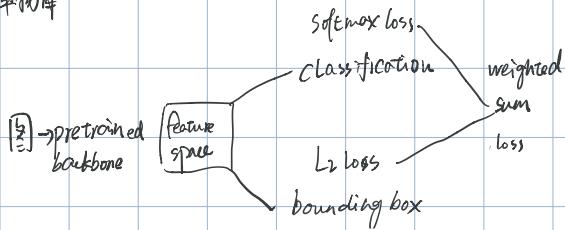


输入：图片
输出：object for bounding box (x, y, w, h)
for class

单阶段



多阶段

- ①用 sliding window 方式遍历区大
- ②Region proposal methods?
RPN, 我们把 blob 看作 200*4

R-CNN

- ① Region proposal
- ② 对每个 \square , conv \leftarrow class
 \leftarrow bbox

bbox 评估：IoU

(Intersection of union)

bbox 选择：NMS

非极大值抑制

(选取最高 IoU bbox, 把跟它重叠 > threshold 的抑制掉)

Fast R-CNN

① 1xconv

② ROIs from region proposal

③ 对每个 \square , conv \leftarrow class
 \leftarrow bbox

Fast R-CNN

① 1xconv

② RPN (Region Proposal Network)

用不同形状的 Anchorbox

RPN Classification
RPN Regression

stage
③ crop

④ then { obj
 | Classification
 | Regression
 | obj }

detector 评估：MAP

1. AP
 1) 把 score 排
 2) if bbox & gt bbox 交并率 > 0.5, 计
 ones
 3) 画 PR 图
 4) 计算 AUC \Rightarrow AP

最后平均所有 class 的 AP

ROI 怎么找？

1) ROI Pool. 用图 project 到 feature
(归一化)

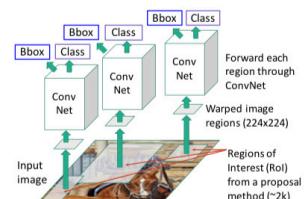
2) ROI Align 用图 project 到 feature
(归一化)

SSD single stage object detection

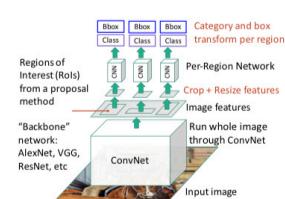
① conv

② 直接 anchor R-CNN \rightarrow category, 和 RPN ??

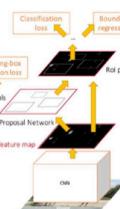
“Slow” R-CNN: Run CNN independently for each region



Fast R-CNN: Apply differentiable cropping to shared image features



Faster R-CNN: Compute proposals with CNN



Single-Stage: Fully convolutional detector

