



Alex Pappachen James (Ed.)

Deep Learning Classifiers with Memristive Networks

Theory and Applications

Series: Modeling and Optimization in Science and Technologies

- Offers an introduction to deep neural network architectures
- Describes in detail different kind of neuro-memristive systems, circuits and models
- Shows how to implement different kind of neural networks in analog memristive circuits

This book introduces readers to the fundamentals of deep neural network architectures, with a special emphasis on memristor circuits and systems. At first, the book offers an overview of neuro-memristive systems, including memristor devices, models, and theory, as well as an introduction to deep learning neural networks such as multi-layer networks, convolution neural networks, hierarchical temporal memory, and long short term memories, and deep neuro-fuzzy networks. It then focuses on the design of these neural networks using memristor crossbar architectures in detail. The book integrates the theory with various applications of neuro-memristive circuits and systems. It provides an introductory tutorial on a range of issues in the design, evaluation techniques, and implementations of different deep neural network architectures with memristors.

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