

The project aims to convert pictures of hand written text to a computer text. This is so that a computer can read handwriting and could come in handy for many applications.

DATA

The training data used is from here:

<https://www.kaggle.com/datasets/landlord/handwriting-recognition>

The dataset is of 400000 handwritten names collected through charity projects. The input is the image of the handwritten name, and the output is the name in a string.

MODEL

I used this model: <https://pypi.org/project/easyocr/>

And I trained it with my own recognition model:

https://github.com/JaidedAI/EasyOCR/blob/master/custom_model.md

This is because I am familiar with Convolutional Neural Networks, however detecting words is a problem where you need to predict a string of characters with unknown length. I didn't really know how to handle that so I picked a model which recognises where each character is.

The model works by:

- Determining where the letters of each word are (detection), and
- then it figures out which letters they are (recognition).

(Note: I'm actually not very sure if the results use the default EasyOCR model or the model I trained. I couldn't figure out if my custom recognition model was successfully connected to the default EasyOCR detection model.)

HYPERPARAMETER OPTIMISATION

Regretfully I didn't manage to have time to optimise the hyperparameters.

Initially I trained the data on 41,382 images on the default settings but the training took longer than a full day. So I made it train for only 1 epoch.

(Note: This is slow because it is my first machine learning project and my computer does not have a GPU.)

RESULTS

In the validation set of 41292 handwritten names, the results had non-letter symbols in the prediction, so I tested it's accuracy on the raw predictions and also the prediction where I substitute non-letter symbols for characters which made sense.

Raw prediction was correct 15.8% of the names

After substituting non-letter symbols, it was correct 25.2% of the names

A correct prediction means the model predicted the word exactly the same as the label.

(Note: The training and validation set may have other text that are not handwritten which the model picks up. I tried to clean the data as well as I could but this could have affected the result especially when default EasyOCR model was used.)