

Homework 4 Writeup

Instructions

- Provide an overview about how your project functions.
- Describe any interesting decisions you made to write your algorithm.
- Show and discuss the results of your algorithm.
- Feel free to include code snippets, images, and equations.
- List any extra credit implementation and result (optional).
- Use as many pages as you need, but err on the short side.
- **Please make this document anonymous.**

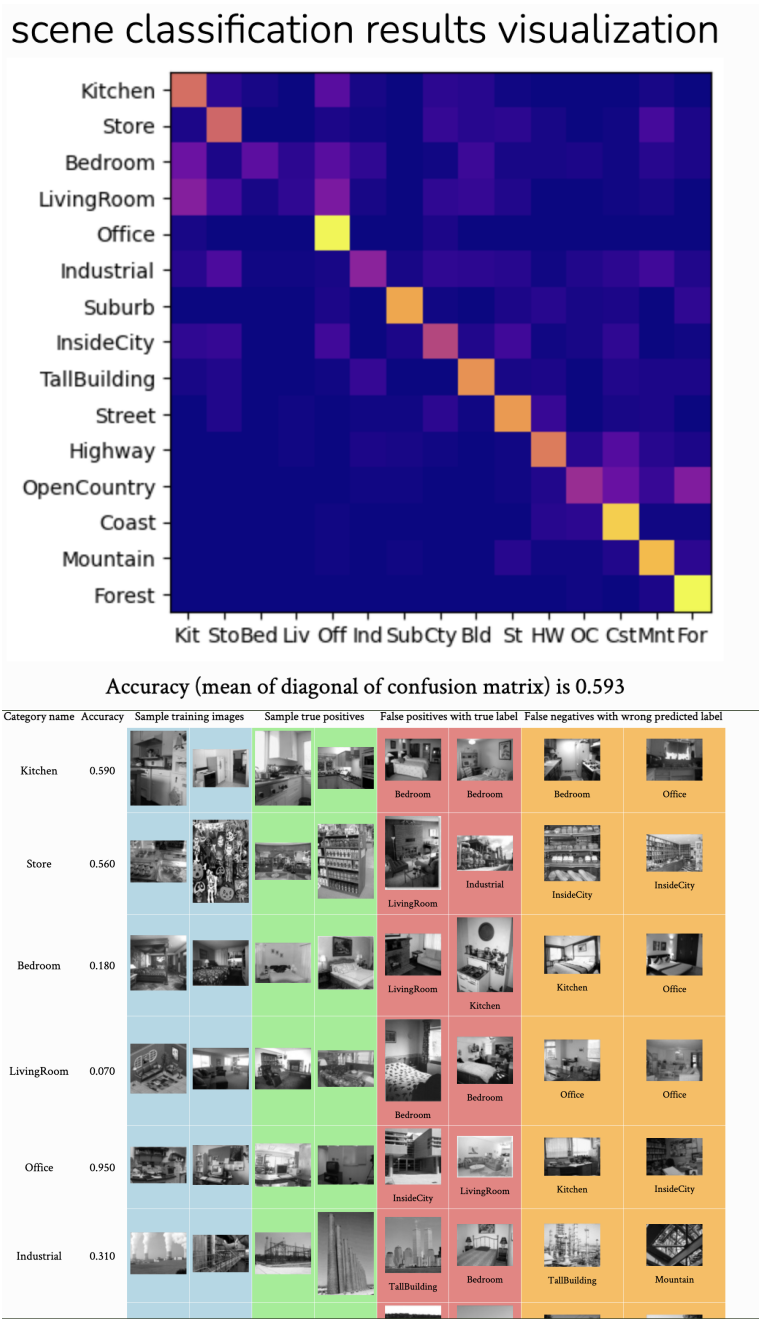
Project Overview



























































































In this project, I implemented parts of the image classification program. My implementation comprises Task 1. Tiny images representation and nearest neighbor classifier Task 2. Bag of words representation and nearest neighbor classifier. Task 3. Bag of words representation and linear SVM classifier.

Classification performance

Accuracy for each combinations of tiny images + nearest neighbor, bag of words + nearest neighbor, and bag of words + one vs. all linear SVM are: 0.21066666666666667, 0.5133333333333333, and 0.5806666666666666, respectively.

Result



Suburb	0.760										
							OpenCountry	Highway	Highway	Forest	
InsideCity	0.450										
							Street	Industrial	Kitchen	Street	
TallBuilding	0.700										
							Kitchen	Bedroom	Mountain	Highway	
Street	0.720										
							InsideCity	InsideCity	TallBuilding	Highway	
Highway	0.630										
							Bedroom	Street	Coast	Street	
OpenCountry	0.350										
							Industrial	Highway	Mountain	Forest	
Coast	0.860										
							Highway	OpenCountry	OpenCountry	OpenCountry	
Mountain	0.810										
							Street	Industrial	Street	Forest	
Forest	0.960										

Extra Credit (Optional)