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Generalized dissipative state estimation for discrete-time nonhomogeneous semi-Markov jump nonlinear systems. (English) [Zbl 07484316]
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Summary: The problem of generalized dissipative state estimation for discrete-time nonhomogeneous semi-Markov jump nonlinear systems is concerned in this paper. In this paper, we consider the semi-Markov renewal chain is nonhomogeneous and the states of the system are inaccessible. The aim of this paper is to propose the estimator-designed method to ensure that the system is $\sigma$-mean-square stable and satisfy extended dissipative performance. By using the semi-Markov kernel method and polytopic approach, and constructing a new type of Lyapunov function, which not only depends on the sojourn-time but also on the stochastic switching rules, the state estimator gains can be obtained. At last, a numerical example is adopted to verify the superiority of the presented control strategy.

MSC:

93E15 Stochastic stability in control theory
93C55 Discrete-time control/observation systems
93C10 Nonlinear systems in control theory

Keywords:
dissipative state estimation; discrete-time semi-Markov jump nonlinear systems

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References:


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