Proposal (**Due Date: October 3, 11:59 PM ET**)

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Due Oct 3, 2023 11:59 PM

Your proposal should give the title of the project, the project category, the names of your team members, their NetID, and a 300-500 word description of what you plan to do. It should contain the following information.

- Motivation: What problem are you tackling? Is this an application or a theoretical result?
- Method: What machine learning techniques are you planning to apply or improve upon and how?
- Experiments: What experiments are you planning to perform (or what theorems do you want to prove)?

The goal of the proposal is make sure you're on the right track. As long as you follow the above guidelines, you should do well.

Rough Idea: Architecture Style Classification

We are classifying different architectural styles based on their visual appearance. Our dataset will be images of buildings with different architectural styles. This model can be applicable in several scenarios; for instance, tourists can take photos of a building on the road and get its architectural style in real time. Specifically, this model is designed to recognize architectural styles from different historical eras or different architects' designs.

We are planning to use supervised learning with a convolutional neural network. We'll first determine iconic architectural styles in history and scrape the dataset accordingly from the internet. Then, we'll define our model class based on the number of classes and features, choosing the most compatible convolutional neural network and defining our objective and optimizer according to the model we employed. Finally, we'll yield a predictive model.

Considering the complexity of real-life datasets and the fact the architecture pictures online are well-polished and oriented, we will test our model with randomly taken photos on the road; for instance, there is a wide range of diverse architectural styles in Manhattan, we can take photos there to build our experimental datasets.

There are a few conditions we want to test. First, buildings with a mixture of different architectural styles. We want to test whether the model recognizes the dominant features. Second, over-exposure or under-exposure pictures. This is quite common for a random tourist to take imperfect photos. We want to make sure that the model works well in these cases. Third, buildings that are obscured by foreground objects. In real-life scenarios, buildings are never standalone. For instance, trees and decorations in the facade might obscure part of the features of buildings. We want to verify the model performs satisfactorily in these conditions. There are likely more cases to be considered, and we will add them as we explore.

Wiki

Please add whatever you think is related to our project here :)

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Article:
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Dataset:
https://www.kaggle.com/datasets/gustavoachavez/architectural-styles-periods-dataset

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