Title (en)

BACKPROPAGATION OF ERRORS IN PULSED FORM IN A PULSED NEURAL NETWORK

Title (de)

RÜCKAUSBREITUNG VON FEHLERN IN GEPULSTER FORM IN EINEM GEPULSTEN NEURONALEN NETZWERK

Title (fr)

RETRO-PROPAGATION D'ERREURS SOUS FORME IMPULSIONNELLE DANS UN RESEAU DE NEURONES IMPULSIONNELS

Publication

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Application

EP 19787001 A 20191022

Priority

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- EP 2019078669 W 20191022

Abstract (en)

[origin: WO2020083880A1] The invention proposes a novel implementation of an error backpropagation algorithm that is suited to the hardware constraints of a device implementing a pulsed neural network. In particular, the invention uses binary or ternary coding of the errors calculated during the backpropagation phase to adapt its implementation to the constraints of the network and thus avoid the use of floating-point multiplication operators. More generally, the invention proposes an overall adaptation of the backpropagation algorithm to the specific constraints of a pulsed neural network. In particular, the invention allows the same propagation infrastructure to be used for data propagation and for error backpropagation during the learning phase. The invention proposes a generic implementation of a pulsed neuron that is suitable for implementing any type of pulsed neural network, in particular convolutional networks.

IPC 8 full level

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CPC (source: EP US)

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