UNIK4690 Project

Akhsarbek Gozoev - akhsarbg
Sadegh Hoseinpoor - sadeghh
Key Long Wong - keylw

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Project description

The purpose of the software is to recognise text from any surface with uneven lighting.

As we want to test the prof of concept first we simplyfied the SW to just be:
Recognise numbers [0-9] from a binary img, with computer printed numbers on homogenous background.

qwrqeg

Report

Week 1 19.04.18

- Feedback on project proposal
- Overview of project
  - simplification
  - binary image → numbers → straight text → Classify
- init; github - atom
- first test of charcter Segmentation

- Charcter Segmentation - Projection Histograms - OpenCV
  - By projection the histogram of the binary image on the Y-axis, we can find where the sentences/lines of text appears. Following, a projection histogram on the X-axis can discover where the charecters appear.

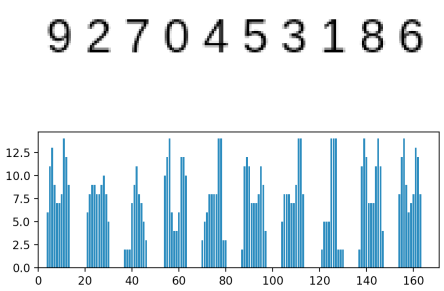

Figure 1: [0-9] segmented with projection histogram

- Classification - Perceptron neural network - TenserFlow
  - MNIST dataset - Datasett consisting of several thousand handwritten labeled numbers
    - Numbers ranging from [0-9]
    - Images are 28x28pixels
  - Hyperparameter tuneing
    - Activation function
    - Number of hidden layers
    - Nodes in hidden layers
    - Cost function
    - Optimazation function
    - Learning rate
  - Theoretic accuracy of the network with 2 hidden layers 98%
    - Measured accuracy 97%

```
4690-p2018|Sadegh(master)$ p3 src/find_symbol.py
Model restored
Extracted text: 9220453189
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Figure 2: First output with classification. input see Figure 1

Week 3 03.05.18

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