

Project Proposal

Title: Scene Classification and GradCam Visualization

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Proposal:

During the class, we have learned about convolutional neural networks. In this project, we will build and train a Deep Convolutional Neural Network (CNN) to detect the type of scenery in an image. We will use a technique known as Gradient-Weighted Class Activation Mapping (Grad-CAM) to visualize the regions of the inputs and help us explain how our CNN models think and make decision.

The estimated steps will be:

- 1. Understand the theory and intuition behind Deep Neural Networks, Residual Nets, and Convolutional Neural Networks (CNNs).*
- 2. Apply Python libraries to import, pre-process and visualize images.*
- 3. Perform data augmentation to improve model generalization capability.*
- 4. Build a deep learning model based on Convolutional Neural Network and Residual blocks using Keras with Tensorflow 2.0 as a backend.*
- 5. Compile and fit Deep Learning model to training data.*

6. Assess the performance of trained CNN and ensure its generalization using various KPIs such as accuracy, precision and recall.
7. Visualize the Activation Maps used by CNN to make predictions using Grad-CAM.
8. Deploy the model using Tensorflow Serving