

**Known Errors in
Discrete Inverse and State Estimation Problems**

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P11 The reference to Eq. (6.1) should be to Eq. (1.20)

P 14 The reference to Eq. (4.35) should be to Eq. (1.26)

P31 line 15: “true estimate” should be “true value”

P37 The 2 in the numerator of Eq. (2.61) should be omitted, and σ^2 in the exponent should be $2\sigma^2$. Thus the equation should be,

$$p_{r,\phi}(R, \Phi) = \frac{R}{2\pi} \frac{1}{\sigma^2} \exp(-R^2/2\sigma^2), \quad 0 \leq r, \quad -\pi \leq \phi \leq \pi$$

P60 line 13: $M + i = 1, 2, \dots, N$ should be $i = M + 1, M + 2, \dots, N$.

P60 Eq. 2.148 should be $\mathbf{q} = \mathbf{A}_1^{-1}(\mathbf{b} - \mathbf{A}_2\mathbf{r})$

P63 \mathbf{y} should be \mathbf{b}

P68 Eq. 2.182: $= \mathbf{x}$ should be taken out.

P71 line 10: “sidelobes)” should be “sidelobes” without a parenthesis.

P74 2.204: $K + i = 1, 2, \dots, M$ should be $i = K + 1, K + 2, \dots, M$.

P74 2.205: $K + i = 1, 2, \dots, M$ should be $i = K + 1, K + 2, \dots, M$.

P74 line 29: $K + i = 1, 2, \dots, M$ should be $i = K + 1, K + 2, \dots, M$.

P75 2.212: $i > K + 1$ should be $i > K$.

P78 2.220: $K + i = 1, 2, \dots, M$ should be $i = K + 1, K + 2, \dots, M$.

P80 2.233: The upper limit N on the summation should be M .

P82 line 26: \mathbf{I}/γ^2 in the left should be $\gamma^2\mathbf{I}$.

P83 line 6: Remove 0 at the end, or the upper limit K on the summation would be M .

P87 line 9: “a sum of” should be “a linear combination of.”

P90 line 13: “and right multiply it by \mathbf{V}^T ” should be taken out.

P92 2.293: α in the first term in the second line should be in bold face.

P92 2.293: \mathbf{Q}_G^T should be \mathbf{Q}_v^T .

P104 line 11: $K' + i = 1, 2, \dots, K$ should be $i = K' + 1, K' + 2, \dots, M$.

P106, 107. The uncertainty should be in terms of $\mathbf{V}\Lambda^{-2}\mathbf{V}^T$ rather than $(\mathbf{E}\mathbf{E}^T)^{-1}$

P117 line 28: $W = \gamma^2 I, S = I$ should be $W = I, S^{-1} = \gamma^2 I$.

P122 Eq. (2.369) \mathbf{Q}^{-1} should be replaced by $(\mathbf{\Gamma}\mathbf{Q}\mathbf{\Gamma}^T)^{-1}$ and line 11, Eq. (2.352) should be Eq. (2.369)

P128 The first term of the 3rd line of Eq. (2.393) should be $\mathbf{B}\langle\mathbf{y}\mathbf{y}\rangle\mathbf{B}^T$.

P138 In the first displayed equation of the example, replace $y(1) - y(2)$ by $y(2) - y(1)$.

P140 line 1: $\mathbf{E}(1)$ should be $\mathbf{E}(2)$.

P140 line 29: “a recursive estimation procedure” should be “a recursive minimum variance estimation procedure.”

P141 In the first line of Eq. (2.442), the $-\mathbf{x}$ term was omitted, so that it should read instead as,

$$= \left\langle (\mathbf{L}_a(\tilde{\mathbf{x}}_a - \mathbf{x}) + (\mathbf{I} - \mathbf{L}_a)(\tilde{\mathbf{x}}_b - \mathbf{x})) (\mathbf{L}_a(\tilde{\mathbf{x}}_a - \mathbf{x}) + (\mathbf{I} - \mathbf{L}_a)(\tilde{\mathbf{x}}_b - \mathbf{x}))^T \right\rangle$$

P146 2.455: $u(\xi)v(\xi, \xi_0)$ should be $u(\xi)\delta(\xi_0 - \xi)$.

P147 2.458: $\frac{d}{d\xi}$ in the first term on the left-hand side should be erased.

P147 2.458: $u\frac{\partial^2 v(\xi, \xi_0)}{\partial \xi^2}$ in the second term on the left should be $v\frac{\partial^2 u(\xi, \xi_0)}{\partial \xi^2}$.

P147 2.461: $+uv|_0^L$ should be $-uv|_0^L$.

P166 line 1: 2.265 should be 2.264.

P198 line 24: “Fig. 4.4” should be “Fig. 4.5.”

P199 line 22: “Q is multiplied by a large factor to make it visible.” is not necessary.

P200 line 2: “Fig. 4.3” should be “Fig. 4.4.”

P203 line 4: “Eq. 4.50” should be “Eq. 4.49.”

P215 line 34: “4.71” should be “4.70.”

P220 4.112: $\boldsymbol{\mu}(t_f)$ in the first line and $\mathbf{A}^{(t_f)\Gamma}$ in the second line should be $\boldsymbol{\mu}(t_f - 1)$ and $\mathbf{A}^{(t_f-1)\Gamma}$, respectively.

P225 last line: $\mathbf{u}(t) = -[\mathbf{x}(t+1) - \mathbf{x}(t)]$ should be $\mathbf{u}(t) = \mathbf{x}(t+1) - \mathbf{A}\mathbf{x}(t)$.

P226 4.126: $\mathbf{Q}(t)^{-1}$ in the second line should be $\mathbf{Q}(t-1)^{-1}$

P226 4.127: $-\mathbf{Q}(t-1)^{-1}$ should be $-\mathbf{Q}(t)^{-1}$.

P232 line 11: “Can controls can be” should be “Can controls be.”

P236 line 17: 4.156 should be 4.157.

P239 4.163: The tilde over \mathbf{x}_0 in the first line should be omitted.

P240 line 13: 4.156 should be 4.157.

P240 Eq. (4.164) Delete $\mathbf{\Gamma}^T$

P241 line 36: 4.156 should be 4.157.

P266 line 11: $\mathbf{R} = \text{diag}([1, 0])$ should be $R = 1$.

P271 5.19 should be $\hat{\mathbf{x}}(s) = (\mathbf{I} - \mathbf{e}^{-2\pi is}\mathbf{A})^{-1}\hat{\mathbf{q}}(s)$ with subsequent redefinition of the resolvent.

P274 line 10: $\mathbf{N}_1 = \mathbf{Q}$ should be $\mathbf{N}_1 = \mathbf{B}_1$.

Please report further errors to cwunsch@mit.edu