

Further Analysis of Global Robust Stability of Neural Networks with Multiple Time Delays

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Abstract : In this paper, we study the global asymptotic robust stability of delayed neural networks with norm-bounded uncertainties. By employing the Lyapunov stability theory and Homeomorphic mapping theorem, we derive some new types of sufficient conditions ensuring the existence, uniqueness and global asymptotic stability of the equilibrium point for the class of neural networks with discrete time delays under parameter uncertainties and with respect to continuous and slopebounded activation functions. An important aspect of our results is their low computational complexity as the reported results can be verified by checking some properties symmetric matrices associated with the uncertainty sets of network parameters. The obtained results are shown to be generalization of some of the previously published corresponding results. Some comparative numerical examples are also constructed to compare our results with some closely related existing literature results.

Keywords : neural networks, delayed systems, lyapunov functionals, stability analysis

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