

Accepted Manuscript

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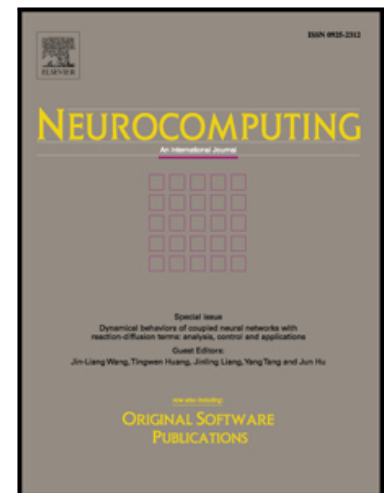
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PII: S0925-2312(18)30645-3
DOI: [10.1016/j.neucom.2018.05.060](https://doi.org/10.1016/j.neucom.2018.05.060)
Reference: NEUCOM 19621

To appear in: *Neurocomputing*

Received date: 2 February 2018
Revised date: 9 April 2018
Accepted date: 22 May 2018

Please cite this article as: Chaoxu Guan, Dong Sun, Zhongyang Fei, Chao Ren, Synchronization for Switched Neural Networks via Variable Sampled-data Control Method, *Neurocomputing* (2018), doi: [10.1016/j.neucom.2018.05.060](https://doi.org/10.1016/j.neucom.2018.05.060)



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Synchronization for Switched Neural Networks via Variable Sampled-data Control Method

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Abstract

This paper investigates the sampled-data synchronization of switched neural networks with time-varying discrete and distributed delays. Considering that the system switching may happen during a sampling interval, the asynchronous phenomenon is taken into account for the sampled-data control process. By utilizing multiple Lyapunov functions and average dwell time property, sufficient conditions are derived to guarantee the exponential stability of the error between the master and slave neural networks. Based on this, sampled-data controller is further designed so that the master and the slave systems are synchronized with a prescribed performance index. Finally, a numerical example is provided to illustrate the validness and effectiveness of the proposed results.

Index Terms

Switched neural networks, exponential synchronization, asynchronous switching, sampled-data control

I. INTRODUCTION

Over the past decades, neural networks have attracted considerable attention owing to their wide applications in various fields such as image processing, pattern recognition, associative memories, parallel computing, solving optimization problems and so on [1]–[4]. While in real life, it is common to face random environment changes, structure failure and unexpected faults,

This work was supported by the National Nature Science Foundation of China (61503094) and the Fundamental Research Funds for the Central Universities.

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