Final Project Project Research Proposal

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1 project proposal

1.1 Project Objective

- Check whether ML algorithms can classify images without image preprocessing
- Extract feature vector from images using Auto-Encoder, use it as input to ML algorithms, and compare algorithms classification results.
- Reduce image size with PCA algorithm, and use it as input to ML classification algorithms, and compare their results, to the Auto-Encoder method results.
- Use both PCA and Auto-Encoder and compare to previous results.

1.2 Auto-Encoder

An Auto-Encoder is a type of artificial neural network used to learn efficient coding of unlabeled data. An Auto-Encoder has two main parts: an encoder that maps the input into the code, and a decoder that maps the code to a reconstruction of the input. We will only use the encoder part of the network for image code
note: add an article that explains Auto-Encoder.

1.3 ML and DL methods

- KNN
- SVM
- Logistic regression
- MLP
- CNN

1.4 Data Sets

Possible optional Datasets:

- (MNIST)
- (Fashion MNIST)
- (Dogs vs. Cats)