CS 440: Probabilistic Search

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Abstract

In this project, we demonstrated basic techniques of supervised learning and computer vision in Python.

Academic Integrity

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The Basic Coloring Agent

The final result isn't great. Though it has the water, sky, and tree colors correctly placed, there many problems. The main problems were that we used 5 k-means, so we can only have 5 of the many colors; because we used patches of 3x3, we can't color the edge of the image; and because we only used 3x3 patches, each test pixel does not have that much information to work off of.
We could measure the quality of the final result using P-Norms between the actual image and the prediction. We implemented checking the L2 Norm in Agent.check_prediction(). This prediction is somewhat numerically satisfying, but still, not great.

Figure 1: In the above picture, the left is the training data and the right is the prediction

Figure 2: In the above picture, the left is the training data and the right is the test data