

Lai, Tze Leung (Stanford University, USA)

Modified Stochastic Liapounov Functions and their Application to Time Series and Stochastic Control

Abstract: We begin with a brief review of “extended stochastic Liapounov functions” introduced in a series of papers by Lai and Wei from 1982 to 1987 in their study of least squares estimates in stochastic regression models and adaptive control of linear stochastic systems. We then describe some recent work on ”modified Foster-Liapounov functions” and their applications to estimation and control in hidden Markov models (HMM) and to a long-standing problem on the asymptotic stability of optimal (nonlinear) filters in HMMs.