First-edition-book Errata, Version 1.21

References

Reference 6

Morrison, N., "Introduction to Sequential Smoothing and Prediction"

The statement

is available from http://goo.gl/CM9cN

should read as follows:

is available from https://goo.gl/CM9cN

Preface

Page xxv

The statement

Video_Clips\TWS\Documents\Readme.PDF

should read as follows:

Part_2\Video_Clips_TWS\Documents\Readme.PDF

Page xxv

The statement

Video_Clips\TWS\Flights

should read as follows:

Part_2\Video_Clips_TWS\Flights

Chapter 1

Page 3

The statement

Video_Clips\TWS\Documents\Readme.PDF

should read as follows:

Part_2\Video_Clips_TWS\Documents\Readme.PDF

Page 3

The statement

Video_Clips\TWS\Flights

should read as follows:

Part_2\Video_Clips_TWS\Flights

Page 18

The item

$\boldsymbol{X^*}_{t_n+1,\, t_n}$

should read as follows:

$\boldsymbol{X^*}_{t_{n+1},\, t_n}$

Page 39

Footnote 13 should read as follows:

See References 106 – 110 and 157.

Page 40

The statement

> with a (*1-Hz*) data rate

should read as follows:

> with a *1-Hz* data rate

Page 40

The statement

> In the down-loadable material there is a folder called ***Video_Clips***, in which you will find two sub-folders:

should read

> In the down-loadable material there are two folders called ***Part_2*** and ***Part 3*** in which you will find sub-folders relating to ***Doppler*** and ***TWS***:

Page 41

The statement

> Please include the words ‘Tracking Filter’ in the title of your email.

should read as follows

> Please include the words *Tracking Filter Engineering* in the title of your email.

Chapter 2

Page 83

Equation (2.6.16) currently reads as follows:

$$D\begin{pmatrix} \boldsymbol{\delta} x(t) \\ \boldsymbol{\delta} \dot{x}(t) \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 0 & 2k\dot{x}(t) \end{pmatrix}_{\bar{\boldsymbol{X}}(t)} \begin{pmatrix} \boldsymbol{\delta} x(t) \\ \boldsymbol{\delta} \dot{x}(t) \end{pmatrix} \tag{2.6.16}$$

The four *δ's* should not be bold, and so the equation should read as follows:

$$D\begin{pmatrix} \delta x(t) \\ \delta \dot{x}(t) \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ 0 & 2k\dot{x}(t) \end{pmatrix}_{\bar{\boldsymbol{X}}(t)} \begin{pmatrix} \delta x(t) \\ \delta \dot{x}(t) \end{pmatrix} \tag{2.6.16}$$

Page 87

The statement

> This DE is nonlinear. Deriving its sensitivity matrix $\boldsymbol{A}(\bar{\boldsymbol{X}}(t_n))$ using (2.6.13) we obtain

should read as follows:

> This DE is nonlinear. Deriving its sensitivity matrix $\boldsymbol{A}(\bar{\boldsymbol{X}}(t_n))$ using (2.6.13) we obtain (see Problem 3.10)

Page 87

Equation (2.6.37) currently reads as follows:

$$D\begin{pmatrix}\boldsymbol{\delta} x(t)\\ \boldsymbol{\delta}\dot{x}(t)\\ \boldsymbol{\delta}\omega\end{pmatrix} = \boldsymbol{A}(\boldsymbol{X}(t))\begin{pmatrix}\boldsymbol{\delta} x(t)\\ \boldsymbol{\delta}\dot{x}(t)\\ \boldsymbol{\delta}\omega\end{pmatrix} \tag{2.6.37}$$

The six *δ's* should not be bold, and so the equation should read as follows:

$$D\begin{pmatrix}\delta x(t)\\ \delta\dot{x}(t)\\ \delta\omega\end{pmatrix} = \boldsymbol{A}(\boldsymbol{X}(t))\begin{pmatrix}\delta x(t)\\ \delta\dot{x}(t)\\ \delta\omega\end{pmatrix} \tag{2.6.37}$$

Page 90

Equation (2.6.45) currently reads as follows:

$$\boldsymbol{\delta X}(t) \equiv (\boldsymbol{\delta} x_1(t),\ \boldsymbol{\delta} x_2(t),\ \boldsymbol{\delta} x_3(t),\ \boldsymbol{\delta} x_4(t),\ \boldsymbol{\delta} x_5(t),\ \boldsymbol{\delta} x_6(t))^T \tag{2.6.45}$$

The six *δ's* on the right-hand side of the equation should not be bold, and so the equation should read as follows:

$$\boldsymbol{\delta X}(t) \equiv (\delta x_1(t),\ \delta x_2(t),\ \delta x_3(t),\ \delta x_4(t),\ \delta x_5(t),\ \delta x_6(t))^T \tag{2.6.45}$$

Page 97

Equation (A2.2.10) currently reads as follows:

$$\boldsymbol{Z}_n \equiv (\mathrm{x},\ \tau\dot{x},\ \ \tau^2/\boldsymbol{2}!\ \ddot{x},\ \ldots\ \ \tau^m/m!\ D^m x)_n{}^{\boldsymbol{T}} \tag{A2.2.10}$$

The *2* should not be bold, and so the equation should read as follows:

$$\boldsymbol{Z}_n \equiv (x,\ \tau\dot{x},\ \ \tau^2/2!\ \ddot{x},\ \ldots\ \ \tau^m/m!\ D^m x)_n{}^{\boldsymbol{T}} \tag{A2.2.10}$$

Page 101

Equation (A2.4.4) currently reads as follows:

$$D\begin{bmatrix}\boldsymbol{\delta} x_1 \\ \boldsymbol{\delta} x_2\end{bmatrix} = \begin{pmatrix} f_1(x_1+\boldsymbol{\delta} x_1\,,\, x_2+\boldsymbol{\delta} x_2\,) \\ f_2(x_1+\boldsymbol{\delta} x_1\,,\, x_2+\boldsymbol{\delta} x_2\,)\end{pmatrix} - \begin{pmatrix} f_1(x_1\,,\, x_2\,) \\ f_2(x_1\,,\, x_2\,)\end{pmatrix} \qquad \text{(A2.4.4)}$$

The six δ*'s* should not be bold, and so the equation should read as follows:

$$D\begin{bmatrix}\delta x_1 \\ \delta x_2\end{bmatrix} = \begin{pmatrix} f_1(x_1+\delta x_1\,,\, x_2+\delta x_2\,) \\ f_2(x_1+\delta x_1\,,\, x_2+\delta x_2\,)\end{pmatrix} - \begin{pmatrix} f_1(x_1\,,\, x_2\,) \\ f_2(x_1\,,\, x_2\,)\end{pmatrix} \qquad \text{(A2.4.4)}$$

Page 101

Equation (A2.4.5) currently reads as follows:

$$D\begin{pmatrix}\boldsymbol{\delta} x_1(t) \\ \boldsymbol{\delta} x_2(t)\end{pmatrix} = \begin{pmatrix} D_{x_1} f_1\big(x_1(t)\,,\, x_2(t)\big) & D_{x_2} f_1\big(x_1(t)\,,\, x_2(t)\big) \\ D_{x_1} f_2\big(x_1(t)\,,\, x_2(t)\big) & D_{x_2} f_2\big(x_1(t)\,,\, x_2(t)\big)\end{pmatrix}_{\mathbf{X}(t)} \begin{pmatrix}\boldsymbol{\delta} x_1(t) \\ \boldsymbol{\delta} x_2(t)\end{pmatrix}$$

(A2.4.5)

The four δ*'s* should not be bold, and so the equation should read as follows:

$$D\begin{pmatrix}\delta x_1(t) \\ \delta x_2(t)\end{pmatrix} = \begin{pmatrix} D_{x_1} f_1\big(x_1(t)\,,\, x_2(t)\big) & D_{x_2} f_1\big(x_1(t)\,,\, x_2(t)\big) \\ D_{x_1} f_2\big(x_1(t)\,,\, x_2(t)\big) & D_{x_2} f_2\big(x_1(t)\,,\, x_2(t)\big)\end{pmatrix}_{\mathbf{X}(t)} \begin{pmatrix}\delta x_1(t) \\ \delta x_2(t)\end{pmatrix}$$

(A2.4.5)

Page 102

The statement

> We refer you to Problems 2.24 and 2.25 where we ask you to apply the above.

should read as follows:

> We refer you to Problems 2.18, 2.19, 2.20, 2.23, 2.24 where we ask you to apply the above.

Chapter 3

Page 124

Equation (3.3.33) currently reads as follows:

$$\begin{pmatrix} \delta Y_n \\ \text{------} \\ \delta Y_{n-1} \\ \text{------} \\ \vdots \\ \text{------} \\ \delta Y_{n-L} \end{pmatrix} = \begin{pmatrix} M(\bar{X}_n)\delta X_n \\ \text{----------------------------} \\ M(\bar{X}_{n-1})\,\Phi(t_{n-1}, t_n; \bar{X})\,\delta\bar{X}_n \\ \text{----------------------------} \\ \vdots \\ \text{----------------------------} \\ M(\bar{X}_{n-L})\,\Phi(t_{n-L}, t_n; \bar{X})\,\delta\bar{X}_n \end{pmatrix} + \begin{pmatrix} N_n \\ \text{------} \\ N_{n-1} \\ \text{------} \\ \vdots \\ \text{------} \\ N_{n-L} \end{pmatrix} \tag{3.3.33}$$

There should not be bars over the δX_n in two places just to the left of the *plus* sign. The equation should therefore read as follows:

$$\begin{pmatrix} \delta Y_n \\ \text{------} \\ \delta Y_{n-1} \\ \text{------} \\ \vdots \\ \text{------} \\ \delta Y_{n-L} \end{pmatrix} = \begin{pmatrix} M(\bar{X}_n)\delta X_n \\ \text{----------------------------} \\ M(\bar{X}_{n-1})\,\Phi(t_{n-1}, t_n; \bar{X})\,\delta X_n \\ \text{----------------------------} \\ \vdots \\ \text{----------------------------} \\ M(\bar{X}_{n-L})\,\Phi(t_{n-L}, t_n; \bar{X})\,\delta X_n \end{pmatrix} + \begin{pmatrix} N_n \\ \text{------} \\ N_{n-1} \\ \text{------} \\ \vdots \\ \text{------} \\ N_{n-L} \end{pmatrix} \tag{3.3.33}$$

Chapter 4

Page 170

Equation (A4.1.5) and the line that follows it currently read as follows:

$$z = r_{1,1}x^2 + 2r_{1,2}\,x(mx) + r_{2,2}(mx)^2$$
$$= (r_{1,1} + 2mr_{1,2} + m^2 r_{2,2})x^2 = k\,x^2 \qquad \text{(A4.1.5)}$$

in which k is positive (because $z > 0$).

The k should be b, and so (A4.1.5) and the line that follows it should read as follows:

$$z = r_{1,1}x^2 + 2r_{1,2}\,x(mx) + r_{2,2}(mx)^2$$
$$= (r_{1,1} + 2mr_{1,2} + m^2 r_{2,2})x^2 = b\,x^2 \qquad \text{(A4.1.5)}$$

in which b is positive (because $z > 0$).

Page 171

The statements

Using this in (A4.1.5) gives

$$z = Ax^2 = \big(k/(1+m^2)\big)\|\boldsymbol{c}\|^2 = k(m)\|\boldsymbol{c}\|^2 \qquad \text{(A4.1.8)}$$

This means that there exists a positive constant $k(m) \equiv A/(1+m^2)$ that is independent of $\|\boldsymbol{c}\|$

should read as follows:

Using this in (A4.1.5) gives

$$z = bx^2 = \big(b/(1+m^2)\big)\|\boldsymbol{c}\|^2 = k(m)\|\boldsymbol{c}\|^2 \qquad \text{(A4.1.8)}$$

This means that there exists a positive constant $k(m) \equiv b/(1+m^2)$ that is independent of $\|\boldsymbol{c}\|$

Chapter 7

Page 232

The statement

(see Project 10.9)

should read as follows:

(see Project 10.6)

Page 235

The statement

Let the state vector of the observed trajectory be the m-vector $\boldsymbol{X}$.

should read as follows:

Let the true state vector of the observed trajectory be the m-vector $\boldsymbol{X}$.

Chapter 8

Page 257

The statement

and also that Version 2 avoids two of the seven matrix multiplications

should read as follows:

and also that Version 2 avoids two of the six matrix multiplications

Page 267

The statement

> We assume for simplicity that the observations $y_1, y_2, \ldots y_n$ are uncorrelated and that the variances of their errors are respectively $r_1, r_2, \ldots r_n$. Then the covariance matrix of the long-vector $\boldsymbol{Y}_n$ will be the diagonal matrix $\boldsymbol{R}_{\boldsymbol{Y}_n} = diag(r_1, r_2, \ldots r_n)$.

should read as follows:

> We assume for simplicity that the observations $y_n, y_{n-1}, \ldots y_1$ are uncorrelated and that the variances of their errors are respectively $r_n, r_{n-1}, \ldots r_1$. Then the covariance matrix of the long-vector $\boldsymbol{Y}_n$ will be the diagonal matrix $\boldsymbol{R}_{\boldsymbol{Y}_n} = diag(r_n, r_{n-1}, \ldots r_1)$.

Page 267

Equation (8.5.7) currently reads as follows:

$$\boldsymbol{R}_{\boldsymbol{Y}_n}^{-1} = diag\big(1/r_1,\ 1/r_2,\ 1/r_3,\ 1/r_4,\ 1/r_5\big)_n^T \qquad (8.5.7)$$

It should read as follows:

$$\boldsymbol{R}_{\boldsymbol{Y}_n}^{-1} = diag\big(1/r_n,\ 1/r_{n-1},\ 1/r_{n-2},\ 1/r_{n-3},\ 1/r_{n-4}\big)^T \qquad (8.5.7)$$

Page 268

Equation (8.5.11) currently reads as follows:

$$\boldsymbol{T}_2^T \boldsymbol{R}_{\boldsymbol{Y}_2}^{-1} \boldsymbol{T}_2 = \begin{pmatrix} 1 & 1 \\ 0 & t_1 - t_2 \end{pmatrix} \begin{pmatrix} 1/r_1 & 0 \\ 0 & 1/r_2 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ 1 & t_1 - t_2 \end{pmatrix}$$

$$= \begin{pmatrix} 1/r_1 + 1/r_2 & (t_1 - t_2)/r_2 \\ (t_1 - t_2)/r_2 & (t_1 - t_2)^2/r_2 \end{pmatrix} \tag{8.5.11}$$

It should read as follows:

$$\boldsymbol{T}_2^T \boldsymbol{R}_{\boldsymbol{Y}_2}^{-1} \boldsymbol{T}_2 = \begin{pmatrix} 1 & 1 \\ 0 & t_1 - t_2 \end{pmatrix} \begin{pmatrix} 1/r_2 & 0 \\ 0 & 1/r_1 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ 1 & t_1 - t_2 \end{pmatrix}$$

$$= \begin{pmatrix} 1/r_2 + 1/r_1 & (t_1 - t_2)/r_1 \\ (t_1 - t_2)/r_1 & (t_1 - t_2)^2/r_1 \end{pmatrix} \tag{8.5.11}$$

Page 268

The sentence

◊ At time t_2 the filter is cycled, using as the inputs $\boldsymbol{Y}_2 = (y_1,\ \ y_2)^T$ and the matrix $\boldsymbol{R}_{\boldsymbol{Y}_2} = diag(r_1,\ r_2)$. The outputs will be $\boldsymbol{X}^*_{2,2}$ and $\boldsymbol{S}^*_{2,2}$.

should read as follows:

◊ At time t_2 the filter is cycled, using as the inputs $\boldsymbol{Y}_2 = (y_2,\ \ y_1)^T$ and the matrix $\boldsymbol{R}_{\boldsymbol{Y}_2} = diag(r_2,\ r_1)$. The outputs will be $\boldsymbol{X}^*_{2,2}$ and $\boldsymbol{S}^*_{2,2}$.

Page 268

The sentence

◊ At time t_3 the filter is cycled, using as the inputs $\boldsymbol{Y}_3 = (y_1, \ y_2, \ y_3)^T$ and the matrix $\boldsymbol{R}_{\boldsymbol{Y}_3} = diag(r_1, \ r_2, \ r_3)$. The outputs will be $\boldsymbol{X}^*_{3,3}$ and $\boldsymbol{S}^*_{3,3}$.

should read as follows:

◊ At time t_3 the filter is cycled, using as the inputs $\boldsymbol{Y}_3 = (y_3, \ y_2, \ y_1)^T$ and the matrix $\boldsymbol{R}_{\boldsymbol{Y}_3} = diag(r_3, \ r_2, \ r_1)$. The outputs will be $\boldsymbol{X}^*_{3,3}$ and $\boldsymbol{S}^*_{3,3}$.

Page 268

The sentence

◊ At time t_4 the filter is cycled using $\boldsymbol{Y}_4 = (y_1, \ y_2, \ y_3, \ y_4)^T$ and $\boldsymbol{R}_{\boldsymbol{Y}_4} = diag(r_1, r_2, r_3, r_4)$. The outputs will be $\boldsymbol{X}^*_{4,4}$ and $\boldsymbol{S}^*_{4,4}$ and so on.

should read as follows:

◊ At time t_4 the filter is cycled using $\boldsymbol{Y}_4 = (y_4, \ y_2, \ y_2, \ y_1)^T$ and $\boldsymbol{R}_{\boldsymbol{Y}_4} = diag(r_4, r_3, r_2, r_1)$. The outputs will be $\boldsymbol{X}^*_{4,4}$ and $\boldsymbol{S}^*_{4,4}$ and so on.

Page 271

The sentence

As noted earlier, Version 2 of the MVA requires five matrix multiplications whereas Version 1 requires seven, and so, all else being equal, we would use Version 2.

should read as follows:

As noted earlier, Version 2 of the MVA requires four matrix multiplications whereas Version 1 requires six, and so, all else being equal, we would use Version 2.

Chapter 9

Page 320

In Appendix 9.3, equation (A9.3.2) currently reads as follows:

$$L = (2\pi)^{-k/2} | \mathbf{R} |^{-1/2} exp\left(-\tfrac{1}{2}(\mathbf{Y} - \mathbf{T}X^*)^T \mathbf{R}_{\mathbf{Y}}^{-1} (\mathbf{Y} - \mathbf{T}X^*)\right) \qquad (A9.3.2)$$

The equation should read as follows:

$$L = (2\pi)^{-k/2} | \mathbf{R}_{\mathbf{Y}} |^{-1/2} exp\left(-\tfrac{1}{2}(\mathbf{Y} - \mathbf{T}X^*)^T \mathbf{R}_{\mathbf{Y}}^{-1} (\mathbf{Y} - \mathbf{T}X^*)\right) \qquad (A9.3.2)$$

Chapter 10

Page 339

The statement

Video_Clips\TWS\Flights

should read as follows:

Part_2\Video_Clips_TWS\Flights

Page 339

The statement

Video_Clips\TWS\Documents\Readme

should read as follows:

Part_2\Video_Clips_TWS\Documents\Readme

Page 344

The statement

> These are then transformed to Cartesian coordinates and fed to three filters – Kalman, Swerling and Gauss-Newton

should read as follows:

> These are then transformed to Cartesian coordinates and, after prefiltering, are fed to three filters – Kalman, Swerling and Gauss-Newton

Page 349

The statement

> the values $\boldsymbol{X}^*_{max}$, $\boldsymbol{S}^*_{max}$ and SSR^*_{max} have been placed in storage

should read as follows:

> the values $\boldsymbol{X}^*_{max}$, $\boldsymbol{S}^*_{max}$ and SSR_{max} have been placed in storage

Page 351

The statement

> In (A10.1.5) we show the values for $N_{\boldsymbol{X}^*_3}$, $N_{\boldsymbol{X}^*_4}$ and $N_{\boldsymbol{X}^*_5}$.

should read as follows:

> In (A10.1.4) we show the values for $N_{\boldsymbol{X}^*_3}$, $N_{\boldsymbol{X}^*_4}$ and $N_{\boldsymbol{X}^*_5}$.

Chapter 11

Page 387

The first paragraph currently reads as follows:

> As an example, we see from Figure A11.16.3 that when $N = 1600$, on average the Gauss–Newton $\dot{x}$, $\dot{y}$ and $\dot{z}$ estimates are *100* times more accurate than those of Kalman.

The paragraph should read as follows:

> As an example, we see from Figure A11.4.3 that when $N = 1600$, on average the Gauss–Newton $\dot{x}$, $\dot{y}$ and $\dot{z}$ estimates are *100* times more accurate than those of Kalman.

Chapter 12

Page 420

In Figure 12.21(b) the expression

$$20(1 - \theta)^7/\tau^2(1 + \theta)^7$$

The item τ^2 is incorrect. The expression should read as follows:

$$20(1 - \theta)^7/\tau^6(1 + \theta)^7$$

Page 420

In Figure 12.21(b) the expression

$$\begin{array}{c} 5(4490^6+29880^5+100130^4+212160^3+289230^2+255880+12199)(1 - \theta)^3 \\ 72\tau^2(1 + \theta)^9 \end{array}$$

should be as follows:

$$\frac{5(449\theta^6+29888\theta^5+100130\theta^4+212160\theta^3+289230\theta^2+255880\theta+12199)(1 - \theta)^3}{72\tau^2(1 + \theta)^9}$$

Page 423

Equation (12.2.56) now reads

$$\boldsymbol{VRF}(\boldsymbol{X^*}_{n+1,n}) = \begin{pmatrix} 1.25(1-\theta) & 6(1-\theta)^2/\tau \\ 6(1-\theta)^2/\tau & 12(1-\theta)^3/\tau^2 \end{pmatrix} \qquad (12.2.56)$$

It should read as follows:

$$\boldsymbol{VRF}(\boldsymbol{X^*}_{n+1,n}) = \begin{pmatrix} 1.25(1-\theta) & 0.5(1-\theta)^2/\tau \\ 0.5(1-\theta)^2/\tau & 0.25(1-\theta)^3/\tau^2 \end{pmatrix} \qquad (12.2.56)$$

Page 423

Equation (12.2.57) now reads

$$\boldsymbol{VRF}(\boldsymbol{X^*}_{n+1,n}) =$$

$$\begin{pmatrix} 2.0625(1-\theta) & 1.6875(1-\theta)^2/\tau & 0.5(1-\theta)^3/\tau^2 \\ 1.6875(1-\theta)^2/\tau & 1.75(1-\theta)^3/\tau^2 & 0.5625(1-\theta)^4/\tau^3 \\ 0.5(1-\theta)^3/\tau^2 & 0.5625(1-\theta)^4/\tau^3 & 1.1875(1-\theta)^5/\tau^4 \end{pmatrix} \qquad (12.2.57)$$

The coefficient *1.1875* is incorrect. The equation should read as follows:

$$\boldsymbol{VRF}(\boldsymbol{X^*}_{n+1,n}) =$$

$$\begin{pmatrix} 2.0625(1-\theta) & 1.6875(1-\theta)^2/\tau & 0.5(1-\theta)^3/\tau^2 \\ 1.6875(1-\theta)^2/\tau & 1.75(1-\theta)^3/\tau^2 & 0.5625(1-\theta)^4/\tau^3 \\ 0.5(1-\theta)^3/\tau^2 & 0.5625(1-\theta)^4/\tau^3 & 0.1875(1-\theta)^5/\tau^4 \end{pmatrix} \qquad (12.2.57)$$

Page 423

The second equation in (12.2.58) now reads

$$\sigma(x_1{}^*_{n+1\,,\,n}) = 1.5\left((13\theta^2 + 50\theta + 49)(1-\theta)^3 2\tau^2(1+\theta)^5\right)^{1/2} \approx 0.57\,m/sec \qquad (12.2.58)$$

The division slash is missing before the *2*. The equation should read as follows:

$$\sigma(x_1{}^*_{n+1\,,\,n}) = 1.5\left((13\theta^2 + 50\theta + 49)(1-\theta)^3/2\tau^2(1+\theta)^5\right)^{1/2} \approx 0.57\,m/sec \qquad (12.2.58)$$

Page 455

The statement

"... we are approximating the orbit by..."

should read as follows:

"... we are approximating the orbits by..."

Chapter 13

Page 474

Equation (13.1.9) currently reads as follows:

$$\left(c_j(n)\right)^2 \equiv \sum_{s=0}^{n} \left(p_i(s,n)\right)^2 \qquad (13.1.9)$$

The term p_i on the right should be p_j. The equation should therefore read as follows:

$$\left(c_j(n)\right)^2 \equiv \sum_{s=0}^{n} \left(p_j(s,n)\right)^2 \qquad (13.1.9)$$

Page 490

Equation (13.2.29) currently reads as follows:

$$(\boldsymbol{C}(n))^2 = \begin{pmatrix} 1/c_0(n)^2 & 0 \\ 0 & 1/c_0(n)^2 \end{pmatrix} = \begin{pmatrix} 1/(n+1) & 0 \\ 0 & 3n/(n+2)(n+1) \end{pmatrix} \quad (13.2.29)$$

The second term in the first matrix should be $1/c_1(n)^2$. The equation should therefore read as follows:

$$(\boldsymbol{C}(n))^2 = \begin{pmatrix} 1/c_0(n)^2 & 0 \\ 0 & 1/c_1(n)^2 \end{pmatrix} = \begin{pmatrix} 1/(n+1) & 0 \\ 0 & 3n/(n+2)(n+1) \end{pmatrix} \quad (13.2.29)$$

Page 491

The statement

The matrix $\boldsymbol{D}(\tau)$ was defined in (11.2.1).

should read as follows:

The matrix $\boldsymbol{D}(\tau)$ was defined in (12.2.11).

Page 491

The statement

See Project 12.2 in the supplementary material for comments regarding denormalization in the computer programs.

should read as follows:

See Projects 12.2 and 13.3 in the supplementary material for comments regarding denormalization in the computer programs.

Page 492

The statement

When $m = 0$ or 1 it is possible to form theses expansions by hand

should read as follows:

When $m = 0$ or 1 it is possible to form these expansions by hand

Page 492

The statement

where $\mathbf{\Phi}(1)$ is the transition matrix defined in (2.3.17)

should read as follows:

where $\mathbf{\Phi}(1)$ is the transition matrix defined in (2.3.14)

Page 492

Equation (13.2.39) currently reads as follows:

$$\boldsymbol{S}^*(X^*_{n+1,n}) = \mathbf{\Phi}(\tau)\,\boldsymbol{S}^*(X^*_{n+1,n})\mathbf{\Phi}(\tau)^T \qquad (13.2.39)$$

The equation should read as follows:

$$\boldsymbol{S}^*(X^*_{n+1,n}) = \mathbf{\Phi}(\tau)\,\boldsymbol{S}^*(X^*_{n,n})\mathbf{\Phi}(\tau)^T \qquad (13.2.39)$$

Page 504

Equation (13.3.38) currently reads as follows:

$$z_i{}^*{}_{n-s,n} = \sum_{j=0}^{m} (-1)^i/i\ \ d^i/ds^i\varphi_j(s,\theta)\Big|_{s=-1}\left(\sum_{k=0}^{\infty}\varphi_j(k,\theta)\theta^k y_{n-k}\right) \qquad 0 \le i \le m \qquad (13.3.38)$$

A factorial symbol is missing after $/i$. The equation should read as follows:

$$z_i{}^*{}_{n-s,n} = \sum_{j=0}^{m} (-1)^i/i!\,d^i/ds^i\varphi_j(s,\theta)\Big|_{s=-1}\left(\sum_{k=0}^{\infty}\varphi_j(k,\theta)\theta^k y_{n-k}\right) \qquad 0 \le i \le m \qquad (13.3.38)$$

Page 505

Equation (13.3.40) currently reads as follows:

$$[\boldsymbol{L}(\theta)]_j \equiv \theta^j / c(j\,,\,\theta) \qquad 0 \le i\,,j \le m \tag{13.3.40}$$

The term $c(j\,,\,\theta)$ is squared, and so the equation should read as follows:

$$[\boldsymbol{L}(\theta)]_j \equiv \theta^j / (c(j\,,\,\theta))^2 \qquad 0 \le i\,,j \le m \tag{13.3.40}$$

Page 512

The heading currently reads as follows:

3. The matrix $[\boldsymbol{P}(n,n)]_{i,j} = 1/i!\ d^i/ds^i(p_j(s,n)\Big|_{s=n} \qquad 0 \le i,j \le 4$

There is an extra bracket present before the p_j. It should read as follows:

3. The matrix $[\boldsymbol{P}(n,n)]_{i,j} = 1/i!\ d^i/ds^i\, p_j(s,n)\Big|_{s=n} \qquad 0 \le i,j \le 4$

Page 516

In Appendix 13.5, in the first row of the matrix the second term currently reads as follows:

$\theta^2(1 - bs)$

The term should read as follows:

$\theta(1 - bs)$

Page 516

In Appendix 13.5, in the first row of the matrix the fourth term currently reads as follows:

$$-\theta^3\big(1 - 3bs + 3b^2(s^2-s)/2 - b^3(s^3-3s^2+2s)/6\big)$$

There should not be a minus sign before the θ^3. The term should read as follows:

$$\theta^3\big(1 - 3bs + 3b^2(s^2-s)/2 - b^3(s^3-3s^2+2s)/6\big)$$