

# **Global exponential stability of discrete-time Hopfield neural network models with unbounded delays**

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## **Abstract**

In this presentation, first, a normed vectorial space which could be used as the phase space of a difference equation with unbounded delays is presented, then an exponential stability criterion of the zero solution of discrete-time systems with unbounded delays is given. Based on the M-matrix theory, we establish sufficient conditions to ensure the global exponential stability of the zero equilibrium of low-order, and high-order, discrete-time Hopfield neural network models with unbounded delays and delay in the leakage terms.

At the end of this presentation, a numerical example is given, illustrating the effectiveness of the new results.