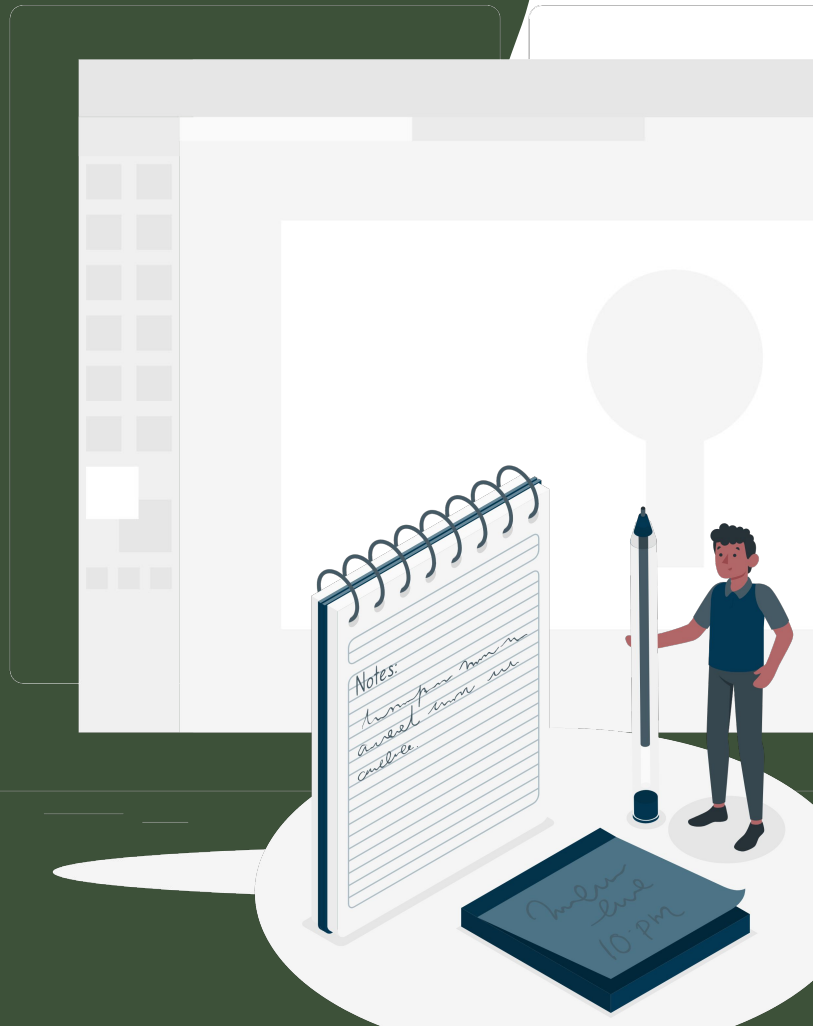
JOT THIS DOWN

Handwritten Text Recognition

Nica Cave

CENTRAL QUESTION

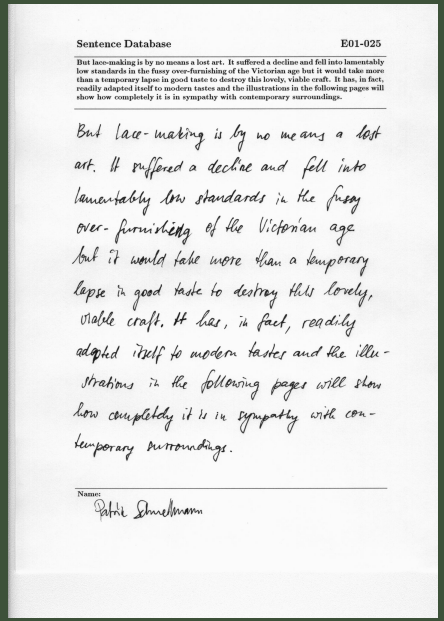
Can a computer read handwritten text?



THE DATA

IAM Handwritten Text Dataset

- English language
- 115,000 individual Words
- 10,841 unique words
- 13,353 Lines
- 1,066 Documents



Sentence Database E01-025

But lace-making is by no means a lost art. It suffered a decline and fell into lamentably low standards in the fusty over-furnishing of the Victorian age but it would take more than a temporary lapse in good taste to destroy this lovely, viable craft. It has, in fact, readily adapted itself to modern tastes and the illustrations in the following pages will show how completely it is in sympathy with contemporary surroundings.

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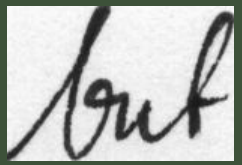
Name:

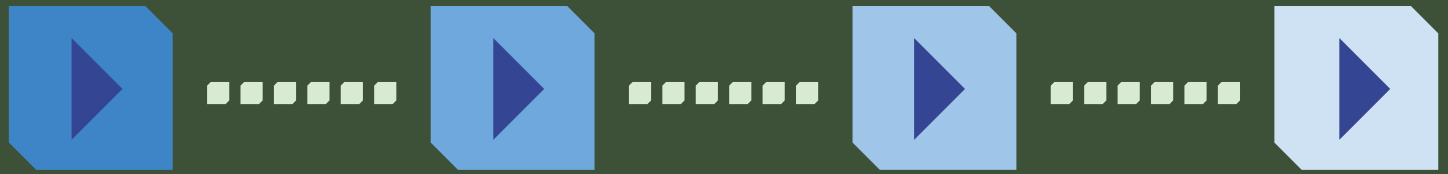
Document

Line



Word

THE PROCESS



Processing

Resize and convert images to numerical data

Modeling

Train on 95%
Test on 5%

Optimization

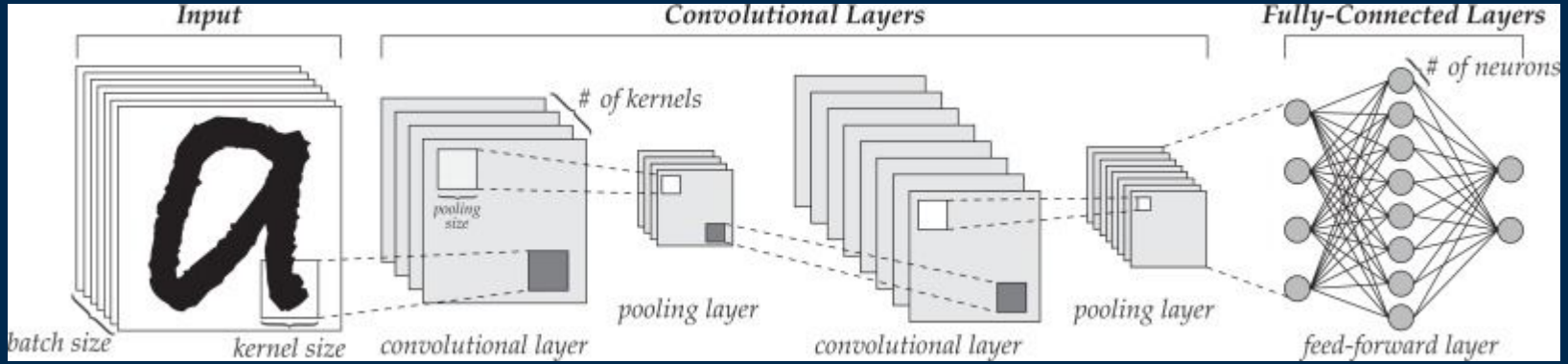
Apply Adam Optimizer

Testing

Test on unseen handwritten text

THE MODEL

Convolutional Neural Network (CNN), 5 layers <---- Baseline
Recurrent Neural Network (RNN), 2 layers
CTC Loss Function
Adam Optimization



https://doi.org/10.1016/j.neucom.2017.12.049

THE RESULTS

Baseline Accuracy score: 40% (CNN)

Optimized Accuracy score: 74% (RNN)

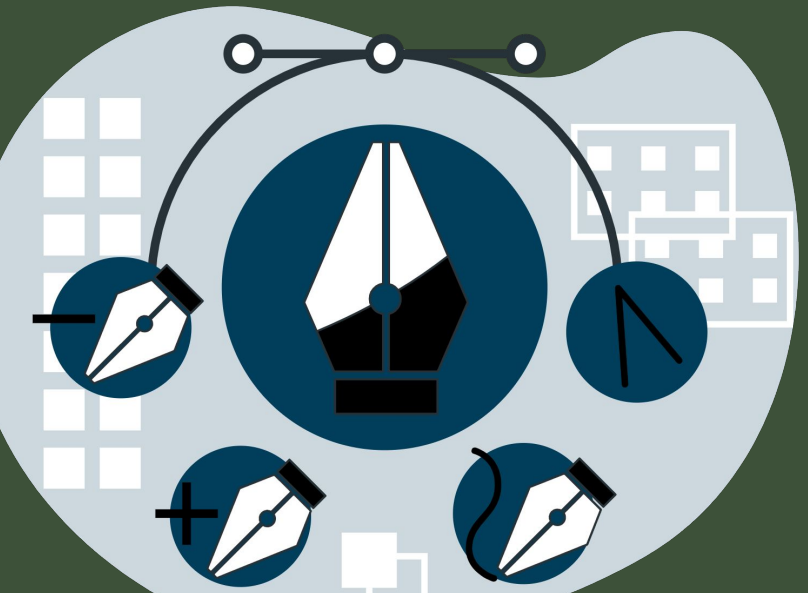
Best Model: RNN | CTC ensemble

What does this mean?

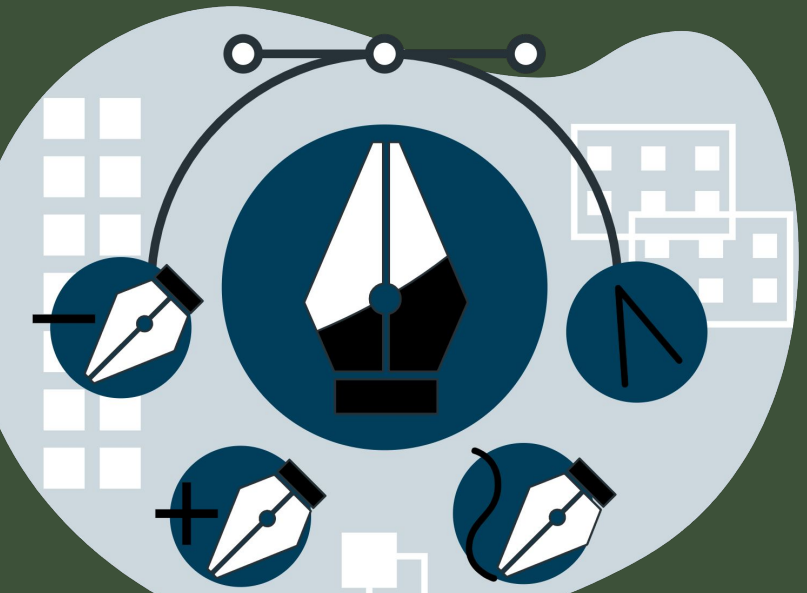
The model can correctly read unseen handwritten text 74% of the time

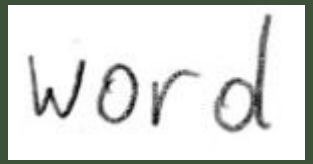
The model performs well!

DEMO



DEMO






```
Recognized: "word"
Probability: 0.9513832330703735
```

THE TOOLS

Flask

THANK YOU

Let's connect!

LinkedIn

See my code!

GitHub

nicolacave@gmail.com

linkedin.com/in/nicolacave/

github.com/nicolacave

CITATIONS

Marti, UV., Bunke, H. The IAM-database: an English sentence database for offline handwriting recognition. *IJDAR* 5, 39–46 (2002). https://doi.org/10.1007/s100320200071