Requirements Document

August 11, 2008

Abstract

1 Program Input

1. User must select one or more image files containing handwriting to load

    (a) Image can contain one or more words

    (b) Words should be in top down, left to right format

    (c) Image can be in any common image format such as jpeg, png, windows BMP, GIF, etc.

    (d) Image must be no greater in size than 200MBytes

2. User can optionally select one or more text file to be loaded for training or testing purposes

    (a) Document should be in ASCII or Unicode format

    (b) Document should have the same number of lines as the loaded image

    (c) Each line in the loaded image file should match a line in the text document

    (d) Each word in a line of the text document should match the word in the same position in the image file

    (e) There should be one text file for each image file used

2 User Options

1. Algorithm options

    (a) User can select one or more algorithms to be used in word recognition

    (b) User can modify the order in which the algorithms are run and how they are combined

    (c) Software will manage algorithm compatibility (user won't be able to select incompatible algorithms)

2. Logging options

    (a) User can enable/disable performance logging

    (b) User can set the output destination directory

        i. Log file name base name should be the same as the loaded image file's base name (image.png becomes image.txt)

    (c) User can modify the logging detail level

3. Preprocessing options

    (a) User can select one or more preprocessing algorithms

    (b) User can modify the order in which the algorithms are run on the input image and how they are combined

    (c) Software will manage algorithm compatibility (user won't be able to select incompatible algorithms)

4. Training options

    (a) User can select one or more training algorithms

    (b) User can modify the order in which the algorithms are run and how they are combined

    (c) Software will manage algorithm compatibility (user won't be able to select incompatible algorithms)

5. Recognition options

    (a) User can select confidence threshold

6. Testing options

    (a) User can select the number of tests to execute

    (b) User can select one or more recognition algorithms to be used for each test

    (c) User can modify the order in which the algorithms are run on the input image and how they are combined for each test

    (d) User can specify the destination directory of output log file

3 Training Mode

1. Training

    (a) Program will execute the Recognition mode using just the image of handwritten text as input

    (b) Program will examine each word image and gather certain attributes of the image

    (c) Program will store the images and attributes extracted using the corresponding word from the text file as the index of the data

4 Recognition Mode

1. Recognition

   (a) Program will extract each word from the image file as individual images
   (b) Program will examine each word image and apply recognition algorithms to attempt to recognise word
   (c) Program will store recognised word for program output

2. Feedback

   (a) Program will highlight the current word it is working on
   (b) When the program suspects that a the current word is incorrectly matched with the corresponding word in the text file it will prompt user for input on what the word is

5 Testing Mode

1. Recognition

   (a) Program will execute the Recognition mode using the image of handwritten text as input
   (b) Program will compare the matching text file with the text file derived from Recognition to determine accuracy of the algorithms used in Recognition
   (c) Program will output relative performance of the algorithms used in Recognition

2. Feedback

   (a) Program will highlight the current word it is working on
   (b) When the program suspects that a the current word is incorrectly matched with the corresponding word in the text file it will prompt user for input on what the word is

6 Program output

1. Program will output one text file for each input image

   (a) Text file will be in Unicode format
   (b) Line endings will be the default for the current platform
   (c) Text file will contain line feeds that match the input image