

Lydia Jin, Xi Qian, Yuyang Wang,
DATS 6203
Project Proposal

Our group has decided on an image classification problem. We're interested in further application of the image classification we learned in class. We have chosen to use the IAM Handwriting Dataset from Kaggle, which is a collection of handwritten passages by various writers. The goal of this project is to use deep learning to classify the writers by their writing styles. The results of this project can be used in future applications, such as identifying criminals by signature in fraudulent cases.

The dataset contains approximately 5000 image files of size 113x113, which is large enough for us to train a deep network. This project will utilize the standard form of the Convolutional Neural Network (CNN) deep network. The frameworks to implement this network are PyTorch, Keras, and TensorFlow. PyTorch is very useful for constructing deep neural networks, and allows more freedom for customizing layers. Keras is easy to use, and the best for deep learning models with stacked layers. And TensorFlow is useful for visualizing network performance.

We will be utilizing information on CNN from class notes and relevant code from course material. Further references have been listed below.

We will judge the network performance using a confusion matrix and the accuracy. The accuracy was calculated by finding the percentage of correctly classified cases.

Schedule:

Data Pre-Processing	Modeling	Evaluation (Paper/Presentation)
April 8th	April 17th	April 20th

References

Dataset: <https://www.kaggle.com/tejasreddy/offline-handwriting-recognition-cnn/data>

Johnson, W. A., Faieta, B. A., Jelinek, H. D., & Smith III, Z. E. (1999). U.S. Patent No. 5,991,469. Washington, DC: U.S. Patent and Trademark Office.

Girija, S. S. (2016). Tensorflow: Large-scale machine learning on heterogeneous distributed systems.