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- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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(54) **Title:** FULL-SEQUENCE TRAINING OF DEEP STRUCTURES FOR SPEECH RECOGNITION

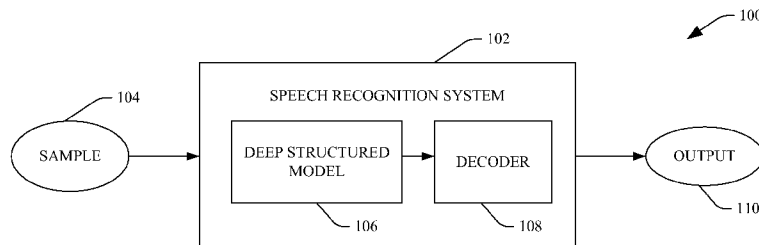


FIG. 1

(57) **Abstract:** A method is disclosed herein that include an act of causing a processor to access a deep-structured model retained in a computer-readable medium, wherein the deep-structured model comprises a plurality of layers with weights assigned thereto, transition probabilities between states, and language model scores. The method can further include the act of jointly substantially optimizing the weights, the transition probabilities, and the language model scores of the deep-structured model using the optimization criterion based on a sequence rather than a set of unrelated frames.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/050738**A. CLASSIFICATION OF SUBJECT MATTER***G10L 15/14(2006.01)i, G10L 15/16(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 15/14; G06F 17/27

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
Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: "deep","structure","DBN,RBM","CRF"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DONG YU et al., 'Language recognition using deep-structured conditional random fields', ICASSP 2010, March 2010 See the sections 2 and 3.	1-15
Y	A. MOHAMED et al., 'Deep belief networks for phone recognition', NIPS Workshop on Deep Learning for Speech Recognition and Related Application, 2009 See the section 2.	1-15
Y	DONG YU et al., 'Learning in the deep-structured conditional random fields', NIPS 2009 Workshop on Deep Learning for Speech Recognition and Related Applications, 2009 See the sections 3 and 4.	1-15
A	US 2010-0049503 A1 (ANDRE KEMPE et al.) 25 February 2010 See the abstract; claim 12; and figure 1.	1-15

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

* Special categories of cited documents:

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010-0049503 A1	25.02.2010	EP 1531400 A2	18.05.2005
		EP 1531400 A3	15.03.2006
		US 2005-0107999 A1	19.05.2005
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		US 7386441 B2	10.06.2008
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