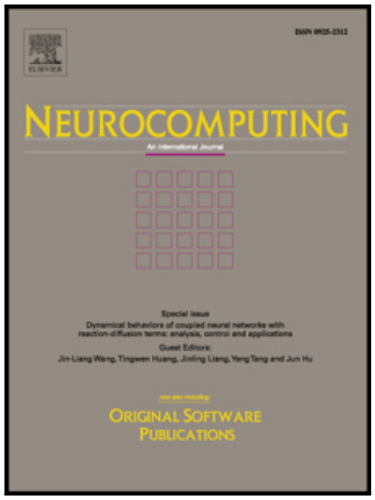
Communicated by Prof. Y. Liu

Accepted Manuscript



Global convergence analysis of impulsive inertial neural networks with time-varying delays

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PII: S0925-2312(17)30560-X
DOI: 10.1016/j.neucom.2017.03.045
Reference: NEUCOM 18273

To appear in: *Neurocomputing*

Received date: 11 July 2016
Revised date: 5 December 2016
Accepted date: 20 March 2017

Please cite this article as: Peng Wan, Jigui Jian, Global convergence analysis of impulsive inertial neural networks with time-varying delays, *Neurocomputing* (2017), doi: 10.1016/j.neucom.2017.03.045

Global convergence analysis of impulsive inertial neural networks with time-varying delays

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Abstract

In this paper, a class of impulsive inertial neural networks with time-varying delays is considered. By choosing proper variable transformation, the original inertial neural networks can be rewritten as first-order differential equations. Based on Lyapunov functions method and inequality techniques, some sufficient conditions are derived to guarantee global exponential convergence of the discussed inertial neural networks with impulsive effects. Meanwhile, the framework of the exponential convergence ball in the state space with a pre-specified convergence rate is also given. Here, the existence and uniqueness of the equilibrium points need not to be considered. Finally, some numerical examples with simulation are presented to show the effectiveness of the obtained results.

Keywords: Inertial neural network; Exponential convergence; Impulsive effect; Time-varying delay; Lyapunov function method; Inequality technique.

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