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Robust stability analysis of uncertain discrete time-delay systems with nonlinear terms.
(Chinese. English summary) [Zbl 07448873]

Summary: For a class of discrete time-delay systems with both nonlinear and uncertain terms, the problem of robust stability is studied. The sufficient conditions for robust stability of the system are given in the form of linear matrix inequality by constructing Lyapunov function and Schur complement lemma. The state feedback robust controller is designed by using linear matrix inequality technique based on the sufficient conditions of robust stability of discrete time-delay systems. It is theoretically proved that the controller designed by this method guarantees the robust asymptotic stability of the closed-loop system.

MSC:
93D09 Robust stability
93C55 Discrete-time control/observation systems

Keywords:
nonlinear term; linear matrix inequality; state feedback; discrete time-delay systems

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