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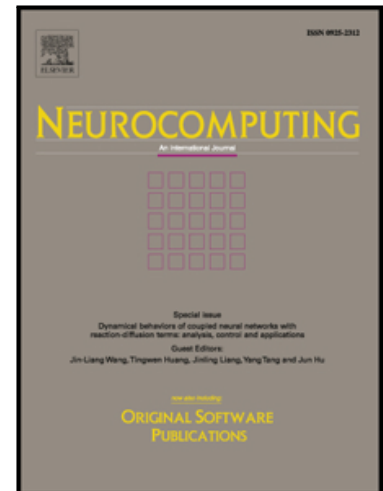
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# Synchronization analysis of fractional-order neural networks with time-varying delays via discontinuous neuron activations \*

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**Abstract** In this paper, we study the drive-response synchronization for a class of fractional-order delayed neural networks with discontinuous activations (FDNNDAs). Under the framework of Filippov solutions, the concept of fractional-order Filippov solution for the initial value problem of FDNNDAs is introduced. The global existence of Filippov solutions to FDNNDAs is guaranteed by the given growth condition and strict mathematical proof. State feedback controller and adaptive controller are designed respectively to ensure the global synchronization of the FDNNDAs. Based on the nonsmooth analysis and the Razumikhin-type stability theorem, several new synchronization conditions are derived. Finally, numerical simulations are given to verify the effectiveness of the theoretical results.

**Keywords:** Fractional-order discontinuous neural networks; Fractional-order Filippov solutions; Feedback control; Adaptive control; Synchronization

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