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Delay-independent stability analysis of Cohen-Grossberg neural networks. (English)

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Summary: We discuss a class of Cohen-Grossberg neural networks with time delays and investigate their global asymptotic stability of the equilibrium points for this systems. By introducing a new type of Lyapunov functionals, a set of sufficient conditions guaranteeing the global asymptotic convergence are derived. Our criteria represent an extension of the existing results in the literature. Combined with linear matrix inequality techniques, a new generalized, linear matrix inequalities (LMI) based, criterion is obtained. The presented result is more easily to verify and turns out to be less restrictive than those given in the earlier literature.

MSC:

- 92B20 Neural networks for/in biological studies, artificial life and related topics
- 34D05 Asymptotic properties of solutions to ordinary differential equations
- 34D20 Stability of solutions to ordinary differential equations
- 34D23 Global stability of solutions to ordinary differential equations

Cited in **106** Documents

Keywords:

global asymptotic stability; Lyapunov functionals; global asymptotic convergence

Software:

LMI toolbox

Full Text: [DOI](#)

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