Sign Language Recognition

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Why did I choose it?

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

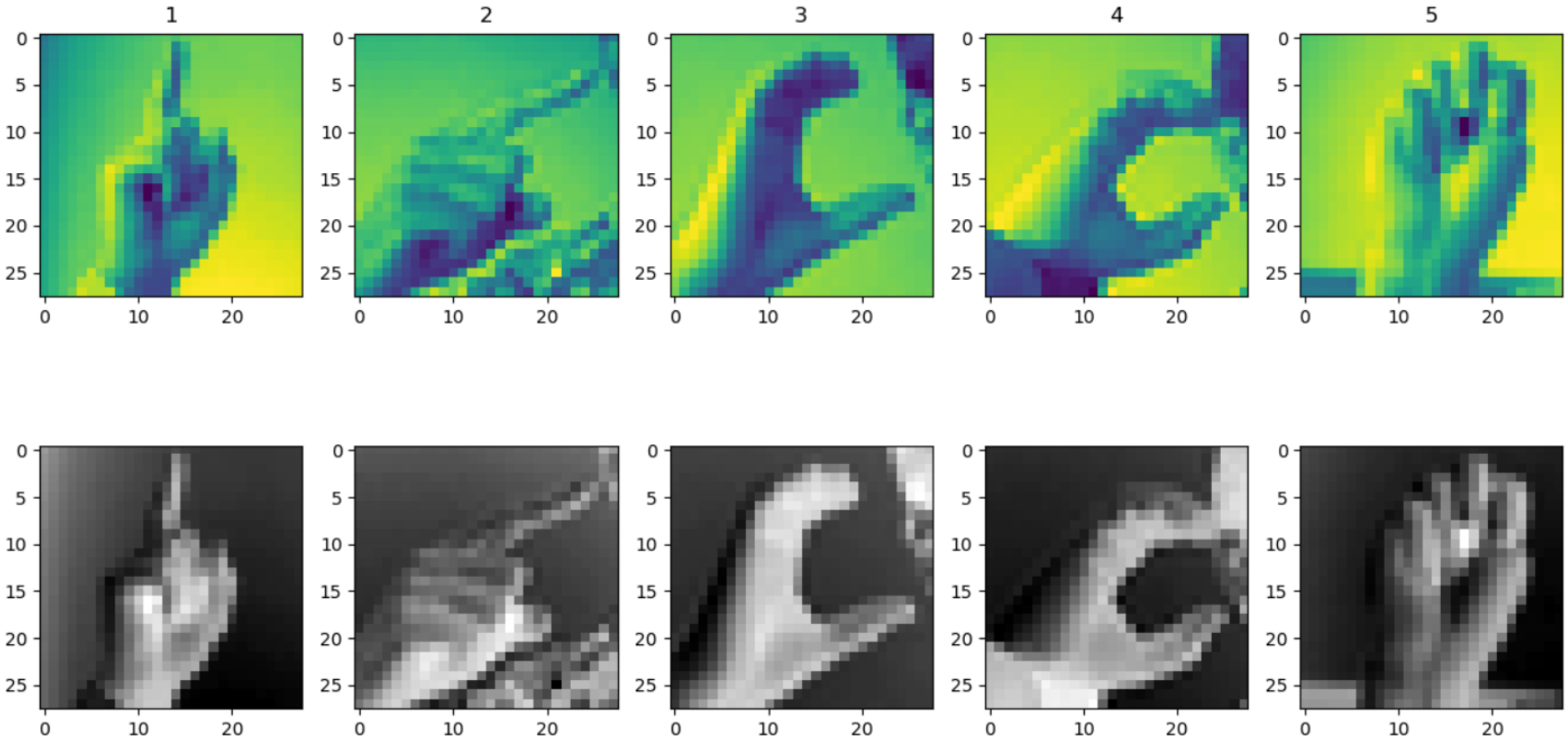
Technologies used

- Language: Python3
  - 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 images
  - Testing data: 7172 images
  - Image size: 28px * 28px

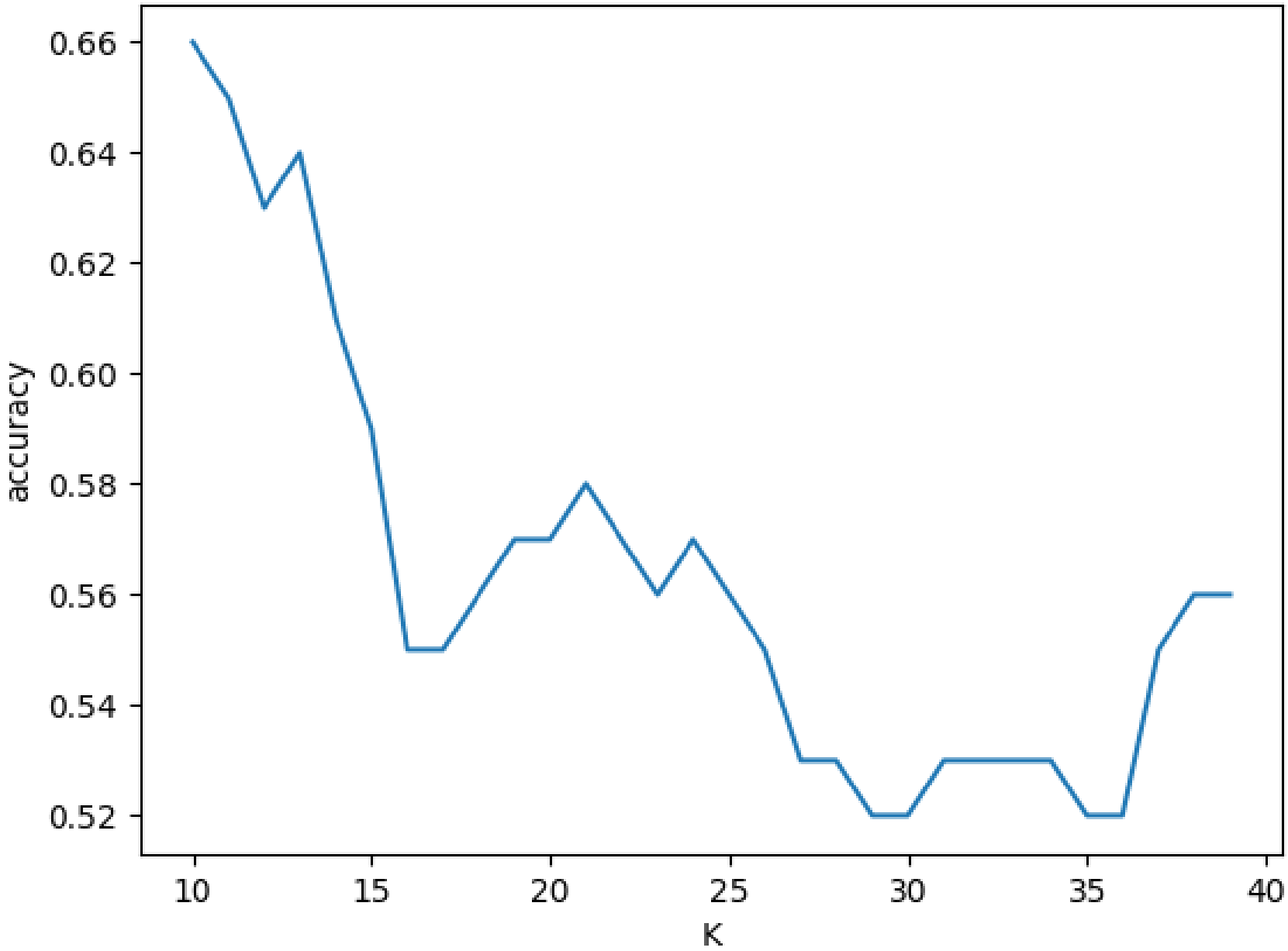
Training Images



Journey

- Visualizing dataset
- Implementing KNN and SVM
- Shifting work environment
- Implementing CNN

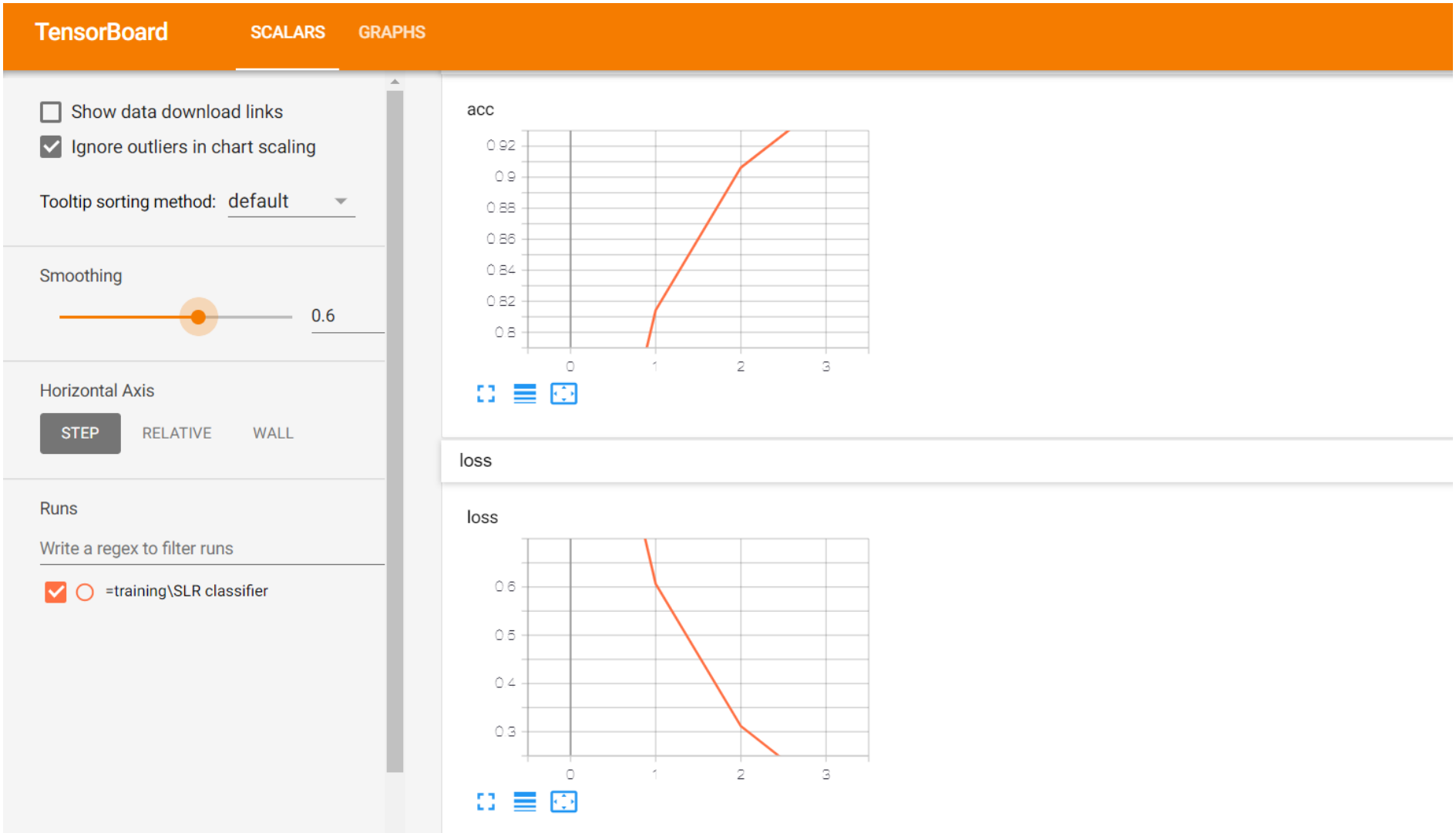
Analyzing KNN's Accuracy



Challenges faced

- Tiny images in dataset
- Hyperparameter tuning
- Overfitting in CNN

Analyzing CNN Model



Learnings

- Interactive Python environment
- Tensorboard
- Applications of OpenCV

Goals

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

Discussions