Sign Language Recognition

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June 24, 2019

Why did I choose it?

Source: https://prateekvjoshi.com/2013/01/03/can-machines-be-truly-independent/thinking-computer/

Technologies to be used

- Python
  - Pandas: Reading dataset
  - Numpy: Data processing
  - Matplotlib: Data visualization
  - Scikit-learn: ML algorithms
- Keras: Deep learning models
- Tensorflow: Framework for Keras
- OpenCV: Image processing

Resources

- Dataset: Mnist-Sign Language Recognition from Kaggle
  - Training data: 27455 cases
  - Testing data: 7172 cases
  - 784 columns for each 28px*28px picture

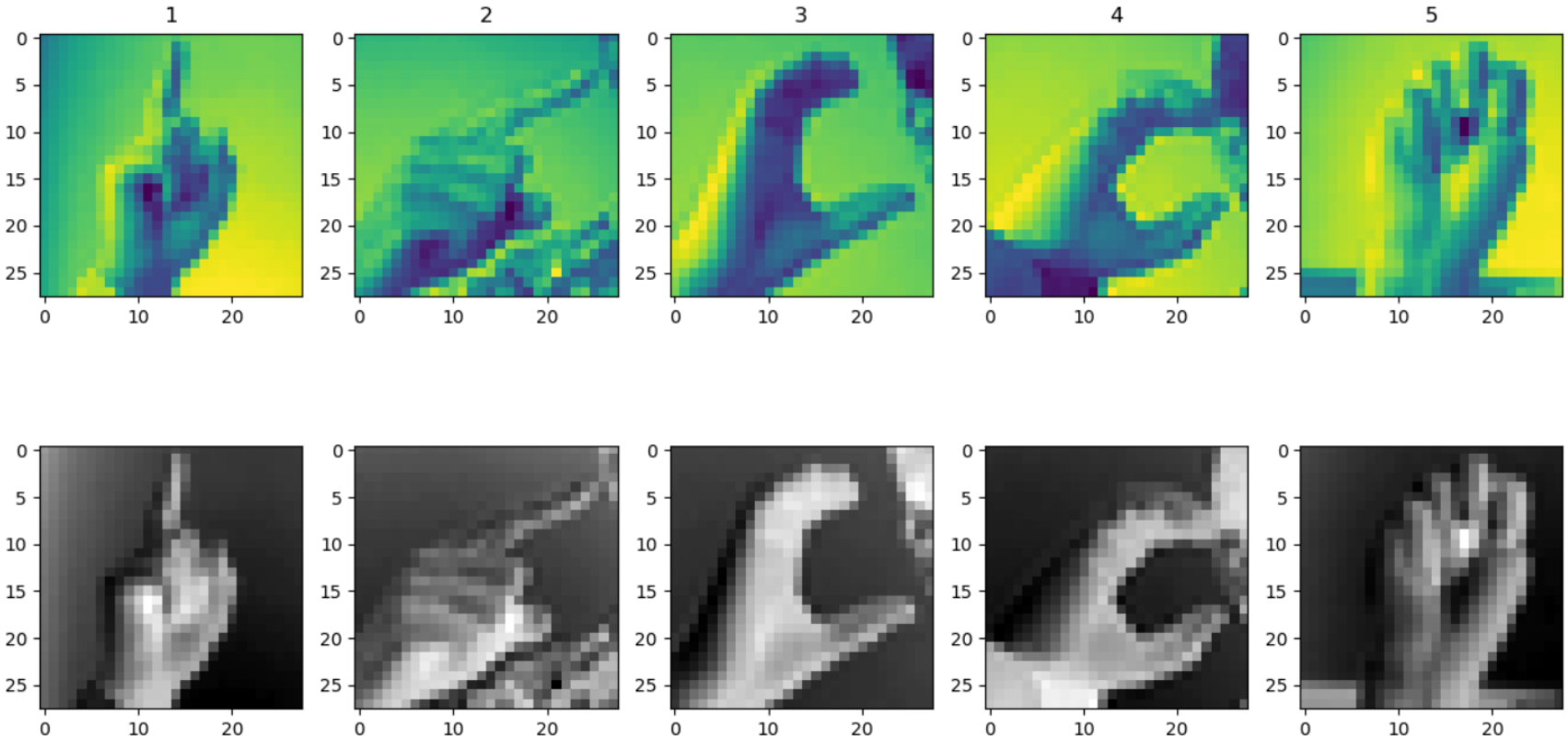
Plan

- Classify using:
  - KNN, SVM and Random Forest
  - Convolutional Neural Network

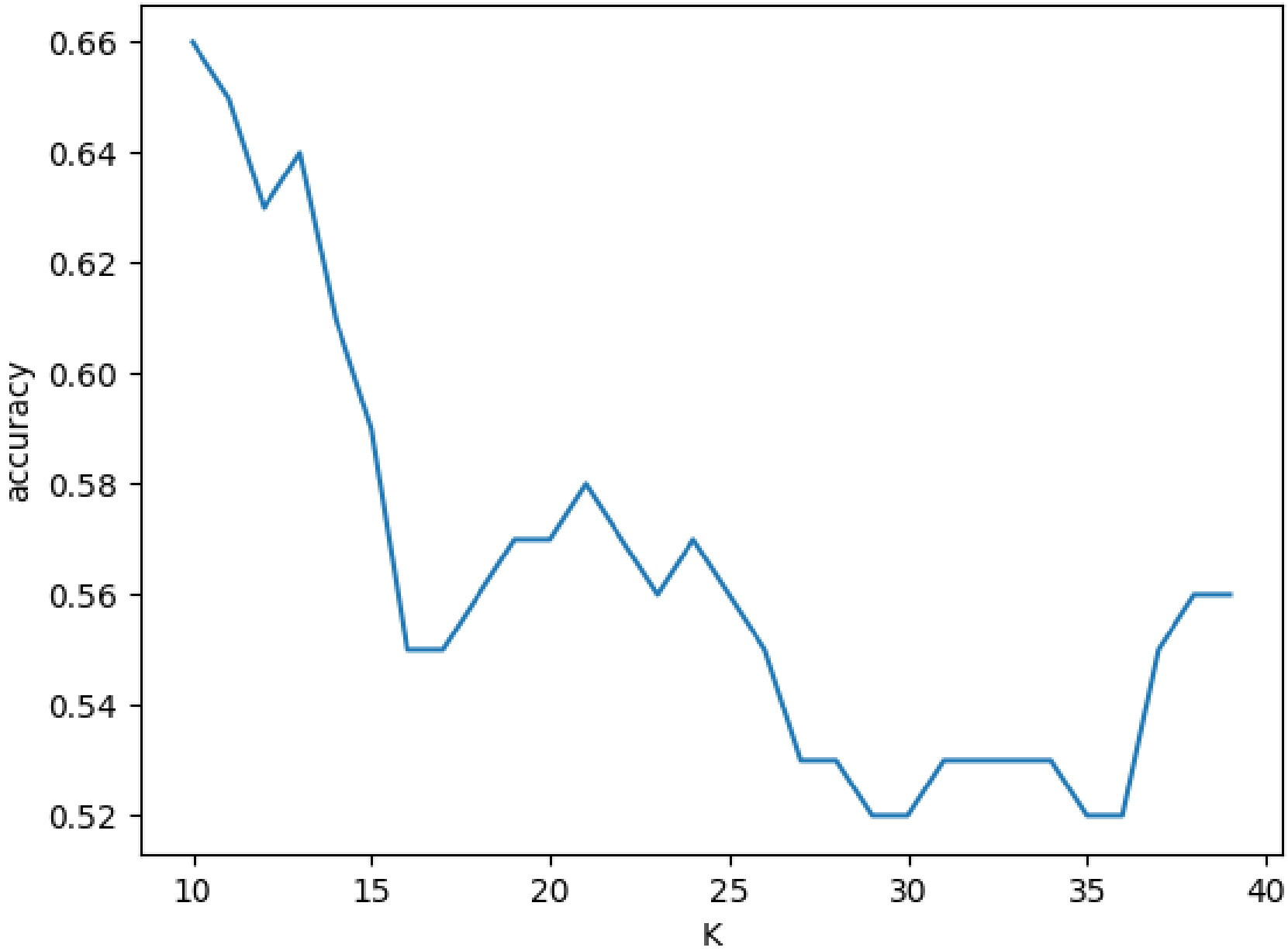
Progress so far

- Dataset visualization
- Convert images to pixels and vice-versa
- Suitability of ML algorithms
- Implemented KNN and SVM

Training Images

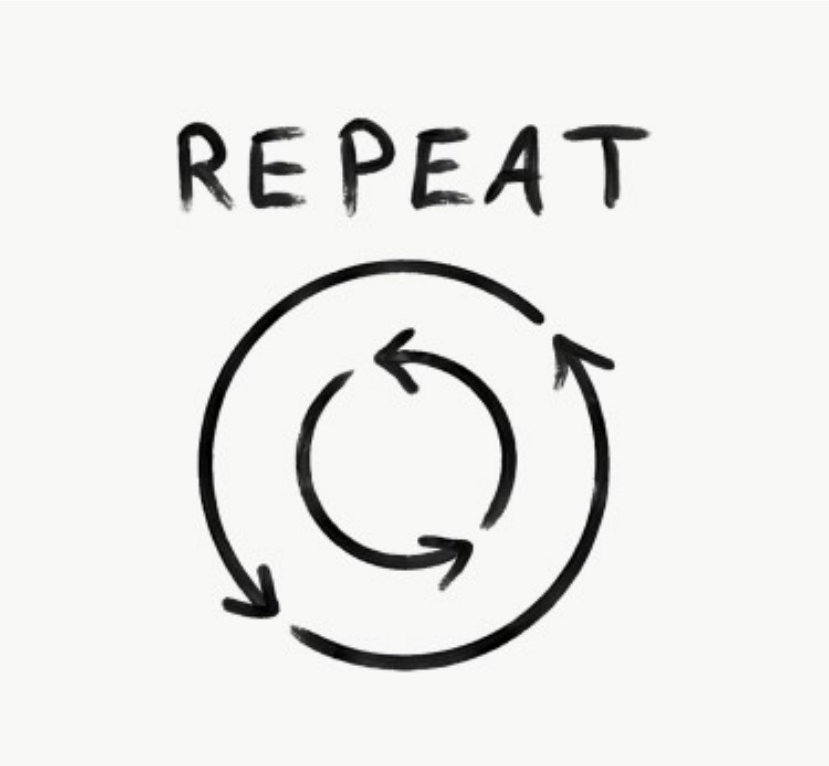


Visualizing KNN's Accuracy



Working Environment

VSCode to Jupyter Notebook



Goals

- Short Term Goal
  - Recognizing the alphabets of the English Language
- Long Term Goal
  - Recognizing complete words and sentences

Discussions