

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 17067PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2018/042218	International filing date (<i>day/month/year</i>) 16 July 2018 (16.07.2018)	(Earliest) Priority Date (<i>day/month/year</i>) 05 September 2017 (05.09.2017)
Applicant NEC LABORATORIES AMERICA, INC.		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

the international application in the language in which it was filed

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

A. CLASSIFICATION OF SUBJECT MATTER**G06F 17/30(2006.01)i, G06F 11/34(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
G06F 17/30; G06F 11/00; G06F 17/00; G06F 17/50; G06N 99/00; H04L 12/26; G06F 11/34Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean utility models and applications for utility models
Japanese utility models and applications for utility modelsElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: log, token, vector, dimensionality reduction, similarity, distance, and similar terms.**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2016-0292592 A1 (ORACLE INTERNATIONAL CORPORATION) 06 October 2016 See paragraphs [0140], [0190], [0192], [0202], [0239], [0243]; and claim 1.	1-20
Y	US 2017-0111245 A1 (INTERNATIONAL BUSINESS MACHINES CORPORATION) 20 April 2017 See paragraphs [0073], [0081], [0089]; and claims 1, 6, 10, 13.	1-20
A	US 2008-0126858 A1 (DOYLE BARRAS) 29 May 2008 See paragraphs [0042]-[0088] and figures 1-3c.	1-20
A	US 2015-0370799 A1 (VMWARE, INC.) 24 December 2015 See paragraph [0091] and figure 27B.	1-20
A	WO 01-35257 A1 (MICROSOFT CORPORATION) 17 May 2001 See claims 1-7.	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

27 November 2018 (27.11.2018)

Date of mailing of the international search report

28 November 2018 (28.11.2018)

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2018/042218

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2016-0292592 A1	06/10/2016	CN 107660283 A EP 3278243 A1 US 2016-0292166 A1 US 2016-0292263 A1 US 2016-0294649 A1 US 2016-0378577 A1 US 2017-0004185 A1 US 2018-004824 A1 US 9767171 B2 US 9940373 B2 WO 2016-161381 A1	02/02/2018 07/02/2018 06/10/2016 06/10/2016 06/10/2016 29/12/2016 05/01/2017 04/01/2018 19/09/2017 10/04/2018 06/10/2016
US 2017-0111245 A1	20/04/2017	None	
US 2008-0126858 A1	29/05/2008	US 7523349 B2	21/04/2009
US 2015-0370799 A1	24/12/2015	US 2015-0370885 A1 US 2015-0372855 A1 US 2016-0373293 A1	24/12/2015 24/12/2015 22/12/2016
WO 01-35257 A1	17/05/2001	AU 2001-17588 A1 US 6526405 B1	06/06/2001 25/02/2003