# Review for Deep Learning Project 1 - Group 06

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## 1  Summary of the Report

This report illustrates the feature extraction on MNIST dataset by using scattering nets with known invariants and pre-trained VGG19 net. Once the features extracted, unsupervised learning T-SNE has been conducted and results have been visualized. Then supervised learning method logistic regression has been performed on learned features, then predicting accuracy results have been compared of feature extracting.

## 2  Strengths of the Report

- The mechanism of Scattering net method has been introduced in detail;

- Features illustration is great to look at by coloring different category in different colors;

- The report is well-organized.

## 3  Weaknesses of the Report

- The size of original input, extracted features and t-SNE outputs have never been mentioned in the report, I could be more detail if they can be mentioned and discussed;

- It is not clear that the accuracy of prediction is in-sample or out-of-sample, and if it is out-of-sample, the training and test split mechanism should be discussed;

## 4  Clarity and Quality of Writing(1-5):4

The report is clearly written with some little typos, and there are figures to illustrate the unsupervised learning results. Formatting and References are well included. There are several suggestions:

- An obvious typo: "using 5,000 training data and 10,000 testing data" (Obviously, training set should be larger than testing data);

- The size of dots in visualization part can be larger so that they could be easier to noticed;

## 5  Technical Quality(1-5):4

The techniques used in this report is sound and well-explained. There seems no flaws in reasoning and claims are supported by experiment results. The results can be more convincing if more methods tries in the same category (supervised or unsupervised learning). The results have been discussed with examples. References are appropriate. Here are some suggestions:

- It is not clear that the accuracy of prediction is in-sample or out-of-sample, and if it is out-of-sample, the training and test split mechanism should be discussed;

- Better to perform comparison on different learning methods.

## 6  Overall Rating(1-5):4

## 7  Confidence on the assessment(1-3):3