Title (en)

SYSTEMS AND METHODS FOR LEARNING AND PREDICTING TIME-SERIES DATA USING DEEP MULTIPLICATIVE NETWORKS

Title (de)

SYSTEME UND VERFAHREN ZUM LERNEN UND ZUR VORHERSAGE VON ZEITREIHENDATEN UNTER VERWENDUNG VON TIEFEN MULTIPLIKATIVEN NETZWERKEN

Title (fr)

SYSTÈMES ET PROCÉDÉS D'APPRENTISSAGE ET DE PRÉDICTION DE DONNÉES CHRONOLOGIQUES À L'AIDE DE RÉSEAUX MULTIPLICATIFS PROFONDS

Publication

EP 3507746 A4 20200610 (EN)

Application

EP 17847459 A 20170830

Priority

- US 201662382774 P 20160901
- US 201715666379 A 20170801
- US 201715681942 A 20170821
- US 2017049358 W 20170830

Abstract (en)

[origin: WO2018045021A1] A method includes using a computational network (100) to learn and predict time- series data. The computational network includes one or more layers (102a, 102b, 102c), each having an encoder (104a, 104b, 104c) and a decoder (106a, 106b, 106c). The encoder of each layer multiplicatively combines (i) current feed-forward information from a lower layer or a computational network input (112) and (ii) past feedback information from a higher layer or that layer. The encoder of each layer generates current feed-forward information for the higher layer or that layer. The decoder of each layer multiplicatively combines (i) current feedback information from the higher layer or that layer and (ii) at least one of the current feed-forward information from the lower layer or the computational network input or past feed-forward information from the lower layer or the computational network input. The decoder of each layer generates current feedback information for the lower layer or a computational network output (114).

IPC 8 full level

G06N 3/00 (2006.01); **G06N 3/04** (2006.01); **G06N 3/08** (2006.01); **H04L 45/02** (2022.01)

CPC (source: EP)

G06N 3/044 (2023.01); **G06N 3/045** (2023.01); **G06N 3/084** (2013.01)

Citation (search report)

- [XI] JUNYOUNG CHUNG ET AL: "Gated Feedback Recurrent Neural Networks", 17 June 2015 (2015-06-17), XP055688073, Retrieved from the Internet <URL:https://arxiv.org/pdf/1502.02367.pdf> [retrieved on 20200421]
- [A] ROHOLLAH SOLTANI ET AL: "Higher Order Recurrent Neural Networks", 30 April 2016 (2016-04-30), XP055688282, Retrieved from the Internet <URL:https://arxiv.org/pdf/1605.00064.pdf> [retrieved on 20200422]
- [A] KAISHENG YAO ET AL: "Depth-Gated LSTM", 25 August 2015 (2015-08-25), XP055688413, Retrieved from the Internet <URL:https://arxiv.org/pdf/1508.03790.pdf> [retrieved on 20200422]
- [A] MOEZ BACCOUCHE ET AL: "Spatio-Temporal Convolutional Sparse Auto-Encoder for Sequence Classification", PROCEEDINGS OF THE BRITISH MACHINE VISION CONFERENCE, 3 September 2012 (2012-09-03), Surrey, UK, pages 124.1 - 124.12, XP055688925, ISBN: 978-1-901725-46-9, DOI: 10.5244/C.26.124
- See references of WO 2018045021A1

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 2018045021 A1 20180308; AU 2017321524 A1 20190228; AU 2017321524 B2 20220310; CA 3033753 A1 20180308; CN 109643387 A 20190416; EP 3507746 A1 20190710; EP 3507746 A4 20200610

DOCDB simple family (application)

US 2017049358 W 20170830; AU 2017321524 A 20170830; CA 3033753 A 20170830; CN 201780053794 A 20170830; EP 17847459 A 20170830