Handwritten Digit Classifier

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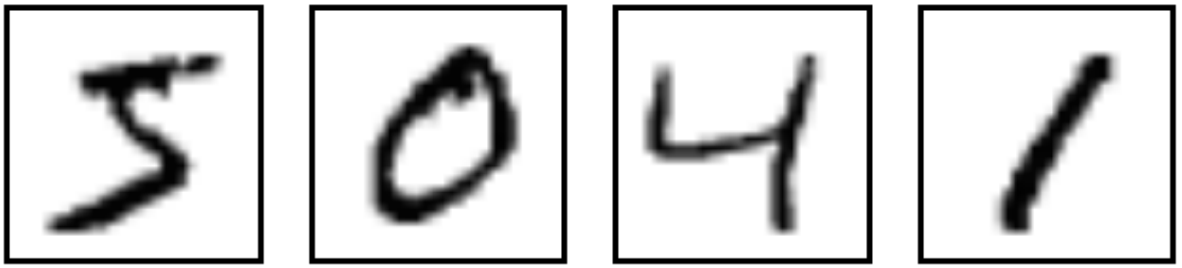
Introduction

Handwritten digit recognition is a very trending topic in Optical Character Recognition applications and pattern classification research. Such applications include, digit recognition in postal mail sorting, bank check processing, form data entry, etc. [1].

MNIST ("Modified National Institute of Standards and Technology")[2] is the de facto dataset of handwritten digit recognition. Since its release in 1999, this classic dataset of handwritten images has served as the basis for benchmarking classification algorithms. As new machine learning techniques emerge, MNIST remains a reliable resource for researchers and learners alike.[3]

The goal of this project is to correctly identify digits from a dataset of tens of thousands of handwritten images.

MNIST is a simple computer vision dataset. It consists of images of handwritten digits like these:



[4]

It also includes labels for each image, telling us which digit it is. For example, the labels for the above images are 5, 0, 4, and 1. My goal is to

build a Machine Learning Model which learns from the images/labels and correctly classify the images as such into a particular number (between 0-9).

References

1. Y. LeCun, et al., Comparison of learning algorithms for handwritten digit recognition, in: F. Fogelman-Soulié, P. Gallinari (Eds.), Proceedings of the International Conference on Artificial Neural Networks, Nanterre, France, 1995, pp. 53–60.
2. http://yann.lecun.com/exdb/mnist/index.html.
3. https://www.kaggle.com/c/digit-recognizer#description
4. https://www.tensorflow.org/images/MNIST.png