Stability and Finite/Fixed-Time Attractivity of Time-Delayed Filippov System: Application to Switched Neural Networks

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Abstract

This paper studies different kinds of stability and finite/fixed-time attractivity problems for time-delayed Filippov system (TDFS) via time-delayed differential inclusions(TDDI). A series of novel criteria concerning basic stability and finite/fixed-time attractivity for TDFS are established by employing indefinite Lyapunov method. As an application, the problems of stabilization and attractivity in finite/fixed time are explored for delayed switched neural networks (DSNNs), where four control protocols are developed. Furthermore, several concrete examples are given to demonstrate the effectiveness and advantages of the main results.

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