

Summer Project

Assignment 6

CILAB

A Computer Vision Tutorial



August 14, 2023

Problem 1

1. Due date: 08.20. (Sun) 11:59 P.M.
2. Goal: Familiarize yourself with **Analysis framework** and do analysis of **DeepLift**, **GradCAM**, **SlefAttentionHeatmap**, **EffectiveReceptiveField**, and **PCA** on CIFAR100 and ImageNet.
3. Rules:
 - a) Select the CNN based model(e.g. ResNet, ResNext, EfficientNet, etc.) and Transformer based model(e.g. ViT, DeiT, Swin, etc.).
 - b) Do **DeepLift** analysis on imageNet with a CNN and Transformer of your choice. And describe the differences of them at least two things.
 - c) Do **GradCAM** analysis on imageNet with a CNN of your choice. And describe the differences of them at least two things.
 - d) Do **SlefAttentionHeatmap** analysis on imageNet with a Transformer of your choice. And describe the differences of them at least two things.
 - e) Do **EffectiveReceptiveField** analysis on imageNet with a CNN and Transformer of your choice. And describe the differences of them at least two things.
 - f) Do **PCA** analysis on imageNet with a CNN and Transformer of your choice. And describe the differences of them at least two things.
 - g) Do the same analysis on the model you are currently developing on CIFAR100, and talk about how it could be improved.
 - h) Compare the graph or performance about before and after model improvements.
 - i) Make your analysis report. **Each analysis should have a graph or table** comparing CNN and Transformer, with description. When you analyze and improve your model, you should include a **before-and-after graph or table**, and explain what is lacking of model and how you addressed it. You should have at least one analysis for your model. *You don't have to do every analysis on your model.*
4. Program:
 - Start: 08.14 (Mon)
 - QnA: 08.17 (Thu) 10 A.M.
 - End: 08.20 (Sun) 11:59 P.M.