MAIS 202 Deliverable 1: Cloud Remover

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1. Dataset

I will be downloading images of photos (most likely places))with clouds and without clouds from the internet (e.g. google)

2. Methodology

a. Data preprocessing

The training set is organized into labelled folders for the presence of cloud(s). To store the large amount of images, I will be using Microsoft Azure Google Cloud, I will download the images I will also make sure that the images are labelled correctly.

b. Machine Learning Model

I want to detect the presence of cloud in a picture (i.e. classify whether), so I need a model that can recognize pictures with clouds and pictures without. The convolutional neural network (CNN) seems to fit the purpose based on the articles https://towardsdatascience.com/wtf-is-image-classification-8e78a8235acb and https://medium.com/@ageitgey/machine-learning-is-fun-part-3-deep-learning-and-convolutional-neural-networks-f40359318721.

For the detection of cloud, I will be learning from existing projects that allows object removal e.g. https://github.com/VPanjeta/Deep-Object-Removal. However, I cannot simply integrate the whole code since the aforementioned github project requires the user to physically mark the object (by drawing on the object).

c. Final Conceptualization

My plan is to create a web app that takes a photo of a scenery with the sky and outputs a photo without cloud (or reduced amount of cloud on the sky). Once the user imports a photo(drags/drops), the app will process it and outputs (displays on the webpage, make it downloadable, etc) a photo without cloud. Had there been no or minimal cloud on the sky, the app will output the same photo as the input (since I/we would want to keep the photo original if possible). I'll most likely be using HTML and CSS for the page design, App Engine to host the website and integrate the model.