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Global exponential stability of cellular neural networks, time varying and distributed delays with impulses

From the mathematical point of view, cellular neural networks (CNN) can be characterized by an array of identical nonlinear dynamical systems called cells that are locally interconnected and imposing set of sufficient conditions for ensuring the exponential stability of the considered system. Dynamical systems are often classified into two categories of either continuous-time or discrete-time systems. In addition, many

real world evolutionary processes characterized by an abrupt change at certain time. These changes so called impulsive phenomena. This third category of dynamical systems displays a combination of characteristic of both the continuous-time and discrete-time systems. We introduce new criteria, which are effective for global exponential stability of neutral CNNs and improve some results in the literature.

Biography

Haydar Akca graduated in Mathematics and Astronomy from Ege University, faculty of Science, in 1970. Dr. Akca received Ph. D. in Applied Mathematics from Inonu University, Malatya with collaboration Helsinki University of Technology in 1983. Since then, he has been teaching in various universities. He becomes Professor in Applied Mathematics at Akdeniz University, Antalya in 1996. He has around 95 technical publications including two monographs, and his research interest area includes primarily functional differential equations, neural networks, mathematical modeling, control theory, and wavelet neural networks. He has been organizing the serial International Conference on Dynamical Systems and Applications. Dr. Akca is a member of a number of professional mathematical associations. He is the Editor-in-Chief and Editorial Board Member of number of International Mathematical Journals. At present he is Professor of Applied Mathematics at the Abu Dhabi University, College of Arts and Science Department of Applied Sciences and Mathematics, Abu Dhabi, United Arab Emirates.

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