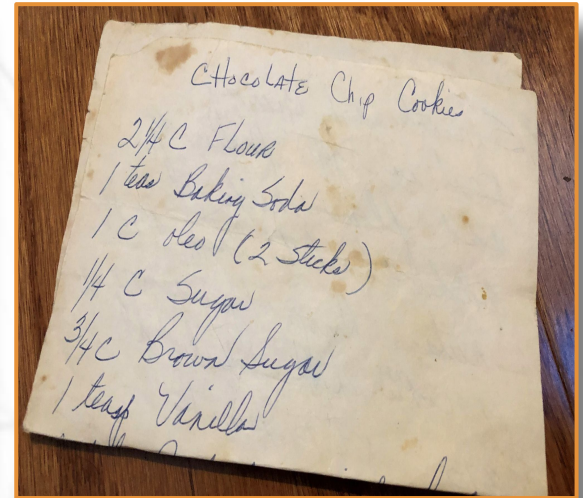
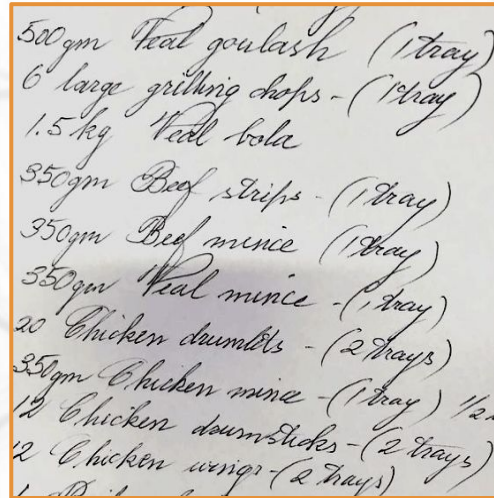
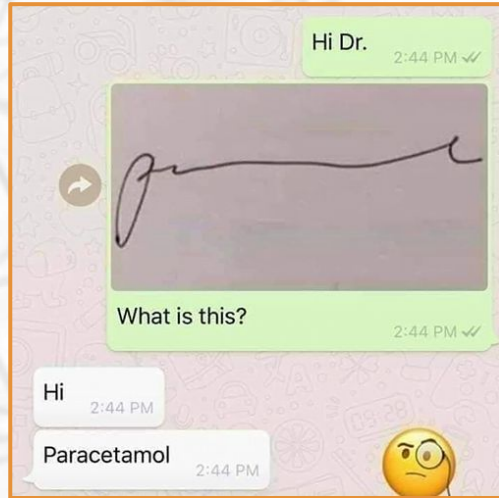




TEACHING MACHINES HOW TO READ HANDWRITTEN WORDS

The Problem



The IAM Dataset

Sentence Database

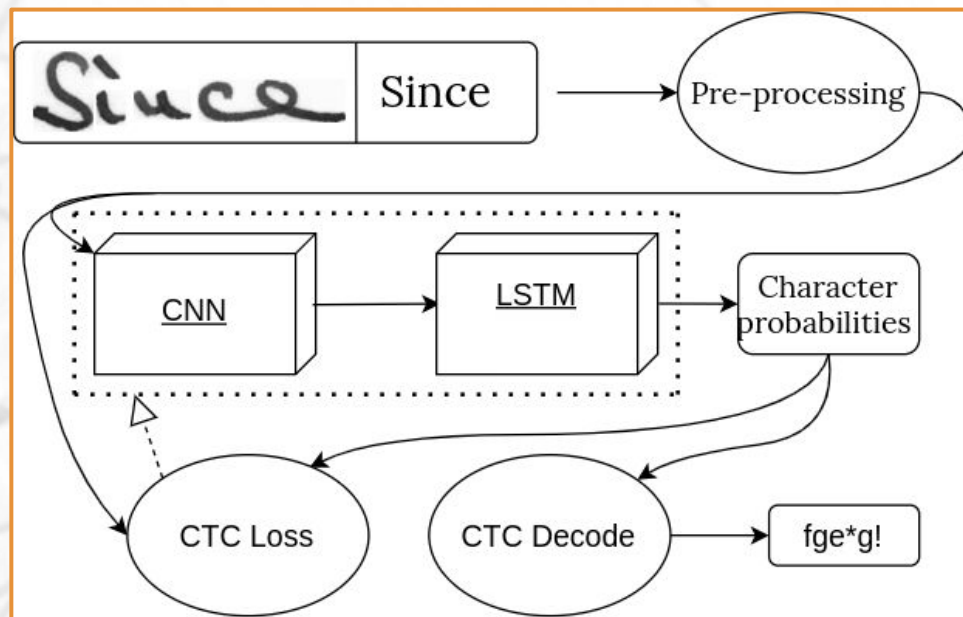
A01-000

A MOVE to stop Mr. Gaiskell from nominating any more Labour life Peers is to be made at a meeting of Labour M Ps tomorrow. Mr. Michael Foot has put down a resolution on the subject and he is to be backed by Mr. Will Griffiths, M P for Manchester Exchange.

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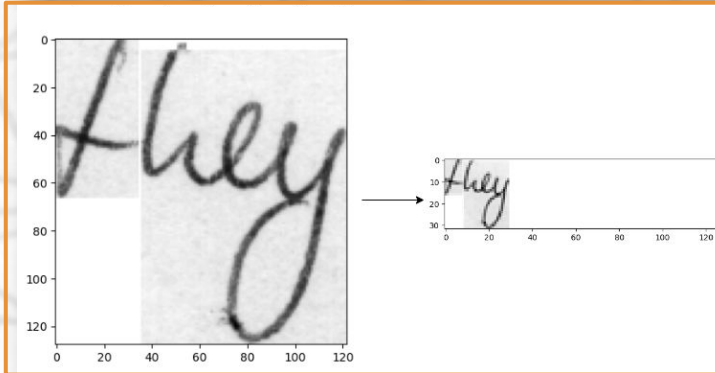
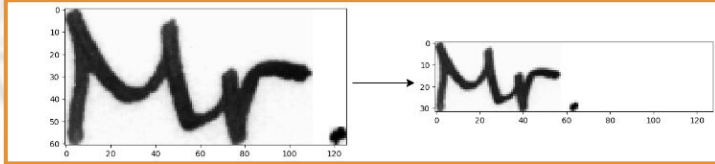
- First published in 1999
- Entirely in English
- A total of 657 writers
- 1539 pages of text

Model Architecture



Preprocessing

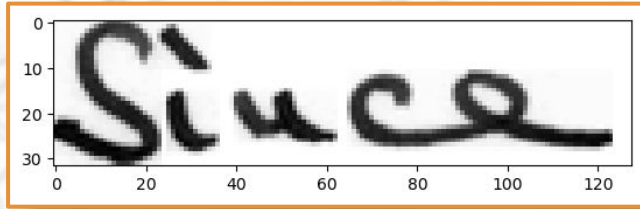
Image preprocessing



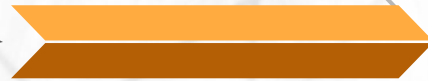
Label preprocessing

Label	Encoded	Padded
Mr.	[39,70,12]	[39,70,12,0,0,0,0,0,...]
Since	[45,61,66,55,57]	[45,61,66,55,57,0,0,...]
they	[72,60,57,77]	[72,60,57,77,0,0,0,0,...]

Processing: CNN



Layer 1



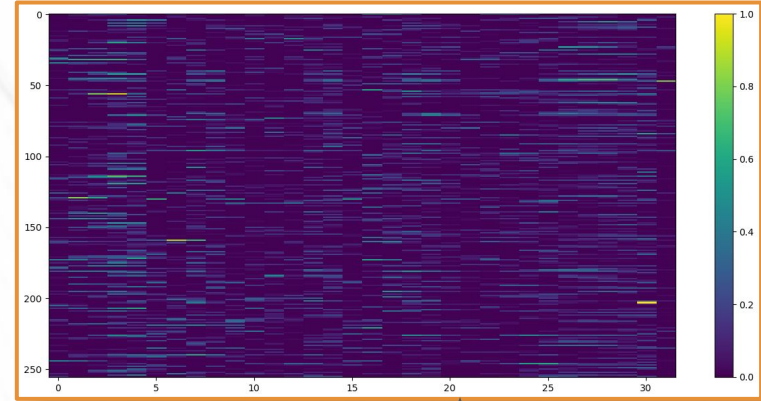
1. Conv 2D
2. BatchNorm 2D
3. LeakyReLU
4. MaxPool2D

...

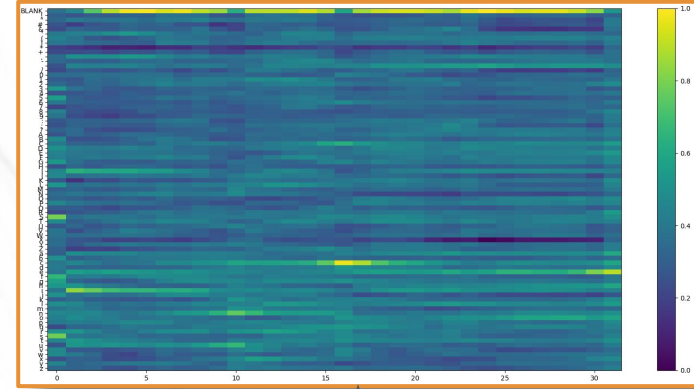
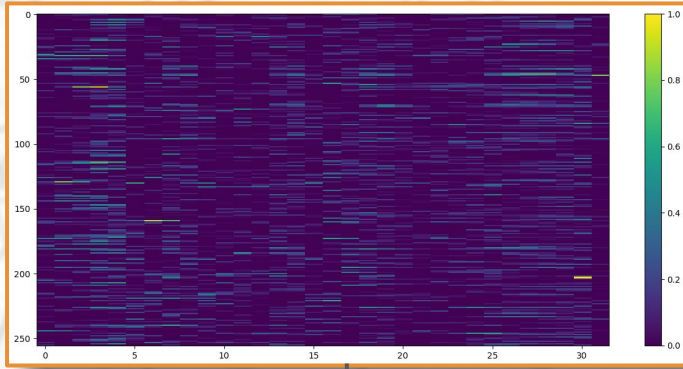
Layer 5



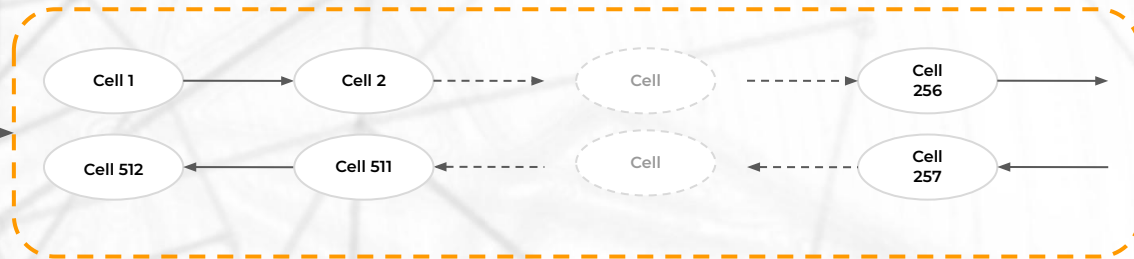
1. Conv 2D
2. BatchNorm 2D
3. LeakyReLU
4. MaxPool2D



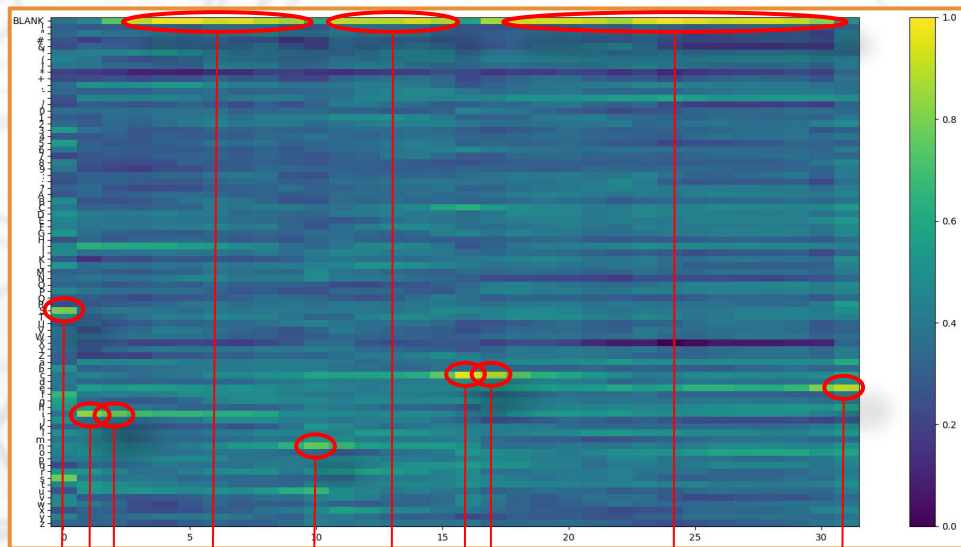
Processing: LSTM



Bidirectional LSTM



CTC Decoding: best path decoding

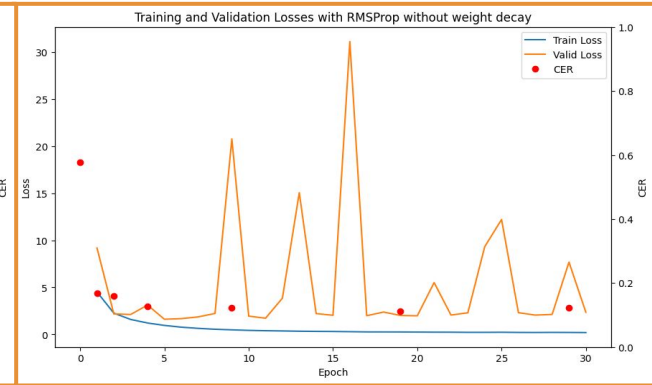
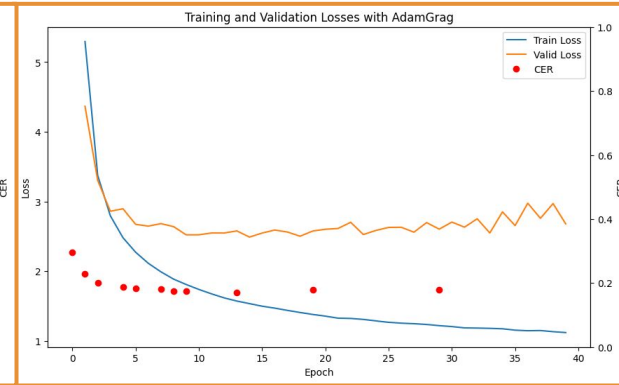
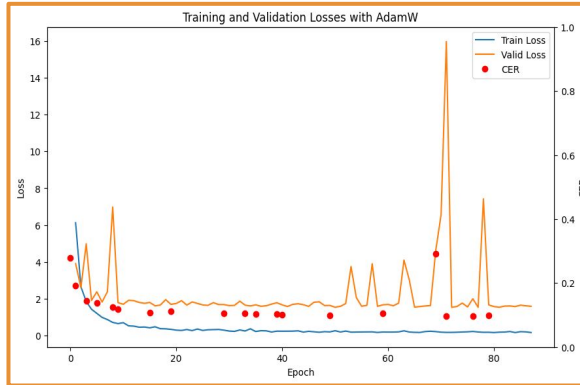


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Since

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Results



- best performing
- good validation loss
- steady training loss
- good CER
- personal score: 9/10

- good performance
- great validation loss
- steady training loss
- subpar CER
- personal score: 7/10

- terrible performance
- terrible validation loss
- awful training loss
- subpar CER
- personal score: -1/10



Questions?