Hijab

Stabilization of Control Systems

The problem of controlling or stabilizing a system of differential equa tions in the presence of random disturbances is intuitively appealing and has been a motivating force behind a wide variety of results grouped loosely together under the heading of "Stochastic Control." This book is concerned with a special instance of this general problem, the "Adaptive LQ Regulator," which is a stochastic control problem of partially observed type that can, in certain cases, be solved explicitly. We first describe this problem, as it is the focal point for the entire book, and then describe the contents of the book. The problem revolves around an uncertain linear system x(O) = x~ in R", where 0 E {1,., N} is a random variable representing this uncertainty and (Ai' B, C) and xJ are the coefficient matrices and initial state, respectively, of j j a linear control system, for eachj = 1,., N. A common assumption is that the mechanism causing this uncertainty is additive noise, and that conse quently the "controller" has access only to the observation process y(.) where y = Cex +~.

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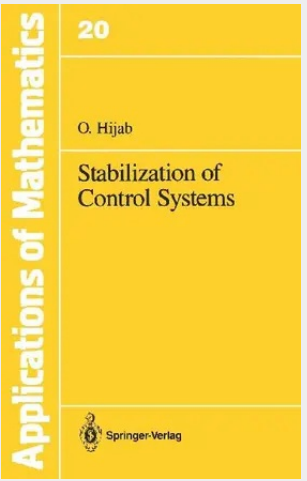

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