SMAI Project proposal

Team Name: Cassata

Team members:

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Project Objectives:

Since AlexNet won the ImageNet Challenge in 2013, Convolutional Neural Networks (CNNs) have become increasingly popular in various Computer Vision Tasks. Yet it is often unclear why CNNs perform as well as they do and how they learn to perform these tasks. Our lack of understanding of underlying mechanisms is an important bottleneck in designing better architectures and building better models.

In our project, basing on the work done by Mathew D Zeiler, Rob Fergus in their paper “Visualizing and Understanding Convolutional Networks”, we perform a series of experiments that hopefully would give us a better sense of what goes on under the hood of various CNN models.

We utilise what are called Deconvolutional Networks to transform from the activation layers back to the image space which helps us visualize and understand what aspects of the image are the layers of the CNN focussing on.

Project Deliverables:

- Implementation of a de-conv net on which we will run out experiments.
- A notebook with experiments and results
- Output images that demonstrate the inner workings of a convolutional neural network

- Report which describes our methods,the underlying theory, experiments, results and conclusion.

Division of Work:

Timeline: