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## Synchronization Criteria for Discrete-Time Fractional-Order Neural Networks

### Communication Info

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### Abstract

This paper addresses the problem of complete synchronization in a class of fractional-order discrete-time uncertain neural networks with leakage and discrete delays. Fractional-order models have attracted considerable attention due to their ability to describe systems with memory and hereditary properties [1], which frequently appear in engineering and neural network dynamics [2]. Synchronization in neural networks has also been widely investigated because of its theoretical importance and practical applications in complex systems [3,4]. To address the challenges caused by uncertainties and delayed interactions, an adaptive control approach is proposed. By employing tools from fractional calculus and Halanay-type inequalities [5], new sufficient conditions ensuring complete synchronization are derived. Numerical simulations are provided to illustrate the effectiveness of the proposed results.

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