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*Stability Analysis of Discrete time Recurrent Neural Networks.*

Recurrent Neural Networks (RNN) have shown promise in diverse applications including Pattern Recognition, and Modeling of systems. We consider the problem of stability of RNN. One of the famous approaches is based on Theory of Absolute stability. It checks necessary and sufficient conditions for existence of quadratic Lyapunov function. But there exist stable systems, for which theory of Absolute stability does not hold true. We have proposed a new stability criteria, based on Reduction of Dissipativity Domain. Some new results in this area will be presented. (Received August 31, 2014)