

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2019/016181

A. CLASSIFICATION OF SUBJECT MATTER

G10L 25/75(2013.01)i, G10L 15/06(2006.01)i

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)

G10L 25/75; G10L 15/02; G10L 15/20; G10L 19/00; G10L 21/02; H03G 3/00; H03G 3/30; H03G 5/00; H04B 15/00; H04R 5/02; H04S 7/00; G10L 15/06

Documentation 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: IPC as above
Japanese utility models and applications for utility models: IPC as aboveElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS (KIPO internal) & Keywords: voice recognition, frequency spectrum, filter bank, smoothing, feature vector

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-2008-0077874 A (SAMSUNG ELECTRONICS CO., LTD.) 26 August 2008 See paragraphs [0022]-[0026], [0038]-[0039]; and claim 1.	1-15
A	US 9954506 B2 (DOLBY LABORATORIES LICENSING CORPORATION) 24 April 2018 See column 20, line 3-column 21, line 27.	1-15
A	US 8103020 B2 (AVENDANO, Carlos et al.) 24 January 2012 See column 3, lines 26-42; claim 1; and figure 1.	1-15
A	KR 10-1295727 B1 (TRANSONO INC.) 16 August 2013 See paragraph [0018]; and claim 1.	1-15
A	US 9031268 B2 (FEJZO, Zoran et al.) 12 May 2015 See claims 1-2.	1-15
PX	KIM, Chanwoo et al. Improved vocal tract length perturbation for a state-of-the-art end-to-end speech recognition system. INTERSPEECH 2019. 19 September 2019 See pages 739-741.	1-15

 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	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	


Date of the actual completion of the international search

04 MARCH 2020 (04.03.2020)

Date of mailing of the international search report

04 MARCH 2020 (04.03.2020)

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2019/016181

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-2008-0077874 A	26/08/2008	None	
US 9954506 B2	24/04/2018	CN 101048935 A	03/10/2007
		CN 101048935 B	23/03/2011
		CN 101421781 A	29/04/2009
		EP 2262108 A1	15/12/2010
		EP 2262108 B1	01/03/2017
		JP 2009-532739 A	10/09/2009
		JP 4981123 B2	18/07/2012
		JP 5101292 B2	19/12/2012
		KR 10-1261212 B1	07/05/2013
		KR 10-2007-0068379 A	29/06/2007
		US 10454439 B2	22/10/2019
		US 10476459 B2	12/11/2019
		US 2019-0115887 A1	18/04/2019
		US 2019-0115888 A1	18/04/2019
		US 2019-0115889 A1	18/04/2019
		US 2019-0115890 A1	18/04/2019
		US 2019-0115891 A1	18/04/2019
		US 2019-0115892 A1	18/04/2019
		US 2019-0115893 A1	18/04/2019
		US 2019-0115894 A1	18/04/2019
		US 2019-0115895 A1	18/04/2019
		US 2019-0115896 A1	18/04/2019
		US 9960743 B2	01/05/2018
US 9966916 B2	08/05/2018		
US 9979366 B2	22/05/2018		
US 8103020 B2	24/01/2012	US 2008-0049951 A1	28/02/2008
		US 2008-0212795 A1	04/09/2008
		US 7277550 B1	02/10/2007
		US 7353169 B1	01/04/2008
		US 8086448 B1	27/12/2011
		US 8321206 B2	27/11/2012
KR 10-1295727 B1	16/08/2013	None	
US 9031268 B2	12/05/2015	CN 103621110 A	05/03/2014
		CN 103621110 B	23/03/2016
		EP 2708039 A1	19/03/2014
		EP 2708039 B1	10/08/2016
		JP 2014-517596 A	17/07/2014
		JP 6023796 B2	09/11/2016
		KR 10-2014-0034817 A	20/03/2014
		KR 10-2036359 B1	24/10/2019
		US 2012-0288124 A1	15/11/2012
		US 2015-0230041 A1	13/08/2015
		US 9641952 B2	02/05/2017
		WO 2012-154823 A1	15/11/2012