Corrections for
REINFORCEMENT LEARNING AND
OPTIMAL CONTROL
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Last Updated: 9/10/2020

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 $\ell$-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. 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 $j = 1, \ldots, n$ 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 $\epsilon$” to “Here $\delta$”

p. 232 (+15) Change “Also $\delta$” to “Also $\epsilon$”

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

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

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

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