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Extended dissipative learning of time-delay recurrent neural networks. (English)
Zbl 1423.93119

Summary: The paper addresses the issue of extended dissipative learning for a class of delayed recurrent neural networks. Both time-varying delay and time-invariant delay are taken into account. By choosing appropriate Lyapunov-Krasovkii functionals and utilizing some inequalities, several weight learning rules are developed for ensuring the network to be asymptotically stable and extended dissipative. The existence conditions for these learning strategies consist of a few linear matrix inequalities, which are able to be verified readily by Matlab software. Two numerical examples are employed to show the effectiveness and low conservatism of the proposed learning rules.

MSC:
93B40 Computational methods in systems theory (MSC2010)
93D20 Asymptotic stability in control theory
93C15 Control/observation systems governed by ordinary differential equations
68T05 Learning and adaptive systems in artificial intelligence

Keywords:
recurrent neural networks; dissipative learning

Software:
Matlab

Full Text: DOI

References:


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