(57) Abstract: New neural networks for handwriting recognition may be built from existing neural networks (202.) An existing neural network pre-trained for a starting language is chosen based on a desired target language (1001.) The neural network is modified so that it may be used to recognize characters of the target language, and the modified neural network is used in a handwriting recognizer for the target language. Modification includes copying one or more of the primary outputs of the existing neural network. An appropriate starting language may be chosen based on the desired target language. In addition, a “super network” (1101) may be provided that is a relatively large neural network configured to recognize characters from a number of different languages. One may customize a handwriting recognizer using such a super network by programming a mask (1102) to block outputs from the super network that are not necessary for the language desired to be recognized.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
   IPC: G06N 5/00(2006.01)

   USPC: 706/45
   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)
   U.S.: 706/45

   Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched.

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 4,989,256 A (BUCKLEY) 29 January 1991 (29.01.1991), column 4, lines 1-68.</td>
<td>1-20</td>
</tr>
<tr>
<td>A</td>
<td>US 4,774,677 A (BUCKLEY) 27 September 1988 (27.09.1988), column 4, lines 1-68.</td>
<td>1-20</td>
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<tr>
<td>A</td>
<td>US 4,479,241 A (BUCKLEY) 23 October 1984 (23.10.1984), column 4, lines 1-68.</td>
<td>1-20</td>
</tr>
</tbody>
</table>

* Further documents are listed in the continuation of Box C.

See patent family annex.

Date of the actual completion of the international search: 15 September 2008

Date of mailing of the international search report: 20.12.09

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Form PCT/ISA/210 (second sheet) (April 2007)