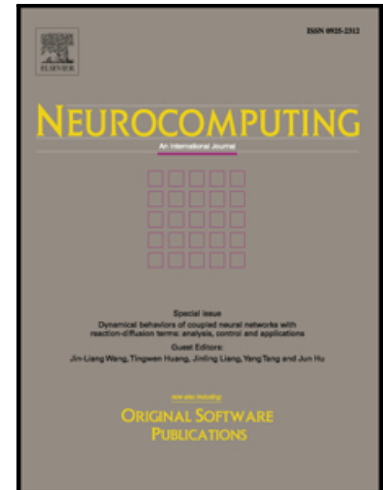


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Cooperative Output Regulation of Discrete-Time Linear Time-Delay Multi-Agent Systems Under Switching Network

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Abstract

In this paper, we study the cooperative output regulation problem for discrete-time linear time-delay multi-agent systems subject to jointly connected switching networks. Our distributed control law is composed of a purely decentralized control law and a distributed switched observer. In contrast to the same problem with static networks, the closed-loop system of this paper is a switched system, the stability analysis of the closed-loop system cannot be conducted by the existing frequency domain technique. Therefore, we need to establish two lemmas to lay the foundation for solving the problem and then present the solution to the problem by a distributed dynamic output feedback control law. An example is used to illustrate our approach. To our knowledge, this paper is the first one to study the cooperative output regulation of discrete-time linear time-delay multi-agent systems subject to switching networks.

Keywords: Cooperative output regulation, Discrete-time, Time-delay, Switching network

1. Introduction

The classical output regulation problem aims to design a feedback control law for a given plant so that the closed-loop system is internally stable and the

[✉]Fully documented templates are available in the elsarticle package on CTAN.

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