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Finite-time H_∞ control of uncertain fractional-order neural networks. (English) Zbl 07195793
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Summary: The problem of finite-time H_∞ control for uncertain fractional-order neural networks is investigated in this paper. Using finite-time stability theory and the Lyapunov-like function method, we first derive a new condition for problem of finite-time stabilization of the considered fractional-order neural networks via linear matrix inequalities (LMIs). Then a new sufficient stabilization condition is proposed to ensure that the resulting closed-loop system is not only finite-time bounded but also satisfies finite-time H_∞ performance. Three examples with simulations have been given to demonstrate the validity and correctness of the proposed methods.

MSC:

- 93D40 Finite-time stability
- 93B36 H^∞ -control
- 93C41 Control/observation systems with incomplete information
- 93B70 Networked control

Keywords:

fractional order neural networks; finite-time boundedness; H_∞ control problem; linear matrix inequalities

Software:

Control System Toolbox; LMI toolbox; Matlab

Full Text: [DOI](#)

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