25 September 2001

Page xiii  ‘Downloadable solution’s manual’ should be ‘Downloadable solutions manual’.

Page 12  There is an error in equation (1.23) in the book. Since the free response \( \hat{y}_f(k+P_i|k) \)
is defined to be the response when the input remains at its last value, namely \( u(k-1) \),
each term in (1.23) involving an input value \( \hat{u}(k+j|k) \) should in fact involve the
difference \( \hat{u}(k+j|k) - u(k-1) \). Thus the correct expression for (1.23) is:

\[
\hat{y}(k+P_i|k) = \hat{y}_f(k+P_i|k) + H(P_i)[\hat{u}(k|k) - u(k-1)] + H(P_i - 1)[\hat{u}(k+1|k) - u(k-1)] + \cdots \\
+ H(P_i - H_u + 2)[\hat{u}(k+H_u - 2|k) - u(k-1)] + S(P_i - H_u + 1)[\hat{u}(k+H_u - 1|k) - u(k-1)]
\]

Subsequent expressions are correct.

Page 47  Last line of Example 2.4: The dimensions given of matrices \( E \) and \( F \) are wrong.
They should be \( 16 \times 9 \) in each case. The dimensions given for the matrix \( G \) are correct.

Page 70  Exercise 2.3: The formula for the gradient is not (2.19), but the formula for \( \nabla V \)
which appears at the end of Mini-Tutorial 1.

Page 70  Exercise 2.4: The question should refer to Example 2.3, not Example 2.4. (But
the reader could answer the question for Example 2.4 too; it is a bit more complicated.)

Page 72  Exercise 2.12: Not really an error, but the solution to this exercise will probably
be clearer after reading sections 3.1 and 3.2 in the next chapter.

Page 73  Exercise 2.15(b): Actually it is much easier to design the state observer by hand
than by using the Model Predictive Control Toolbox in this case. But you need to use
the Toolbox representation of the model in order to perform the simulation in (c) using
the Toolbox.

Pages 79 and 81  Figures 3.1 and 3.2: The signal labelled \( \Delta(k) \) should be labelled \( \Delta u(k) \)
(as in Figure 3.3).

Page 105  Exercise 3.4: The reference to equation (2.23) is incorrect. It should be to
equation (2.66). (I suppose this should have been a Chapter 2 exercise really.)
Page 106 Exercise 3.10: The reference to equation (3.4) is spurious. The question should read: ‘Check that the optimization problems (3.88) and (3.90)–(3.91) are standard QP problems.’

Page 215 Exercise 7.5(c): The parameter value $H_p = 30$ is too low; this value gives instability. Use $H_p = 60$ instead.

Page 226 After ‘2. Control’ $K_{LQ}$ should be $K_\infty$ (twice) to make it consistent with Figure 8.3.

Page 319 Table C.1: The Model Predictive Control Toolbox parameters $ywt$ and $uwt$ correspond to $Q(i)^{1/2}$ and $R(i)^{1/2}$, respectively (that is, to $S_Q$ and $S_R$ in section 3.1.2).