of the coefficients at frequencies $f_k \in [1/4, 1/2]$ in the Fourier representation for $\{X_t\}$ map – *in reverse order* – onto $\mathcal{X}_k'$ at frequencies $f_k' \in [0, 1/2]$ in the approximate Fourier representation for $\{W_{1,t}\}$.

p. 108: In the first displayed equation, the lower limit in the summation should be $l = -\infty$ rather than $l = \infty$ (spotted by Bill Constantine).

p. 118: In the line just after Exercise [118], for clarity, 'the Daubechies wavelet and scaling filters' should say 'all wavelet and scaling filters'.

p. 125: In the last line, for clarity, 'the broader peak that comes after a P wave is a T wave' should say 'the broader peak that comes after the P and R waves is a T wave' (spotted by Eric Aldrich).

p. 143: The first displayed equation should read

$$\hat{\sigma}_X^2 = \frac{1}{N} \sum_{j=1}^{J_0} \|\mathbf{W}_j'\|^2 + \frac{1}{N} \|\mathbf{V}_{J_0}'\|^2 - \frac{N'}{N} \overline{X}^2.$$

Also, in the line following the displayed equation, '$\frac{N'}{N^2}\|\mathbf{W}_j'\|^{2}$' should be '$\frac{1}{N}\|\mathbf{W}_j'\|^{2}$' (spotted by Eric Aldrich).

p. 157: In the second sentence of Exercise [4.13], the second occurrence of $\mathcal{B}_4\mathcal{A}_3\mathcal{A}_2\mathcal{A}_1$ should be $\mathcal{A}_4\mathcal{A}_3\mathcal{A}_2\mathcal{A}_1$ (spotted by Melissa Meyer).

p. 170: In the second line of the second paragraph, 'Section 2.5' should be 'Section 2.6'.

p. 171: In the line just below Equation (171b), the period just before the word 'while' should be a comma (spotted by Eric Aldrich).

p. 180: The last sentence of the second paragraph should begin with 'As is evident from Figure 161' rather than 'As is evident from Figure 181' (spotted by Eric Aldrich).

p. 189: In the first sentence following the first displayed equation, there are two instances of $\mathbf{W}_j$ that should be $\widetilde{\mathbf{W}}_j$.

p. 196: To keep with the convention used in the book for numbering figures, the first line of the caption for the figure on this page should have 'Figure 196' rather than 'Figure 197'. The same change should be made in the second line and the second to last line in the main text on this page.

p. 199: To complete a correction noted for page 196, 'Figure 197' in the fourth and sixth lines of the first complete paragraph should be changed to 'Figure 196'.

p. 205: In the first line of Exercise [5.5], X_t should be $\{X_t\}$.

p. 214: The period at end of Equation (214a) should be a comma.

p. 219: In the next to the last sentence of the first paragraph, 'This southern hemisphere data' should be 'These southern hemisphere data'.

p. 221: In the last sentence of the first paragraph, the clause 'while the sample means of $\mathbf{W}_{4,n}$ for $n > 0$ are all zero' should be deleted (it is in fact incorrect).

p. 226: In the last line of item (b) just above item [3], the parenthetical phrase 'no marking is done' should be changed to 'no new marking is done' for clarity (spotted by Eric Aldrich).

p. 231: The summations in the second displayed equation should be

$$\sum_{l=0}^{L-1} lg_l^2 \text{ and } \sum_{l=0}^{L-1} lh_l^2 \text{ rather than } \sum_{l=0}^{L-1} lg_l \text{ and } \sum_{l=0}^{L-1} lh_l$$

(spotted by Sean Lastuka).

p. 277: In Figure 277 the horizontal axes should be labeled with ν and not η (three occurrences).

p. 304: In the fifth line above Exercise [304], $\{\overline{W}_{j,t}\}$ should be changed to $\{\overline{W}_{1,t}\}$ (spotted by Eric Aldrich).

p. 306: In the right-most of the three summations in Equation (306c), although it is in fact correct, '$\widetilde{W}_{j,t}^2$' should be changed to '$\overline{W}_{j,t}^2$' for clarity (spotted by Eric Aldrich).

p. 314: In the line before the first displayed equation, 'proportional to the DFT' should be changed to 'proportional to the squared modulus of the DFT' (spotted by Eric Aldrich).

p. 331: The horizontal axis for plot (d) of Figure 331 should be labeled $\tau_j \Delta t$ rather than just τ_j (spotted by Charles Cornish).

p. 335: In the third line of the last paragraph, '$L > 2d$ or $\mu_Y = 0$' should be '(i) $L > 2d$ or (ii) $L = 2d$ and $\mu_Y = 0$'.

p. 349: In the third line of the caption to Figure 349, '$\log_{10}(S_X(f))$' should be replaced by '$10 \cdot \log_{10}(S_X(f))$'.

p. 384: The caption to Table 384 should say 'atomic clock fractional frequency deviates' rather than 'atomic fractional frequency deviates'.

p. 385: The eighth line of the next to last paragraph should have 'On the other hand' rather than 'On the hand'.

p. 387: In the second line of the caption to Table 387, 'wavelet filter critical values' should be changed to 'wavelet filter with critical values'.

p. 448: In the next to last line, 'model radio communications models' should be 'mobile radio communications models' (spotted by Sang-Hoon Park).

p. 459: In the first displayed equation, $\gamma_{j,0}(\cdot)$ should be $\gamma_{j,0}(t)$.

p. 474: The displayed equation just prior to Exercise [474a] should read

$$\int_{-\infty}^{\infty} \psi_{0,m}(t)\phi_{0,n}(t)\,dt = \sum_{l=-\infty}^{\infty} \bar{h}_l \bar{g}_{l+2m-2n} = 0;$$

i.e., there is a '2' prior to the summation that needs to be deleted (spotted by Agnieszka Jach).

pp. 509–10: The solution to Exercise [50b] should read as follows starting from the second sentence: The kth row of $\mathcal{F}$ is $\mathcal{F}_{k\bullet}^T$, so its tth component is given by

$$\frac{e^{-i2\pi tk/N}}{\sqrt{N}} = \frac{e^{-i2\pi f_k t}}{\sqrt{N}},$$

and the tth component of $F_k \mathcal{F}_{k\bullet}$ is given by

$$\frac{1}{\sqrt{N}} F_k e^{-i2\pi f_k t} = \frac{1}{\sqrt{N}}(A_k - iB_k)(\cos(2\pi f_k t) - i\sin(2\pi f_k t))$$
$$= \frac{1}{\sqrt{N}}\Big[A_k \cos(2\pi f_k t) - B_k \sin(2\pi f_k t)$$
$$- i\left(A_k \sin(2\pi f_k t) + B_k \cos(2\pi f_k t)\right)\Big],$$

from which it follows that the tth component of $2\Re\left(F_k \mathcal{F}_{k\bullet}\right)$, i.e., $\mathcal{D}_{\mathcal{F},k,t}$, is given by

$$\frac{2}{\sqrt{N}}\left[A_k \cos(2\pi f_k t) - B_k \sin(2\pi f_k t)\right],$$

as required.
(Correction spotted by Weiwei Chung.)

p. 525: In the answer to Exercise [167a], the right-hand side of the equation in the second line above the last displayed equation should read $\frac{1}{2}\left(\|\mathbf{W}_1\|^2 + \|\mathbf{W}_{\mathcal{T},1}\|^2\right)$ rather than $\frac{1}{2}\|\left(\mathbf{W}_1\|^2 + \|\mathbf{W}_{\mathcal{T},1}\|^2\right)$; i.e., the left parenthesis is misplaced (spotted by Nathaniel Derby).

p. 526: The left-hand side of the next to last displayed equation should be g_l° rather than g_{L-l-1}° (spotted by Eric Aldrich).

p. 526: In the last displayed equation, all instances of $\tilde{h}$ and $\tilde{g}$ should be $\tilde{h}^\circ$ and $\tilde{g}^\circ$ (spotted by Caleb Dougherty).

p. 527: In the first displayed equation in the answer to Exercise [171a], the index 'j' should be 'l' in two instances; additionally, '$\equiv$' should be '$=$' in the expression for $\widetilde{V}_{1,t}$ (spotted by Agnieszka Jach).

p. 527: In the answer to Exercise [171a], the last displayed equation should have just '$\widetilde{\mathcal{G}}(\frac{k}{N})$' rather than '$|\widetilde{\mathcal{G}}(\frac{k}{N})$'; i.e., the vertical bar should be deleted (spotted by Nathaniel Derby).

p. 529: In the solution to Exercise [214], for clarity, 'Note first that' should be expanded to 'Note first that, starting from Equation (214a),'.

p. 532: In the solution to Exercise [262a], the first displayed equation should be

$$J = \begin{vmatrix} 1 & 0 \\ -1 & 1 \end{vmatrix} = 1 \text{ rather than } J = \begin{vmatrix} 1 & 0 \\ 1 & 1 \end{vmatrix} = 1$$

(spotted by Evan Hanusa).

p. 541: In the second displayed equation in the answer to Exercise [345], the 'l' just to the left of the right brace should be 'l'' (spotted by Nathaniel Derby).

p. 549: In the expression for $v_{j,k}$ in the answer to Exercise [481], '$\langle s_{j-1}(\cdot), \phi_{2,k}(\cdot) \rangle$' should be '$\langle s_{j-1}(\cdot), \phi_{j,k}(\cdot) \rangle$', while '$w_{1,m}$' should be '$w_{l,m}$' (spotted by Agnieszka Jach).

p. 557: The title of the journal in the entry for Jensen (1999b) should start with 'Studies in' rather than 'Studies of' (spotted by Zhao Xuelin).

p. 562: The volume for Toussoun (1925) should be 9 rather than 18.

p. 571: In the entry for 'bias-variance' in the index, 431 should be 430.

p. 576: In the entry for 'backward difference' under 'filter', 107 should be 105.

p. 585: The entry 'reflecting boundary conditions' should be 'reflection boundary conditions'.