

# Machine Learning Engineer Nanodegree

## Capstone Proposal

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### Domain Background

Convolutional Neural Networks (CNNs) have successfully been applied in the field of image recognition. This class of models has proven to be incredibly efficient at classifying images and often outperforms other machine learning algorithms at this task. To illustrate, very accurate predictions can be achieved on datasets like the MNIST database of handwritten digits<sup>1</sup> and the CIFAR-10 dataset<sup>2</sup> using a simple CNN architecture. The images in these datasets are simple. First, the number of classes is very limited: 10 digits for the MNIST database and 10 object categories for the CIFAR-10 dataset (airplane, automobile, bird, cat, deer, dog, frog, horse, ship and truck). Then, each objects within the dataset are vey different from one another. It follows that very few convolutional layers are necessary to accurately classify the images.

### Problem Statement

### Datasets and Inputs

### Solution Statement

### Benchmark Model

### Evaluation Metrics

### Project Design

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<sup>1</sup>The MNIST database is available at <http://yann.lecun.com/exdb/mnist/>. A quick analysis of this dataset can be found [here](#).

<sup>2</sup>The CIFAR-10 dataset can be found at the following url: <https://www.cs.toronto.edu/~kriz/cifar.html>. Predictions on this dataset are presented [here](#).