

Report on CNN/Scattering classification comparison

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Chapter 1

Introduction

Chapter 2

Dataset

Chapter 3

Objectives

The objective of this project was to explore the use of scattering transforms to improve the performance of convolutional neural networks on a given dataset. Specifically, we aimed to compare the performance of a CNN trained on the original dataset to one trained on the scattering decomposition of the data.

We then visualized the filters learned by the CNN and compared them to the ones in the scattering network to gain insight into the types of features that were extracted. By accomplishing these objectives, we hoped to gain a better understanding of how the CNN learns which features to extract.

Chapter 4

CNN Classification

Chapter 5

Scattering+NN Classification

Chapter 6

Performances comparison

Chapter 7

Filters

Chapter 8

Conclusions