Handwriting Recognition using Optical Character Recognition

Keller Lawson

Computer Science

University of Idaho

Coeur d'Alene, ID

Description:

For the final project, I plan on using optical character recognition to identify different ANSI characters in a picture. The characters it will be able to recognize are the number 0-9, the letters a-z. If enough time is available prior to the final project due date, I want to implement real time character recognition from a video input using a raspberry pi with an Adafruit camera meant for the Raspberry Pi 3B+. There are many other projects similar to the one I plan on doing, so the project is quite feasible to complete in a short period of time using references from them.

Data Sources:

I will be using two different data sources for training. The first data set was found on Kaggle and is a data set containing 370,000+ English alphabet characters (https://www.kaggle.com/sachinpatel21/az-handwritten-alphabets-in-csv-format). The second data set was also found on Kaggle and contains 10,000 test samples for the digits 0-9 (https://www.kaggle.com/oddrationale/mnist-in-csv/). Both datasets are provided in a CSV format.

References:

The following links are what I will start using as a reference to help me understand each type of operation performed on the data sets I have chosen, and the libraries I will want to explore and use to build this project.

https://data-flair.training/blogs/python-deep-learning-project-handwritten-digit-recognition/

https://towardsdatascience.com/build-a-handwritten-text-recognition-system-using-tensorflow-2326a3487cd5

Timeline:

- April 26, 2021: Submit project proposal (milestone 1)
- April 30, 2021: Begin building model
- May 1, 2021: Finish building model and training
- May 2, 2021: Analyze current model and improve or retrain if necessary.
- May 3, 2021: Submit progress report (milestone 2)
- May 4 – May 11, 2021: Add real-time character recognition if time allows, fix any issues with model
- May 12, 2021: Submit formal project report (milestone 3)