Improving Government Form Processing Time with Handwritten Word Recognition

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A large amount of government forms tend to be paper

Paper forms increase the risk for lost information and slower processing times.

Aimed to created a way to process paperwork faster through Optical Character Recognition

- University of Bern's Research Group on Artificial Intelligence and Computer Vision (Switzerland)

- Over 600 writers

Sample of document words were extracted from
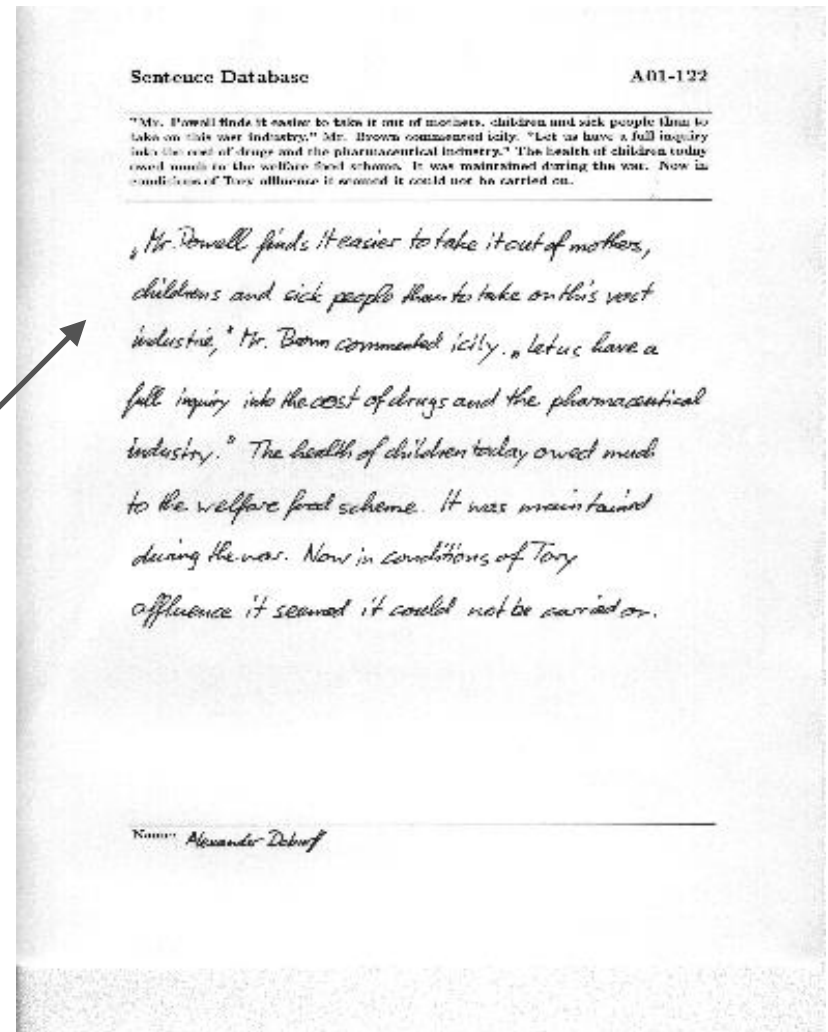
Dataset included ~115,000 handwritten words
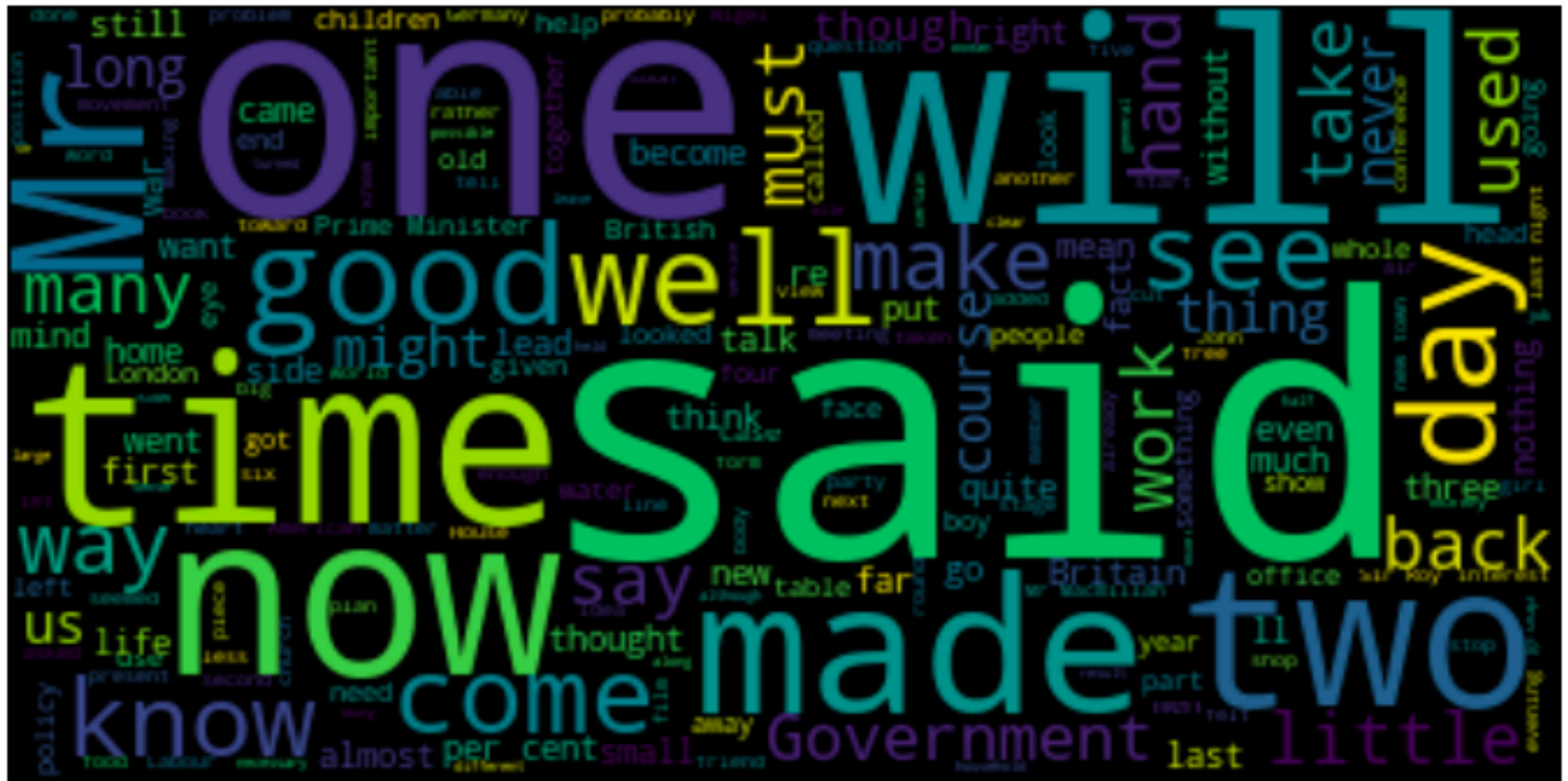
10 classes with at least 500 words each were used for modeling

Image preprocessing → **Convolutional Neural Network**

The 10 classes included both punctuation and short words:

"   ,   .   *and*   *in*   *a*   *of*   *the*   *to*   *was*

Resulting CNN model had an accuracy of = 0.86 on unseen data

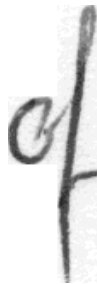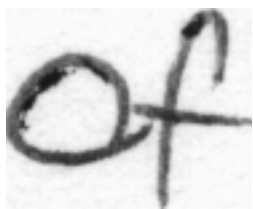| Model & Parameters: |
| --- |
| MobileNetV2 |
| Imagenet weights |
| Alpha = 0.35 |
| 3 Dense layers (100, 80, 10) |
| Relu |
| SoftMax |
| Categorical cross entropy loss |
| Adam optomizer |
| 5 epochs |

model accuracy
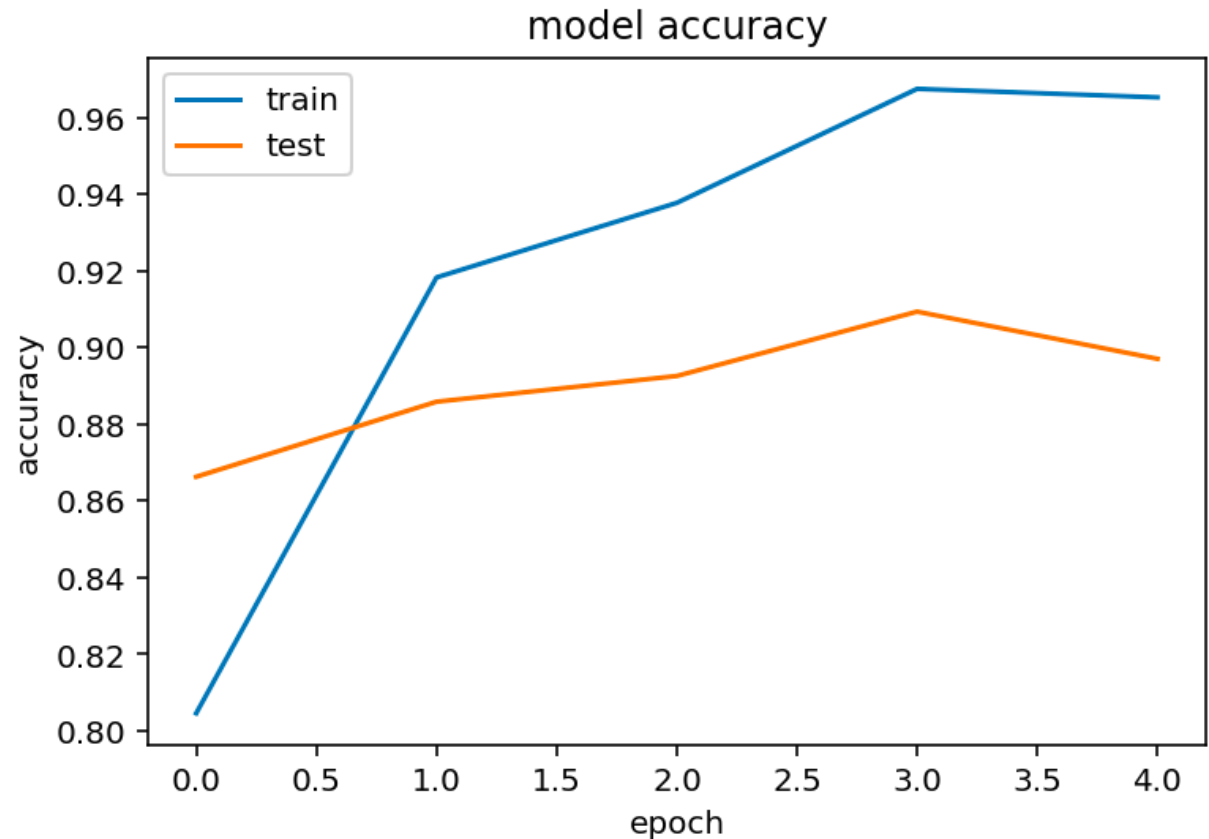
Recommendations

- Add additional classes

- Ensure model is tested on unseen writer's print

- Transition to testing on whole documents/forms