Project Proposal

Classification of Handwritten Digits

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Handwritten digits are very commonly used in our day-to-day life. One of the uses that are most common is a zip code written in postal cards or envelopes. Few years ago, these handwritten digits were manually read by postman and now with the advent of Machine Learning and many other technologies computers are being trained enough to automate this task as accurate as humans and perhaps more efficiently. This technology is now widely used as Optical Character Recognition (OCR). While OCR involves conversion of images, handwritten documents or a scanned document to machine encoded text[1], in my project I will implement a subset of this: To classify handwritten digits.

I was always intrigued by the buzzword 'Machine Learning'. As exciting as it seems, it involves much intense applications of Linear Algebra. My idea of project involves creating a logistic regression function to recognize digits from famous MNIST (Modified National Institute of Standards and Technology) database. MNIST database is a large database of handwritten digits that is commonly used for training various image processing systems.[2] I am aiming to use Google's technology Tensorflow to train model to recognize digits from MNIST. At the end of the project an accuracy check will be done to confirm the model's accuracy.

Tensorflow provides an API for Machine Learning,. It is based out of Python and widely used by engineers to implement Machine Learning concepts. As new is Tensorflow to me, I am excited for this project and aiming to dive deep into Machine Learning concepts.

References:

[1]: https://en.wikipedia.org/wiki/Optical_character_recognition
[2]: https://en.wikipedia.org/wiki/MNIST_database
[3]: https://www.coursera.org/learn/machine-learning