

Title (en)  
NEURAL NETWORK AND METHOD OF NEURAL NETWORK TRAINING

Title (de)  
NEURONALES NETZWERK UND VERFAHREN ZUM TRAINIEREN EINES NEURONALEN NETZWERKS

Title (fr)  
RÉSEAU NEURONAL ET PROCÉDÉ D'APPRENTISSAGE DE RÉSEAU NEURONAL

Publication  
**EP 3469521 A4 20200226 (EN)**

Application  
**EP 17811082 A 20170609**

Priority  
• US 201615178137 A 20160609  
• US 201715449614 A 20170303  
• US 2017036758 W 20170609

Abstract (en)  
[origin: WO2017214507A1] A neural network includes inputs for receiving input signals, and synapses connected to the inputs and having corrective weights organized in an array. Training images are either received by the inputs as an array or codified as such during training of the network. The network also includes neurons, each having an output connected with at least one input via one synapse and generating a neuron sum array by summing corrective weights selected from each synapse connected to the respective neuron. Furthermore, the network includes a controller that receives desired images in an array, determines a deviation of the neuron sum array from the desired output value array, and generates a deviation array. The controller modifies the corrective weight array using the deviation array. Adding up the modified corrective weights to determine the neuron sum array reduces the subject deviation and generates a trained corrective weight array for concurrent network training.

IPC 8 full level  
**G06N 3/02** (2006.01); **G06N 3/08** (2023.01); **G06F 15/00** (2006.01); **G06F 17/16** (2006.01)

CPC (source: EP KR US)  
**G06N 3/045** (2023.01 - KR); **G06N 3/065** (2023.01 - EP KR); **G06N 3/08** (2013.01 - EP KR US); **G06N 3/045** (2023.01 - EP)

Citation (search report)  
• [YA] US 2016012330 A1 20160114 - PESCIANSCHI DMITRI [DE]  
• [A] US 5600843 A 19970204 - KATO HIDEKI [JP], et al  
• [XYI] DMITRI PESCIANSCHI ET AL: "Analog and Digital Modeling of a Scalable Neural Network", PROCEEDINGS OF THE 2015 INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE (ICAI 2015), vol. II, 27 July 2015 (2015-07-27), XP055658955  
• [A] YU-YI LIAO ET AL: "CMAC WITH CLUSTERING MEMORY AND ITS APPLICATION TO FACIAL EXPRESSION RECOGNITION", INTERNATIONAL JOURNAL OF PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE (IJPRAI), WORLD SCIENTIFIC PUBLISHING, SI, vol. 25, no. 7, 1 November 2011 (2011-11-01), pages 1055 - 1072, XP001570451, ISSN: 0218-0014, DOI: 10.1142/S0218001411008968  
• [A] DMITRI PESCIANSCHI ET AL: "Main Principles of the General Theory of Neural Network with Internal Feedback Neural Network", PROCEEDINGS OF THE 2015 INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE (ICAI 2015), vol. II, 27 July 2015 (2015-07-27), XP055658960  
• See also references of WO 2017214507A1

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)  
**WO 2017214507 A1 20171214**; CN 109416758 A 20190301; EP 3469521 A1 20190417; EP 3469521 A4 20200226; JP 2019519045 A 20190704; JP 7041078 B2 20220323; KR 102558300 B1 20230721; KR 20190016539 A 20190218

DOCDB simple family (application)  
**US 2017036758 W 20170609**; CN 201780035716 A 20170609; EP 17811082 A 20170609; JP 2018564317 A 20170609; KR 20197000226 A 20170609