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Pinning-controlled synchronization of delayed neural networks with distributed-delay coupling via impulsive control [☆]

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Abstract

This paper investigates pinning synchronization of coupled neural networks with both current-state coupling and distributed-delay coupling via impulsive control. A novel impulse pinning strategy involving pinning ratio is proposed and a general criterion is derived to ensure an array of neural networks with two different topologies synchronizes with the desired trajectory. In order to handle the difficulties of high-dimension criteria, some inequality techniques and matrix decomposition methods through simultaneous diagonalization of two matrices are introduced and low-dimensional criteria are obtained. Finally, an illustrative example is given to show the effectiveness of the proposed method.

Keywords: Pinning synchronization; Impulsive control; Neural networks; Distributed delays

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