Handwritten Character Recognition

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Introduction

Scientific research has been very active in text recognition. The heart of text recognition techniques is attention processes. In order to build a model that can recognize English handwriting despite image noise, this project will use deep learning, as conventional attention approaches suffer from significant alignment challenges due to their recurrence alignment procedure.
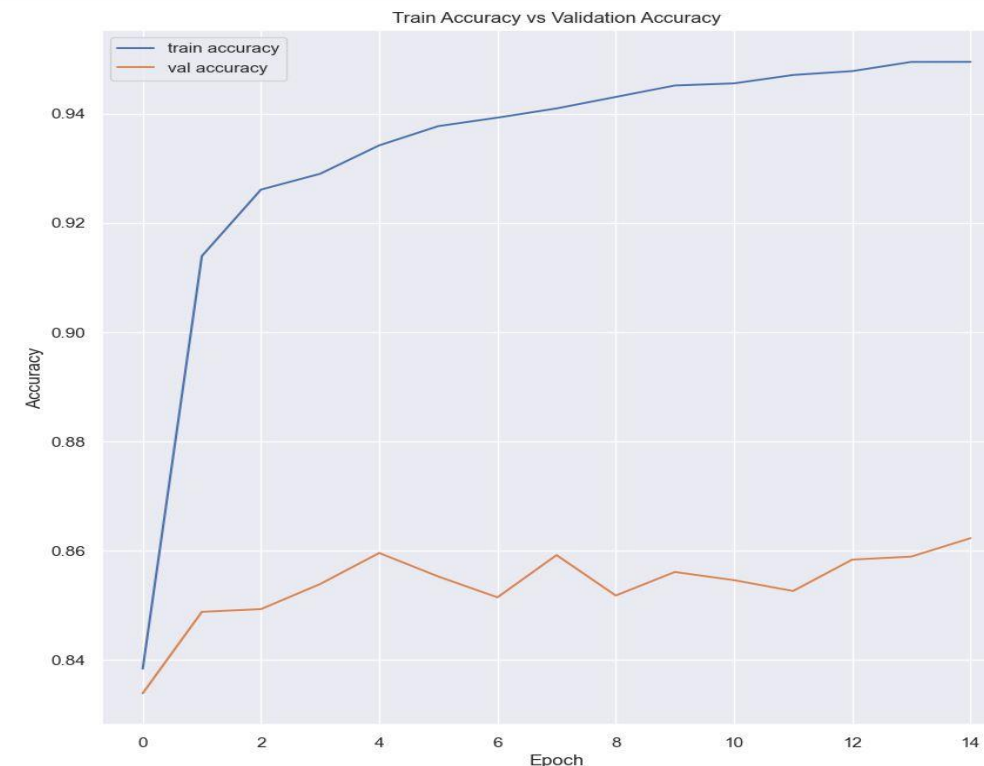
Problem Statement

because handwritten text is of lower quality than machine-printed text, it is challenging to convert handwritten text into machine-readable text formats. However, it's a problem that needs to be fixed for several industries, including banking, insurance, and healthcare
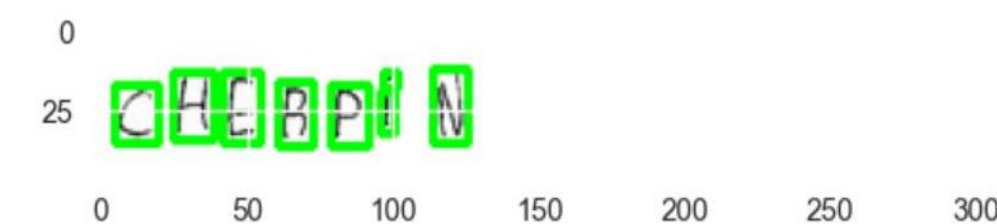
Models

• Handwritten Character Recognition Model

• Easy OCR Model

Results


```
1/1 [==============================] - 0s 19ms/step
CHEBP11N
```

`<matplotlib.image.AxesImage at 0x24bfc619fa0>`

	Our Model	Easy OCR
Character Error Rate:	0.56	0.48
Word Error Rate:	0.97	0.90

References

1- Sumeet, & Sergey. (n.d.). Full page handwriting recognition via image to sequence extraction. Papers With Code. Retrieved October 26, 2022, from https://paperswithcode.com/paper/full-page-handwriting-recognition-via-image
 2- Tianwei Wang, Yuanzhi Zhu, Lianwen Jin, Canjie Luo, Xiaoxue Chen, Yaqiang Wu, Qianying Wang, & Mingxiang Cai. (n.d.). Papers with code - decoupled attention network for text recognition. Decoupled Attention Network for Text Recognition | Papers With Code. Retrieved October 26, 2022, from https://paperswithcode.com/paper/decoupledattention-network-for-tex

Datasets Description

Each character in our dataset has an image, and for each digit, these images are utilized to train the model and enable it to identify these characters in the image. Images of English handwritten names are found in the second portion of the dataset, which is divided into three sections for training, testing, and validation. Each section's corresponding ".csv" file contains the text from each image.

Evaluation

Use the EasyOCR library to extract the entire text from the images of handwritten text, then compare it to our model to see if we can outperform the pretrained 'easyocr' model in terms of performance.

Conclusions & Future Work

After detecting characters in images, we join characters together to create a world by simulating a decoder depending on ROI (Region Of Interest) and direction. We will apply Data Augmentation to our data to train the model with large data size

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