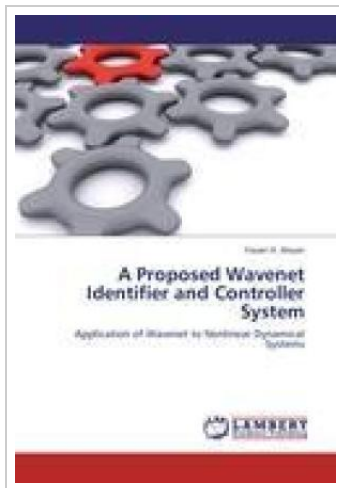




A Proposed Wavenet Identifier and Controller System

By Yasser H. Alwan

LAP Lambert Academic Publishing Jun 2012, 2012. Taschenbuch. Book Condition: Neu. 220x150x7 mm. This item is printed on demand - Print on Demand Neuware - Wavelet network is a new type of neural networks. This network combines the wavelet theory and neural network in one structure. Wavenet is another term to describe adaptive wavelet network which used in dynamic applications. Wavenets are investigated to show their concepts and test their effectiveness over traditional neural networks. Simple Gradient Decent training algorithm is used as learning algorithm. A modified multidimensional input structure is proposed. Wavenet is used to identify nonlinear dynamical systems. Simulation results obtained from identifying these systems using wavenet and classical sigmoid neural network are compared. These results show that the wavenet gives better performance over classical sigmoid neural network in terms of minimum error and fast convergence. In addition, the wavenet is used in the design of two model-based controllers, the first is Inverse Feedforward Controller (IFC), and the second is one-step ahead Model-based Predictive Controller (MPC). They are applied successfully to a second order nonlinear system. The robustness of both controllers to noise and sudden changes in reference signal is presented with the simulation results. 116 pp. Englisch.



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