Chair of Analogue Circuits and Image Sensors
Universität Siegen

Circuits and Sensors Seminar

Memristor Neural Networks – from theory to practice

Prof. Alex James, Nazarbayev University

When: 3PM, Thursday the 11th of April, 2019
Where: H-F 115, Campus Hölderlinstraße

Abstract

Memristors as a two-terminal resistive switching device can be used as a non-volatile or volatile memory, as a neuron emulator, and in crossbar arrays for emulating multiply-accumulate (MAC) computations. An introduction to the current state of the memristor technology for neuro-circuits applications is presented. We present several different configurations of neural networks and their hardware implementations, particularly for image recognition. The practical issues in the design and implementations of such neural networks are presented.

Further reference

Book: A.P. James, *"Deep Learning Classifiers with Memristive Networks: Theory and Applications"*, Springer, https://www.springer.com/us/book/9783030145224

Speaker Bio

Prof. Alex P. James received the Ph.D. degree from the Queensland Micro and Nanotechnology Centre, Griffith University, Brisbane, Australia. His research interests are in brain-inspired circuits as well as algorithms and systems. Currently, he chairs the Electrical Engineering Department at Nazarbayev niversity in Astana and leads the Circuits and Systems Group there. Prof. James is an Executive Member of IET Vision and Imaging Network. He has served as an Associate Editor for Springer HCIS, IEEE ACCESS, IEEE Transactions on Emerging Topics in Computational Intelligence (2017-18) and IEEE Transactions on Circuits and Systems 1 (2018-present).

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