COS429 FINAL PROJECT

Object Detection on PASCAL VOC 2012
Yinda Zhang @ CS 105, Dec 18, 2015
WHAT TO DO

Classification: Cat

Detection: Cat + Bounding box
CHALLENGING

- Appearance
- Viewpoint
- Occlusion
- Multiple objects
MOST EXTREME CASE
EVALUATE
EVALUATE
AVERAGE PRECISION

Precision: % of detection that are correct;
Recall: % of ground truth detected

mAP: average of AP over multiple classes
DATASET

- 20 classes, 11530 images with 27450 objects labelled
- Development toolkit
BASELINE

- Output center box, always classify as “cat”
- Run image classification, and randomly generate a box
- Sliding window: a window slides in image and perform classification for each location (DPM)
- Region proposal: generate some regions from image, and perform classification on each.
BASELINE

TODO

✓ Implement a detection system

• From scratch: your own idea or previous work
• Improve upon released code of previous work
• “script_train.m”
  • load data, perform training, and save model
• “script_test.m”
  • load data and model, perform testing, and visualize result
TODO

✓ Report

• CVPR format: http://www.pamitc.org/cvpr16/author_guidelines.php
• Group members, name + ID
• Methods
• Evaluation: APs, mAP, PR curve, succ/fail detection result
• Discussion
• Job Assignment: Who did what
TODO

✓ Evaluate on eval set. Only on test set for extra bonus
✓ Proposal deadline: Dec 18
✓ Project deadline: Jan 12
✓ Name your submission
  • xj_yindaz_mingru_cos429fp.pdf
  • xj_yindaz_mingru_cos429fp.zip
GRADING

✓ Implementation (40%)
  • The amount of working codes
  • The data/result visualization/analysis
  • Any existing codes does not count

✓ Correctness (20%)
  • “script_train.m” and “script_test.m” are runnable
  • mAP > 20%
GRADING

✓ Report Writing (10%)
  • Right format
  • All required contents

✓ Code Clearness (10%)
  • Codes is clean, well-organized, easy to read

✓ Algorithm Novelty (10%)
  • Create your own idea
  • Improve your baseline by something
GRADING

✓ Performance (10%)
  • Rank mAP on eval set from all groups
✓ Extra Bonus (a loooooot of marks)
  • If your mAP is above 70%
  • Evaluate on testing set as a proof