CS523 Computer Vision
Report

Image Classification with Bag of Features

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Introduction

This report explains the implementation details of CS523 Computer Vision Assignment 3, which is about classifying a 4-class dataset with bag of features. To run the code, you need to re-organize the dataset to look something similar to:

```
dataset
├── train
│   ├── airplanes
│   ├── cars
│   ├── faces
│   └── motorbikes
└── test
    ├── airplanes
    ├── cars
    ├── faces
    └── motorbikes
```

After modifying the directory structure, you should call main.py with the parameters that are needed to run the experiment you want. For example, the following snippet will set the feature extraction method to keypoints, will use kmeans, k=50 for the clustering algorithm.

python main.py –train_path dataset-modified/train –test_path dataset-modified/test –no_clusters 50 –clustering_alg kmeans –feature_extraction kp

Feature Extraction

Feature Descriptor

Dictionary Computation

Feature Quantization and Histogram Calculation

Classifier Training

Results