

Corrections for
REINFORCEMENT LEARNING AND
OPTIMAL CONTROL

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ERRATA

p. 113 The stability argument given here should be slightly modified by adding over $k \in [1, K]$ (rather than over $k \in [0, K]$). Then in Eq. (2.40) $H_0(x_0)$ should be replaced by

$$g_0(x_0, u_0) + H_1(x_1).$$

This is the optimal cost of transfer from x_0 to $x_\ell = 0$ (i.e., the first ℓ -stage problem solved by MPC). Since this transfer is feasible by the constrained controllability condition, the above expression is finite and the stability condition is satisfied.

p. 159 (-9) Change

$$E(L_1, \dots, L_{m+1}) = \frac{1}{2}(y - F(L_1, \dots, L_{m+1}, x))^2,$$

to

$$E(L_1, \dots, L_{m+1}) = \frac{1}{2}\|y - F(L_1, \dots, L_{m+1}, x)\|^2,$$

p. 186 (+6) Change “cost 0” to “cost $g(i, u, j)$ ”

p. 187-188 The conversion of the discounted problem to an equivalent SSP problem needs correction. The cost per stage of the equivalent SSP problem at state i when control u is applied should be

$$E\{g(i, u, j)\} = \sum_{j=1}^n p_{ij}(u)g(i, u, j)$$

(regardless of whether the next state is $j = 1, \dots, n$ or the artificial termination state t) and not $g(i, u, j)$.

p. 203 (+9) Change “Prop. 4.3.2” to “Prop. 4.3.3”

p. 225 (+2) Change j_k to i_{k+1}

p. 232 (+14) Change “Here ϵ ” to “Here δ ”

p. 232 (+15) Change “Also δ ” to “Also ϵ ”

p. 232 (+18) Change “cases $\delta = 0$ ” to “cases $\epsilon = 0$ ”

p. 245 (+2) (1st printing of the book) Change “ (i, u) ” to “ (i^s, u^s) ”

p. 257 (+5 and +9) The summation should be over j not i

p. 260 (Eq. (5.42)) The limit should be as $q \rightarrow \infty$