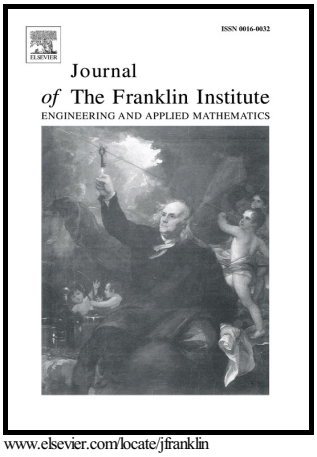

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Decentralized risk-sensitive design for large-scale stochastic interconnected systems with time-varying delays*

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Abstract

In this paper, the problem of risk-sensitivity for a class of large-scale interconnected stochastic nonlinear systems with unbounded time-varying delays is investigated. The design procedure is dedicated to designing a decentralized controller by using only local measurements in each subsystems, and the designed controller can guarantee any desired achievable level of long-term average cost for a given risk-sensitivity parameter μ. Under some suitable conditions, we prove the globally asymptotic stability in probability by applying the design procedure. Finally, two examples are presented to illustrate our results.

Key Words: Risk-sensitive control; unbounded time-varying delay; stochastic nonlinear system; large-scale interconnected system; globally asymptotic stability.

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