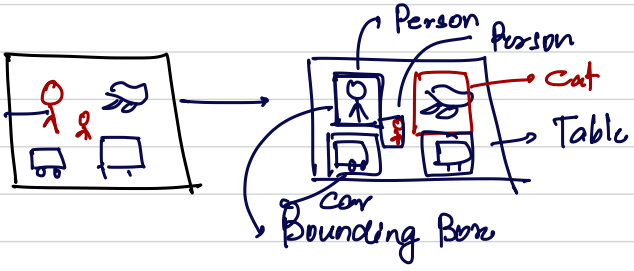
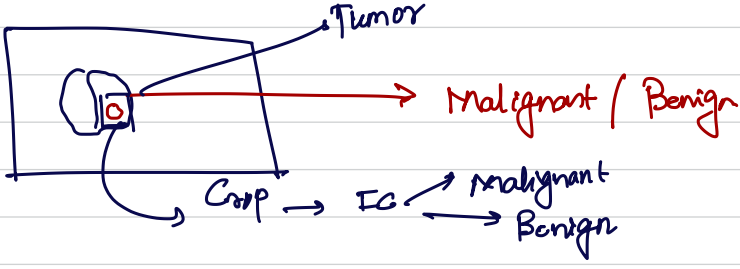
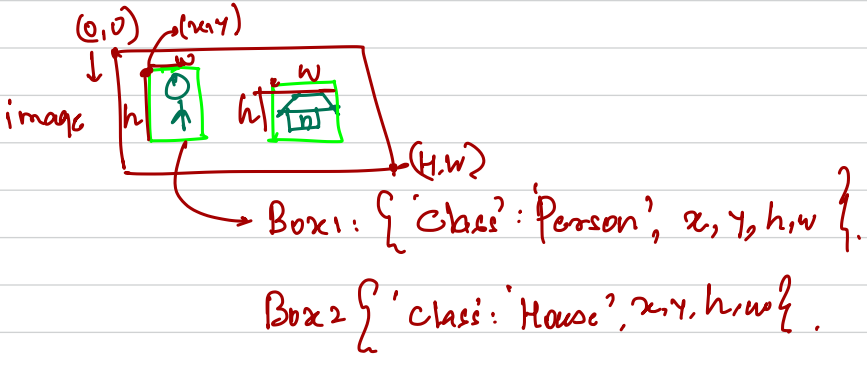
Object Detection → RCNN (Object Detection & Localization)





Annotation Tools (Roboflow)



Box1: { 'class': 'Person', x, y, h, w }.

Box2 { 'class': 'House', x, y, h, w }.

RCNN

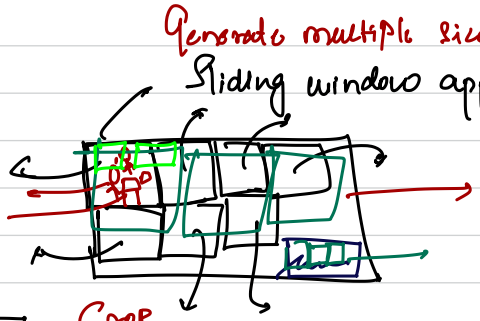
FastRCNN

FasterRCNN

YOLO.

SSD

RCNN



Problem ?

Generate many crops by taking in the sliding window (different sizes)

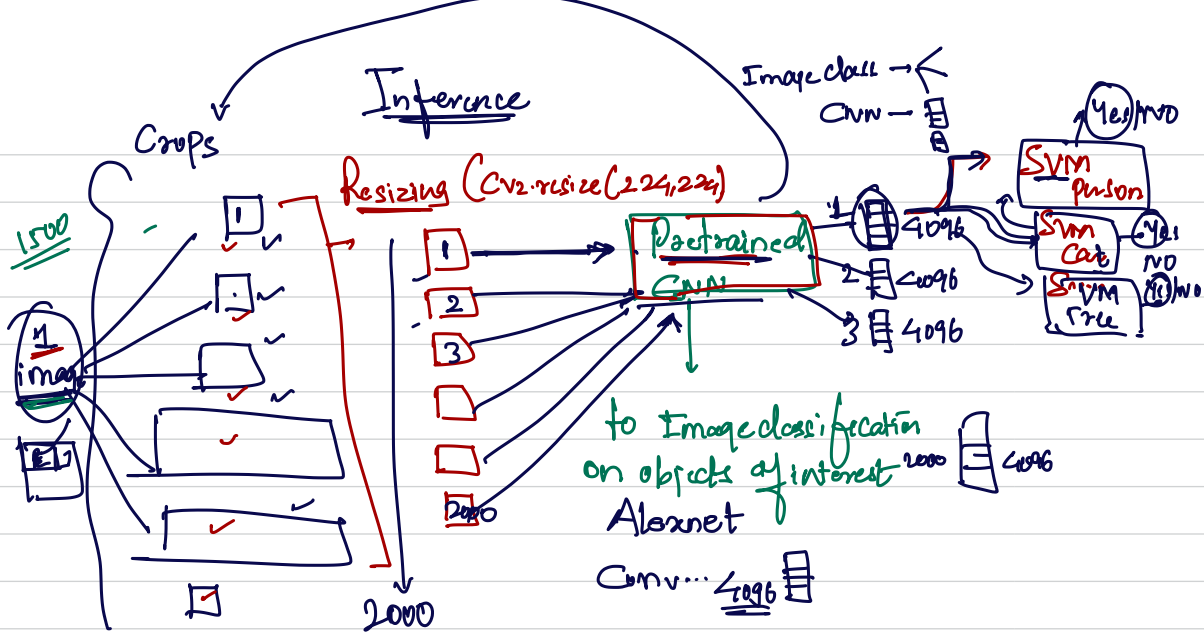
Region Proposals

RCNN

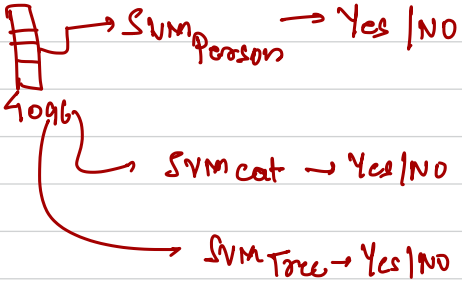
① Generation of region proposals

- Sliding window
- Selective Search
  - Clustering or grouping of pixels to generate segments → Region proposals

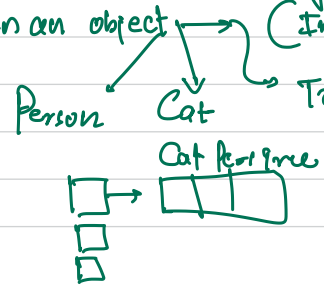
② Algorithm to apply for classification

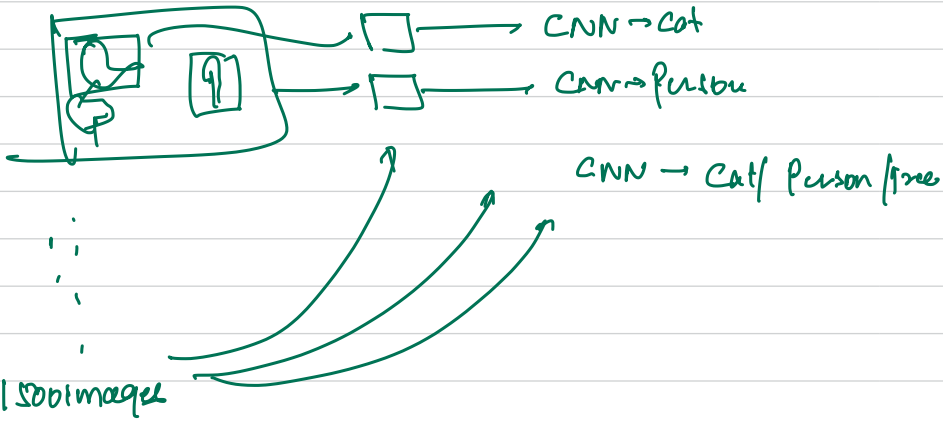


You have one SVM to detect each object of interest.



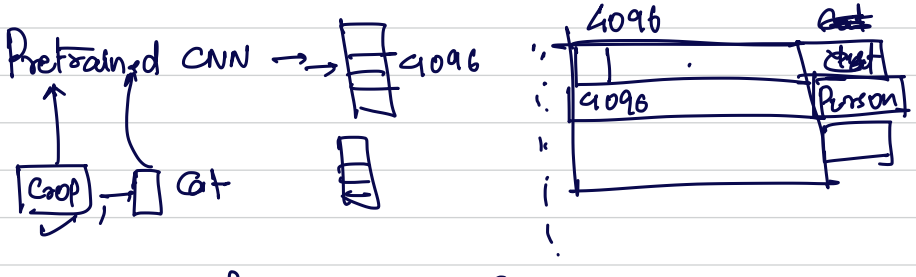
Pretrained CNN is a algorithm which is capable to detect / classify given an object → (Image Classifier)



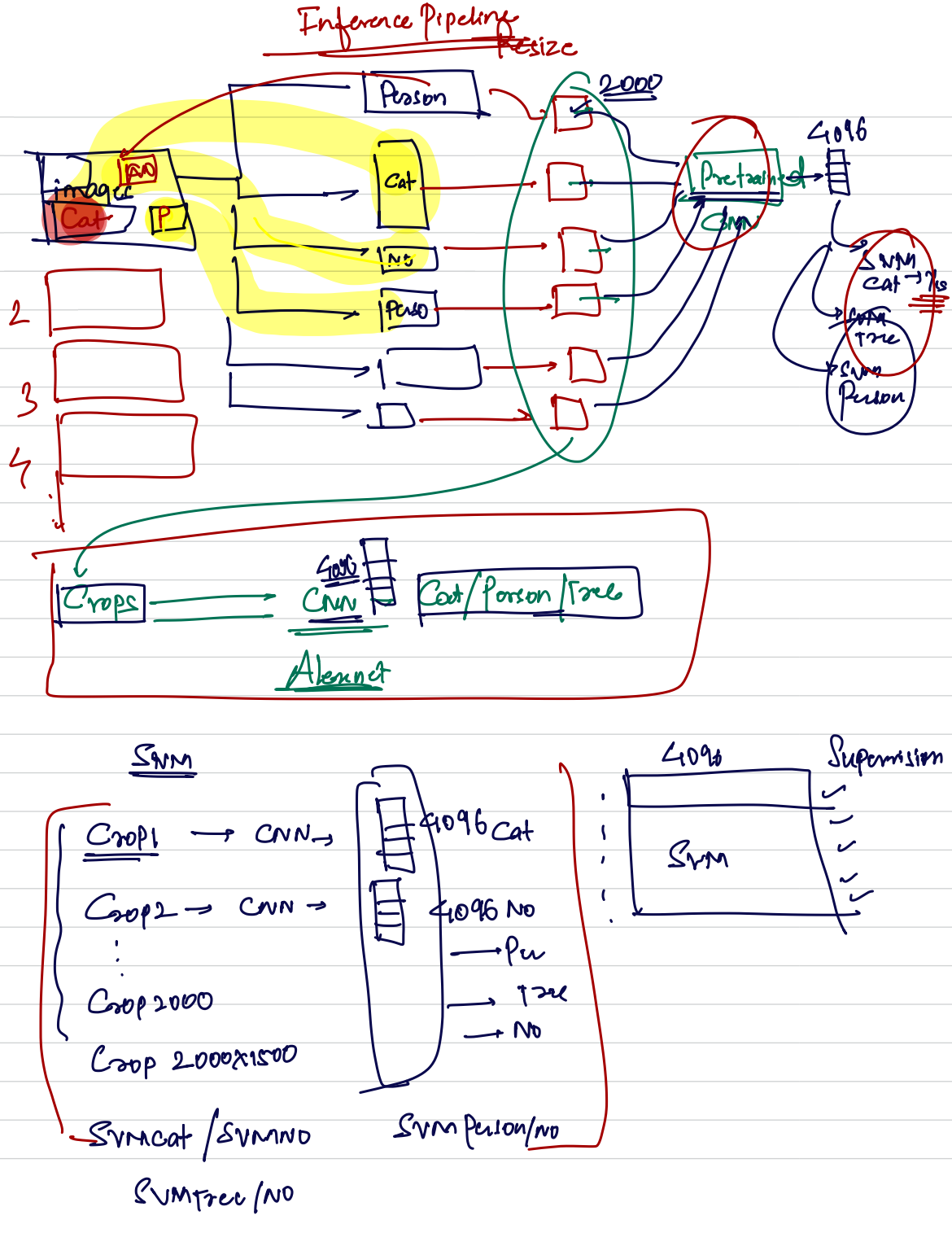


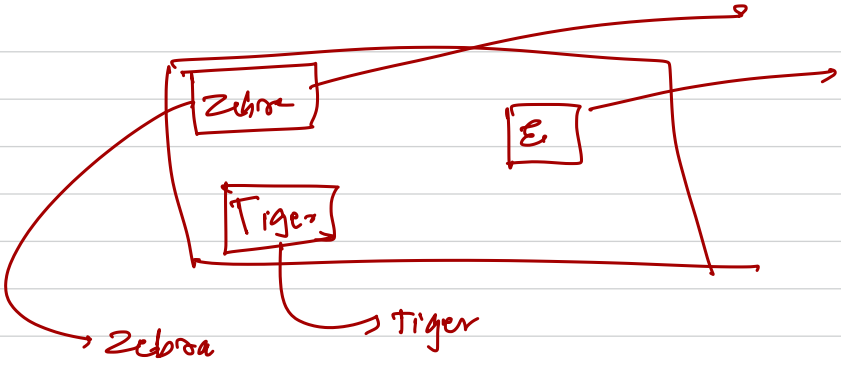
Pretrained CNN:

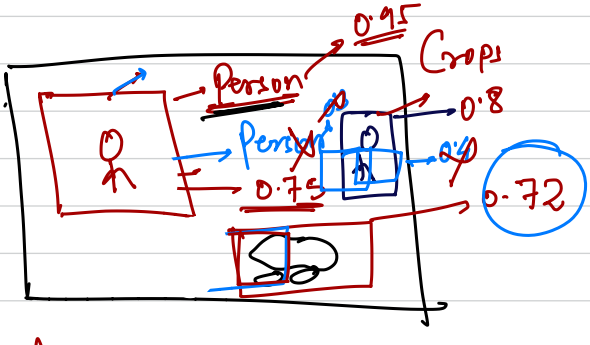
① Given the crops that you generate from the images you train a CNN to detect a multiclass image classification problem



SVM cat SVM Person , SVM free


Inference Pipeline
Resize
Person
2000
Cat
No
Person
4096
Pretrained
CNN
SVM
Cat → Yes
SVM
Person
Crops
4096
CNN
Cat/Person/Tree
Alexnet
SVM
Crop1 → CNN →
Crop2 → CNN →
Crop 2000
Crop 2000x1500
SVMCat / SVMNO
SVMTree / NO
4096 Cat
4096 No
Person
Tree
No
SVM Person/No
4096
Supervision
SVM





Cleanup

Non-max Suppression
Tell me the highest confident crop of the object class: Person
all crops which are overlapping with the real crop, get eliminated

FOV