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Qualitative analysis and synthesis of recurrent neural networks. (English) Zbl 1026.68115
Pure and Applied Mathematics, Marcel Dekker. 248. New York, NY: Marcel Dekker. xii, 481 p. (2002).

Publisher's description: This reference/text analyzes the qualitative properties, limitations, design, and implementation of artificial recurrent neural networks and evaluates system operation with applications to associative memories; developing techniques including the Outer Product Method, the Projection Learning Rule, the Eigenstructure Method, and procedures based on the Perceptron Training Algorithm for appraisals of network performance.

Detailing key classes of recurrent neural networks, *Qualitative Analysis and Synthesis of Recurrent Neural Networks* investigates the effects of parameter perturbations, time delays, and interconnection constraints on network function; assesses the global stability of various neural networks; presents methods to decrease the number of spurious states; develops processes for optimal network operation and memory storage; estimates the number of stable memories and determines their locations in state space.

Supplemented with nearly 1400 equations to illustrate specific network architectures, *Qualitative Analysis and Synthesis of Recurrent Neural Networks* is a valuable reference for electrical and electronics, mechanical, computer, civil, chemical, industrial, and biomedical engineers; applied mathematicians; computer scientists; and specialists working in operations research and econometrics; and an excellent text for upper-level undergraduate and graduate students in these disciplines.

MSC:

- 68T05 Learning and adaptive systems in artificial intelligence
- 68-02 Research exposition (monographs, survey articles) pertaining to computer science

Cited in **26** Documents

Keywords:

artificial recurrent neural networks