# Image Object Classification

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# Agenda

- Overview
- Feature Selection
- Process
- Pre-processing
- Results

# Overview

- Image object classification based on Support Vector Machine (SVM)
- Feature extraction based on SIFT descriptors
- Quantization based on Histograms
- Use of VL-FEAT library

# Feature Selection

| Data Set | Count |
|---|---|
| Classes | 50 |
| Number of Images | 40 |
| Size | 279 X 249 |

- Data Set: Caltech – 101
- Selection based on available image set
- The number of images were taken as solid
- The images are resized based on the average size of images

# Process

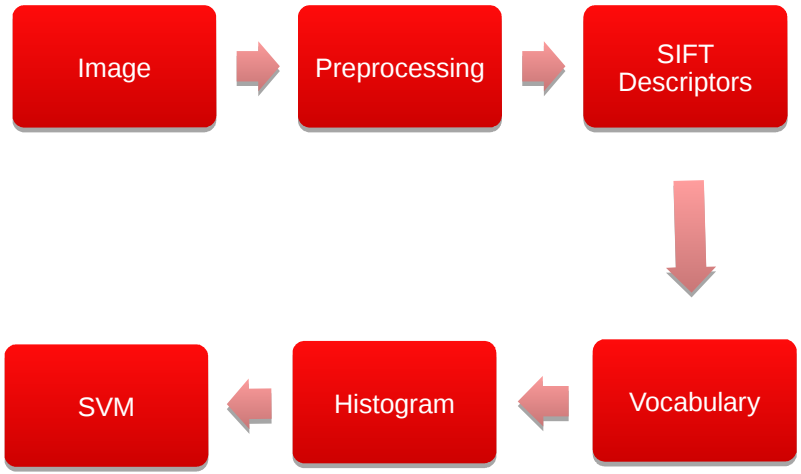


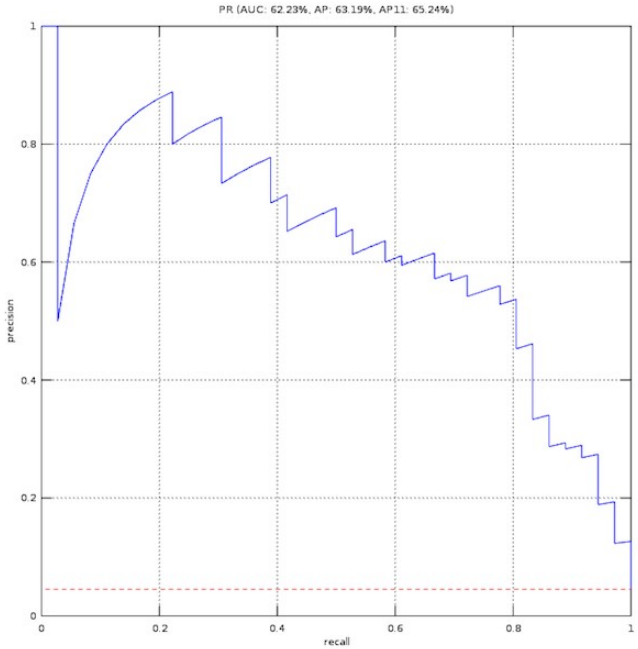
Image
Preprocessing
SIFT Descriptors
Vocabulary
Histogram
SVM

# Pre-processing

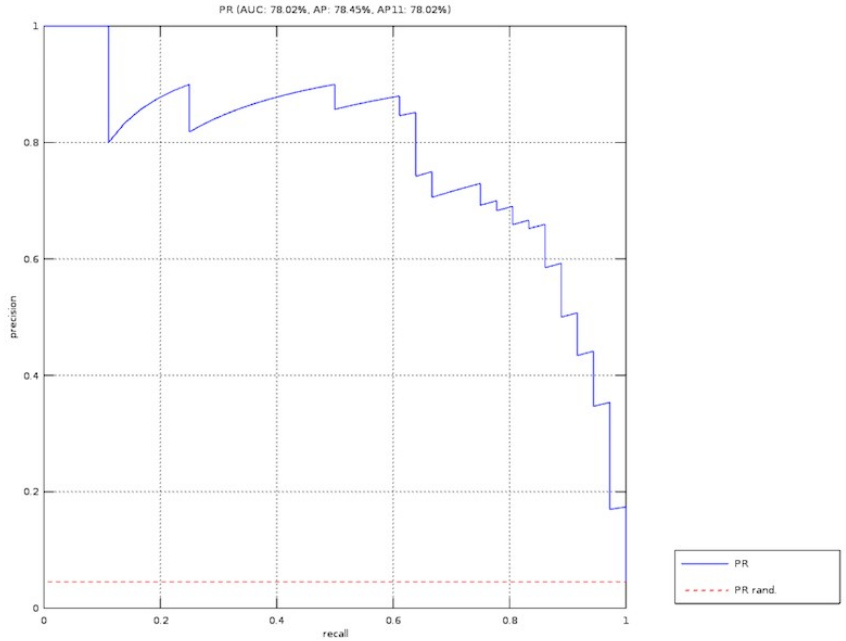
- Resizing images based on average size of all selected images across categories
- Feature extracted based on dense SIFT key point and descriptors
- Quantization of feature vector as visual words
- The frequency of quantized vectors are then converted to Histogram
- Final feature vector is extracted by concatenating the histogram

# Results

## Minaret (+ve) – Aeroplanes (-ve)



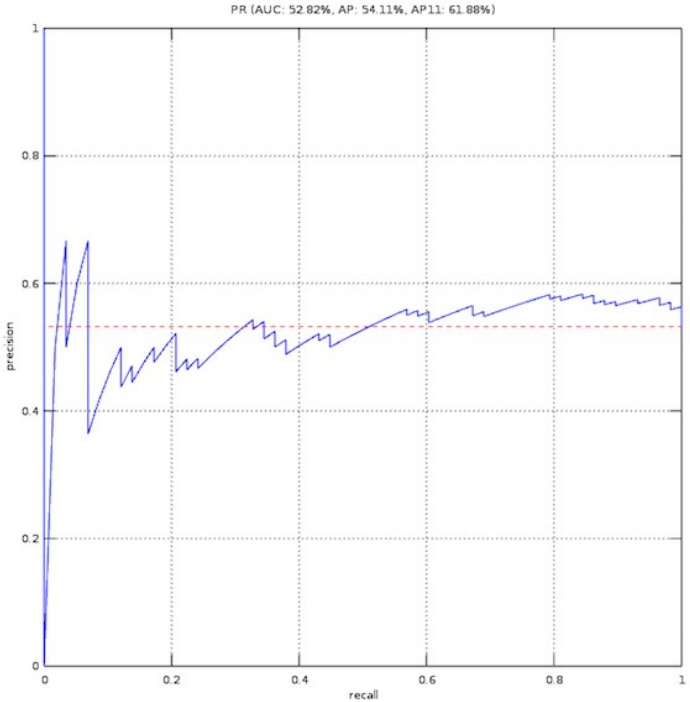

Half Samples



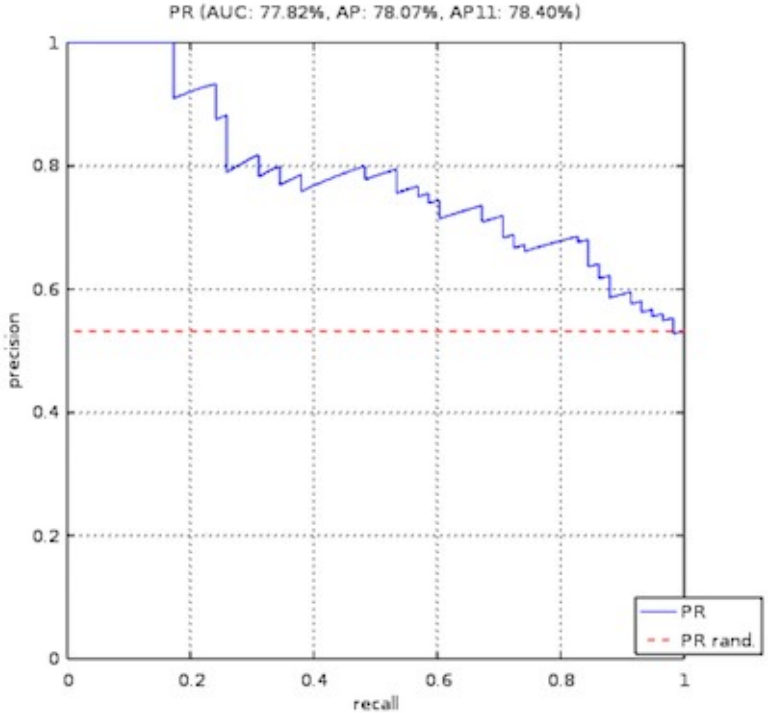

All Samples

# Results

## Brain (+ve) – Butterfly (-ve)




Half Samples




All Samples