(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 January 2014 (16.01.2014)

WIPO | PCT

(10) International Publication Number
WO 2014/011907 A3

(51) International Patent Classification:
G06T 1/40 (2006.01)

(21) International Application Number:
PCT/US2013/050115

(22) International Filing Date:
11 July 2013 (11.07.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/671,332 13 July 2012 (13.07.2012) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
6 March 2014

(54) Title: SYSTEMS AND METHODS FOR IDENTIFICATION OF SPIKE-PROCESSING CIRCUITS

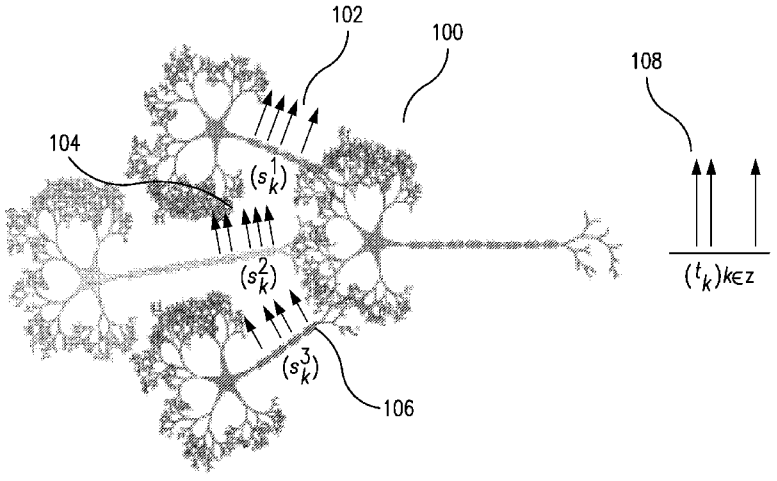


FIG. 1A

(57) Abstract: Techniques for the identification of a spike-processing circuit are provided. An exemplary method includes receiving spike trains corresponding to a circuit input over a time period, and selecting a number of spikes for each of input spike trains over a predetermined time window. Each of the selected spikes can be replaced with a sampled reproducing kernel to obtain a plurality of signals, and each obtained signal can correspond to one of the input spike trains. Each of the obtained signals can be passed through a plurality of receptive fields or filters to obtain an aggregate filter output signal. The filter output signal can be encoded into an output spike train, and the output spike train can correspond to a response of the circuit to the plurality of input spike trains.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/050115

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06T 1/40 (2013.01)
USPC - 706/15
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - G06T 1/00, 1/40; G10L 15/16, 17/18 (2013.01)
USPC -706/15, 18, 20, 31

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC -G06T 1/00, 1/40; G10L 15/16, 17/18 (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Orbit, Google Patents, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0287624 A1 (ROUAT et al) 19 November 2009 (19.11.2009) entire document	1-34
Y	LAZAR et al. Perfect Recovery and Sensitivity Analysis of Time Encoded Bandlimited Signals. BNET technical report, Columbia University. September 2003. Retrieved on [12.12.2013]. Retrieved from the internet <URL: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1.2369&rep=rep1&type=pdf>entire document	1-34
Y	US 2012/0109866 A1 (MODHA) 03 May 2012 (03.05.2012) entire document	1-34
Y	WO 2006/102178 A2 (LAZAR) 28 September 2006 (28.09.2006) entire document	8, 10, 11, 25, 27, 28

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Date of the actual completion of the international search	Date of mailing of the international search report
12 December 2013	20 DEC 2013
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774