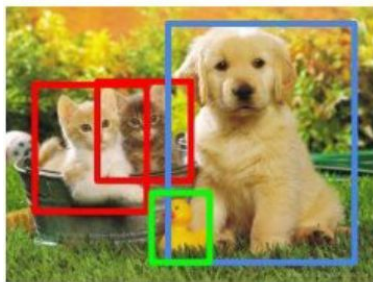


Projet d'apprentissage faiblement supervisé

Classification + Détection d'objets

Object Detection



CAT, DOG, DUCK

CHERRIER Gildas
GARNIER Quentin
SOBETSKY Nathan

Sommaire

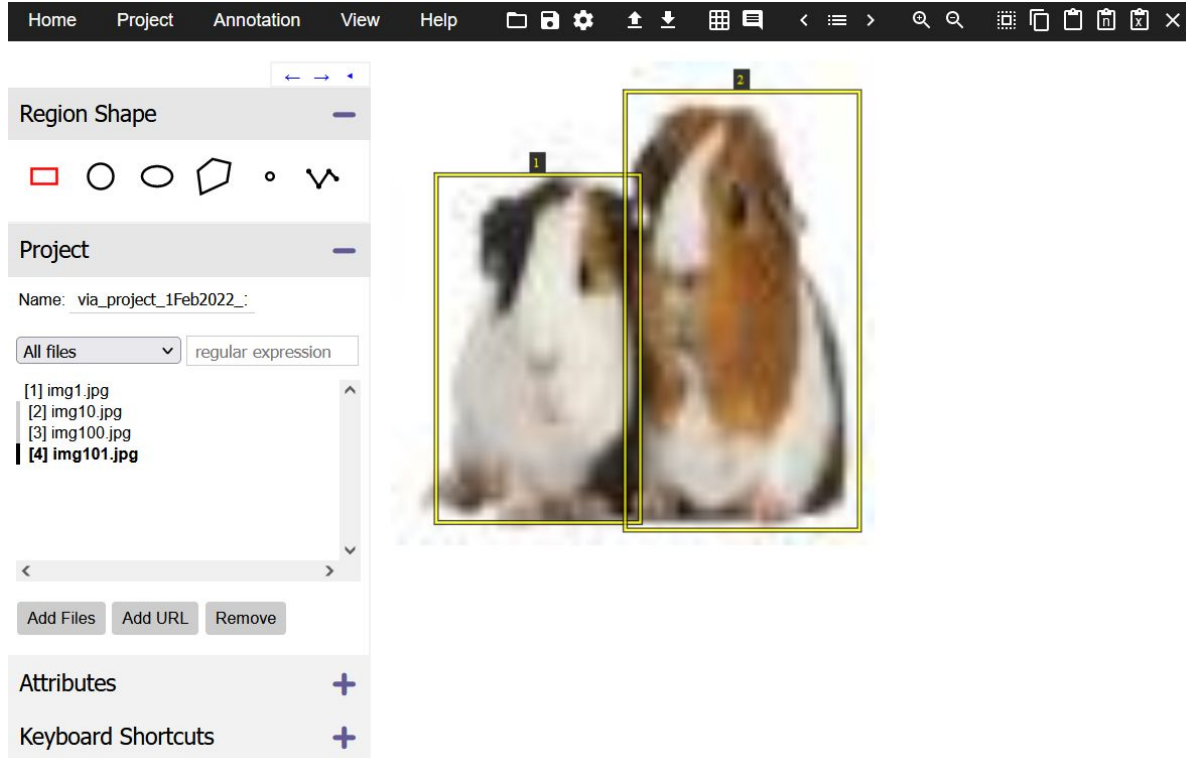


- I. Annotation
 - A. Interface

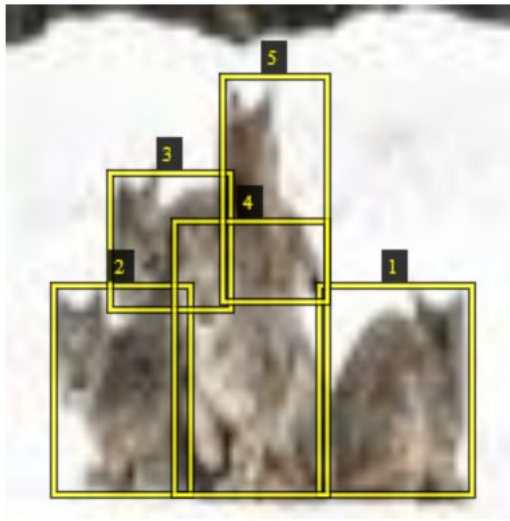
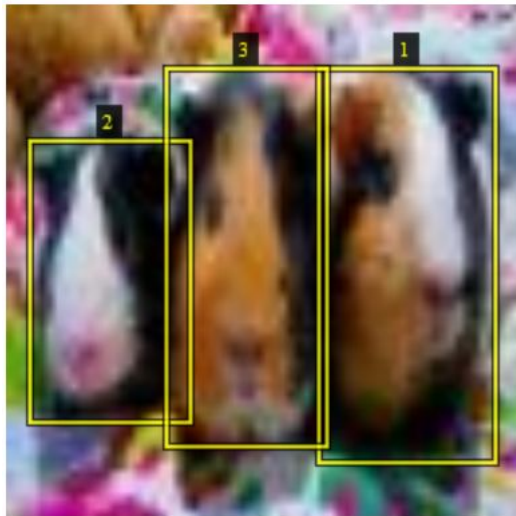
- II. Apprentissage supervisé
 - A. Modèle
 - B. Résultats

- III. Apprentissage faiblement supervisé
 - A. Active learning
 - B. Semi-supervisé

I. Annotation

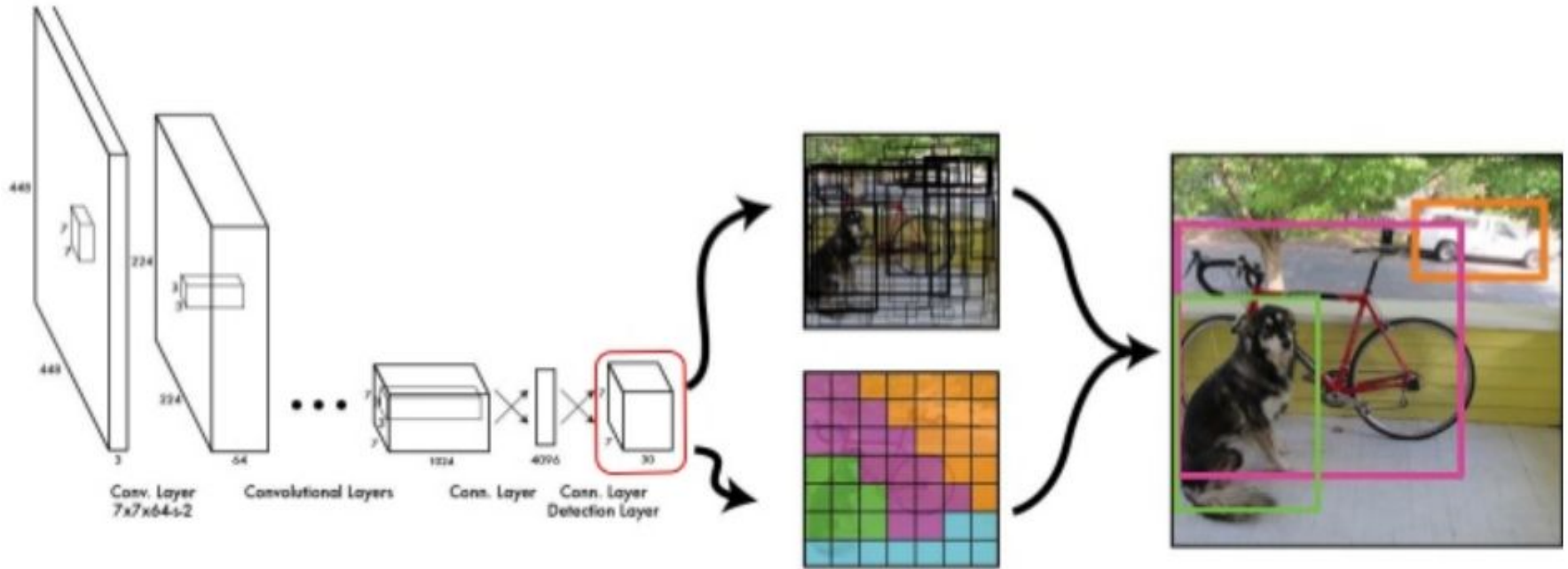


- VGG Image Annotator
- 500 images chacun
- Mise en commun sous le format COCO
- 10 classes

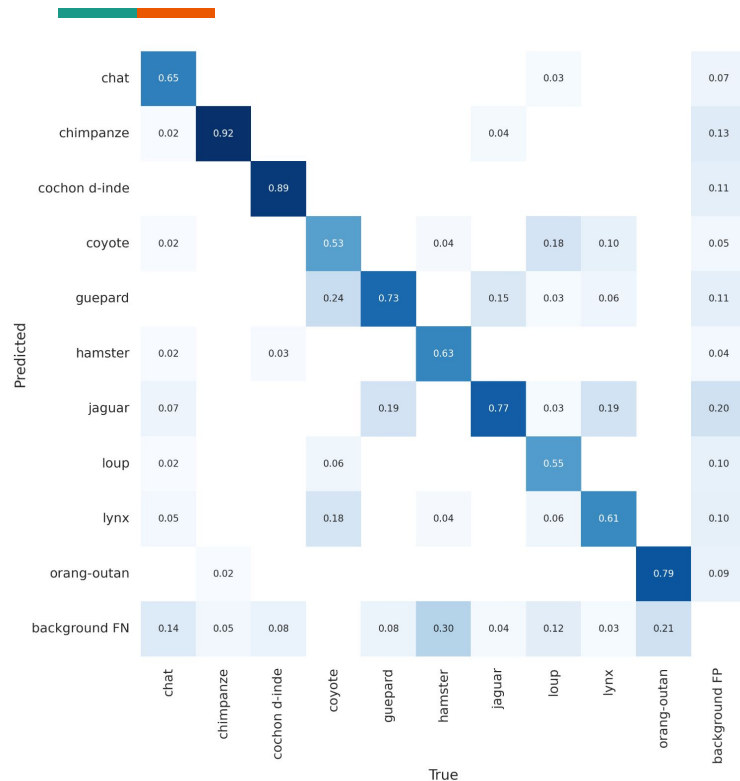


II. Apprentissage supervisé

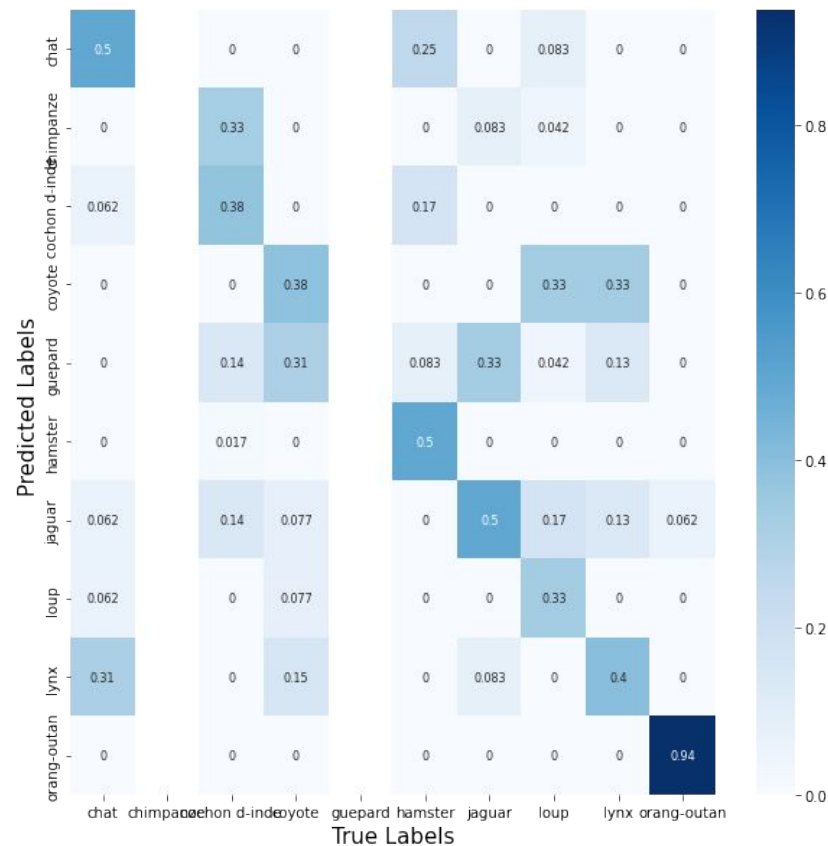
YOLO: You Only Look Once

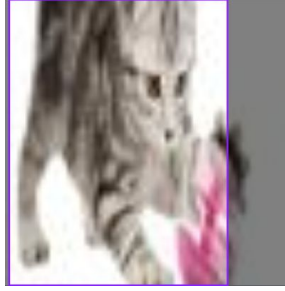
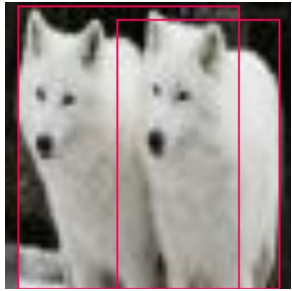
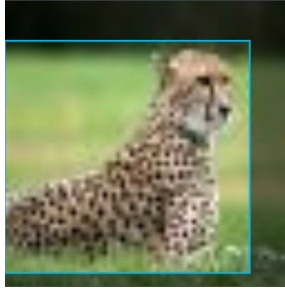
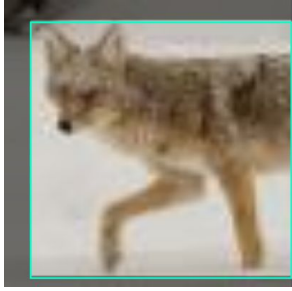
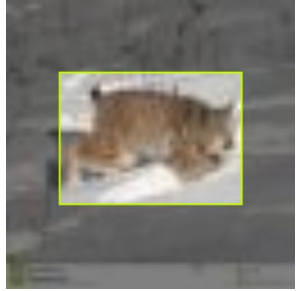
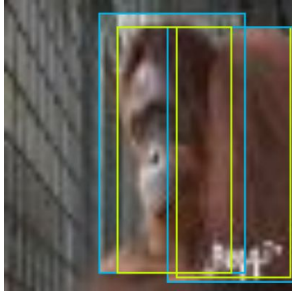


II. Apprentissage supervisé



Matrice de confusion : données de test

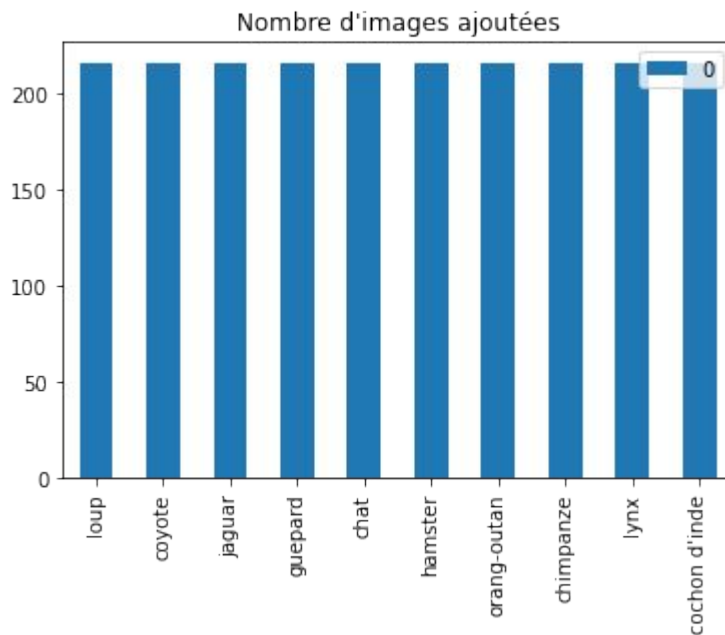
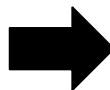
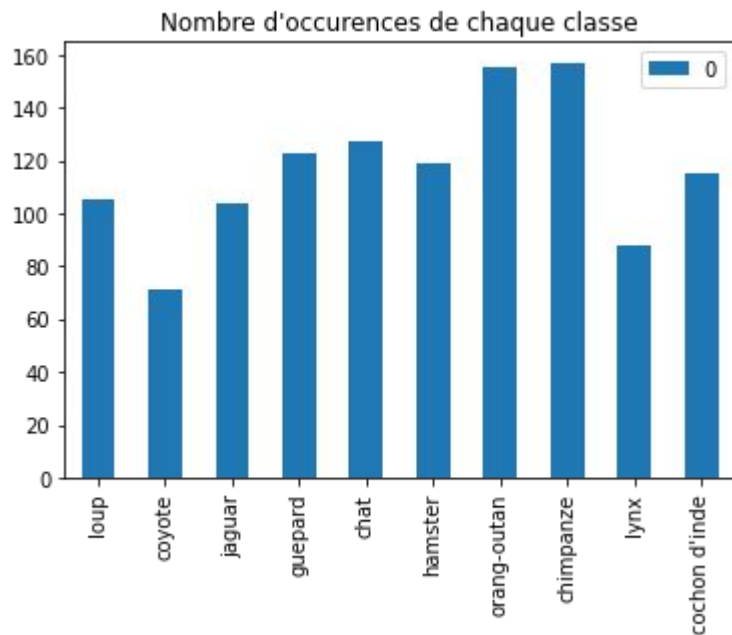




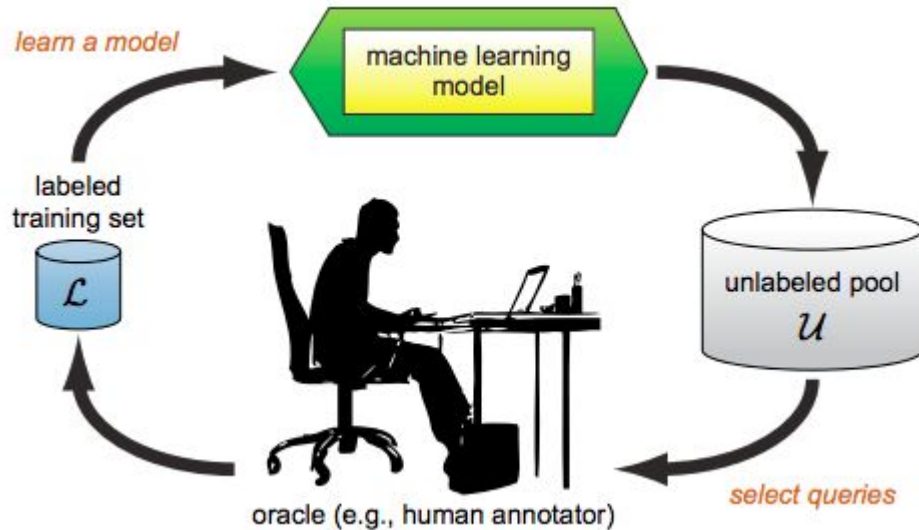
Prédictions

● loup	● guepard ● hamster	● coyote
● lynx	● chimpanze	● guepard
● hamster	● chat	● orang-outan

III. Active learning



III. Active learning



Observations qualitatives :

- Bonne prédiction des boîtes
- Mauvaise prédiction des labels



III. Active learning

Annotations

Group: Animals

chimpanze

UNUSED CLASSES

chat

cochon d'inde

coyote

guepard

hamster

jaguar

loup

lynx

orang-outan

cancel (esc)

save (enter)

1 chat

2 chimpanze

3 cochon d'inde

4 coyote

5 guepard


6 hamster

7 jaguar

8 loup

9 lynx

10 orang-outan



500%

Hand icon

Reset icon

Zoom in icon

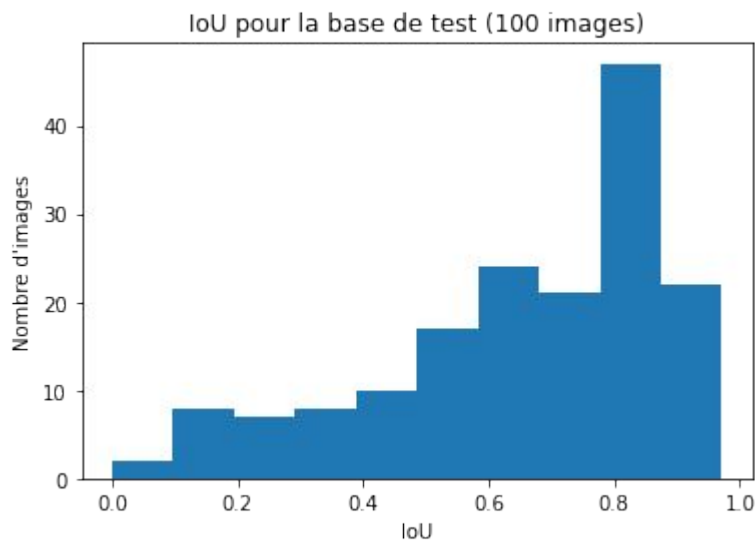
Zoom out icon

Fullscreen icon

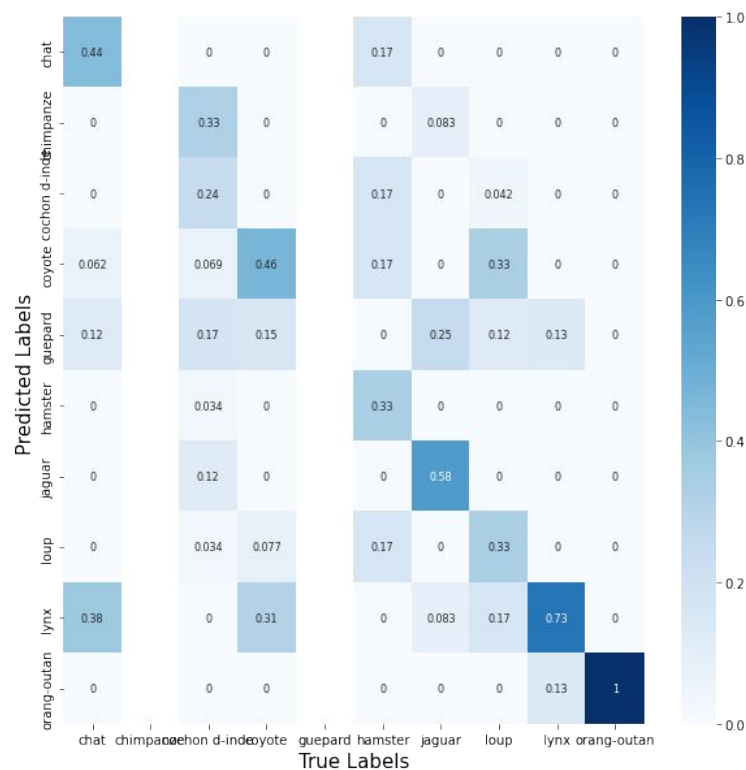
Close icon

Chat icon

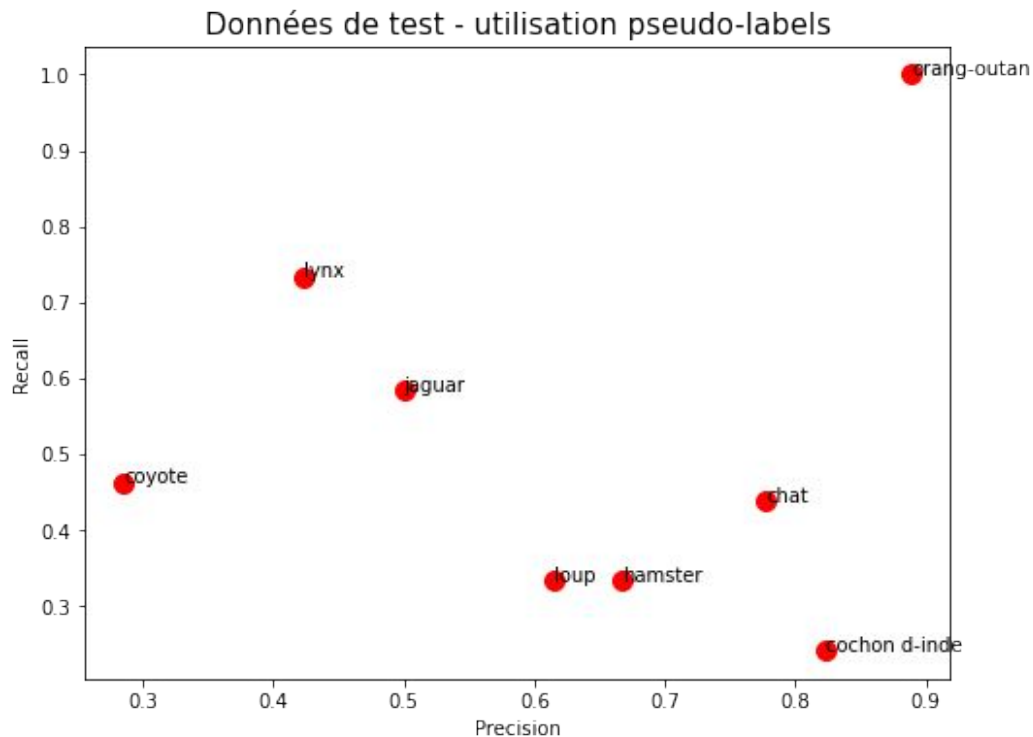
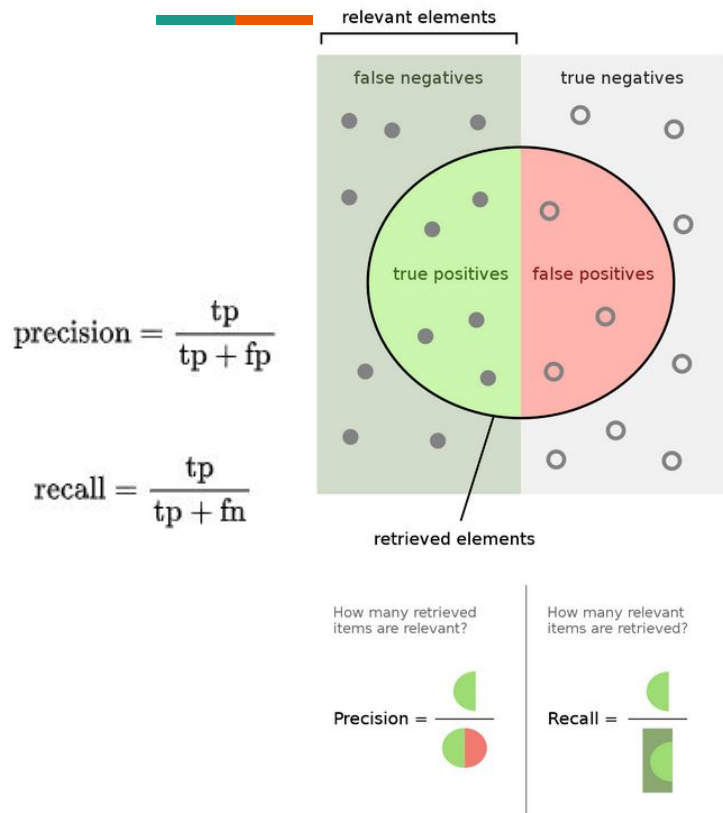
III. Active learning



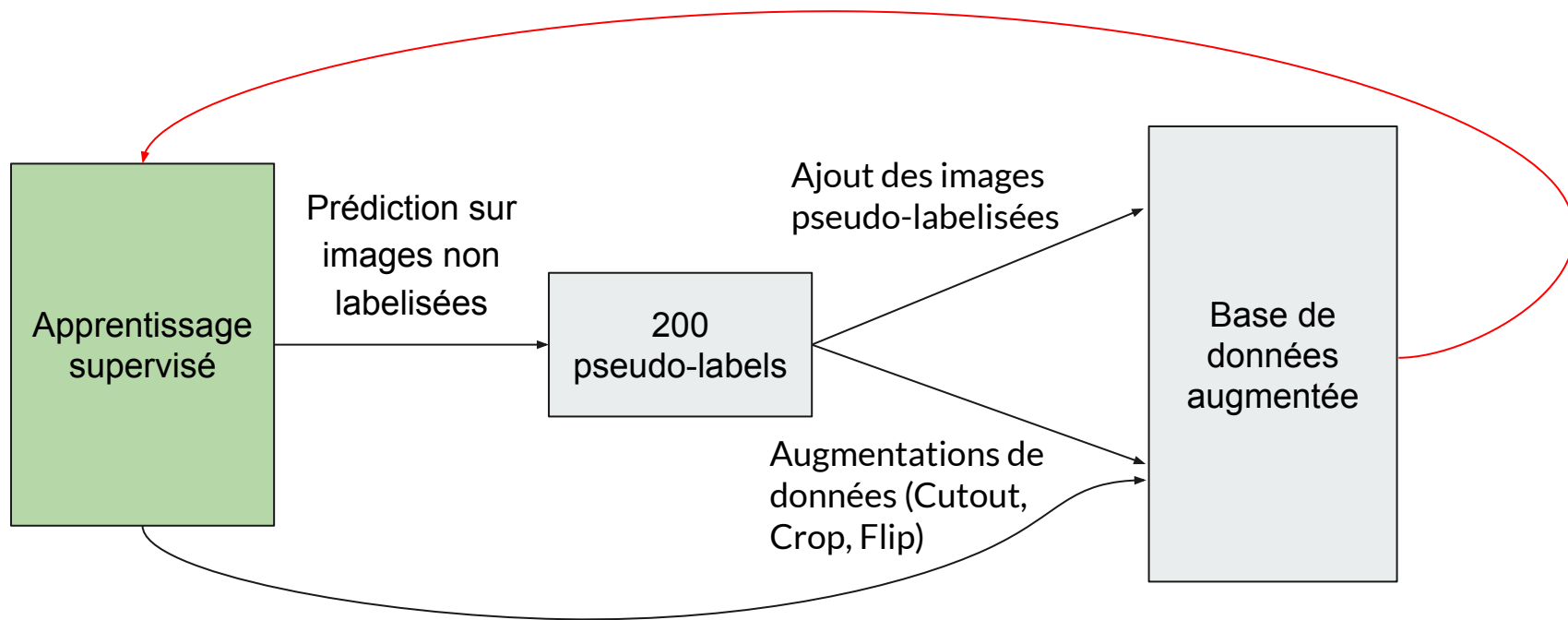
Matrice de confusion : données de test



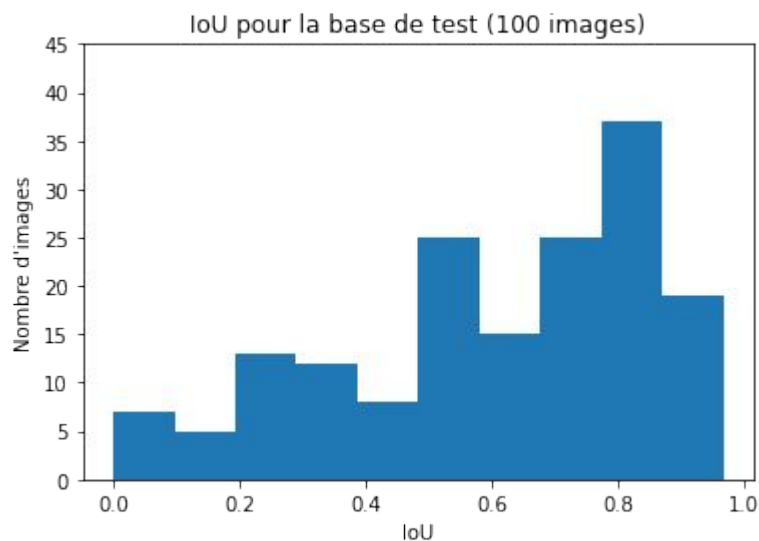
III. Active learning



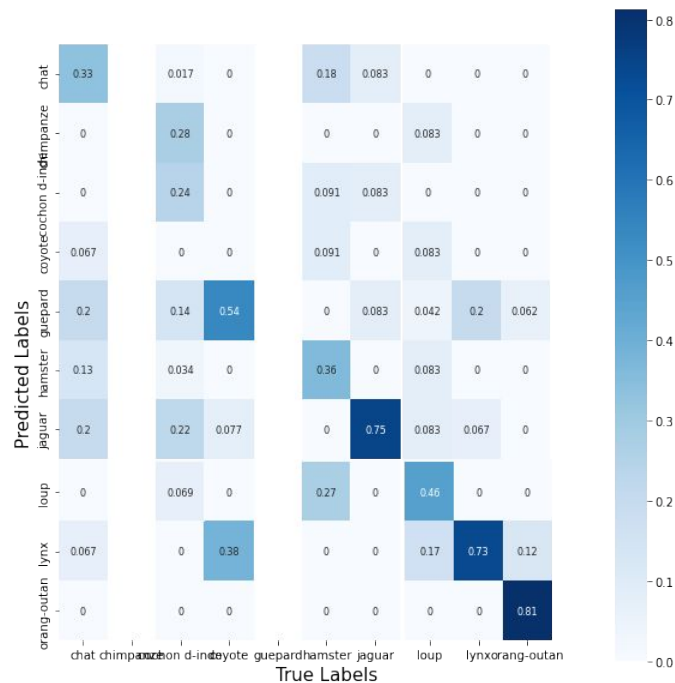
III. Semi-supervisé naïf



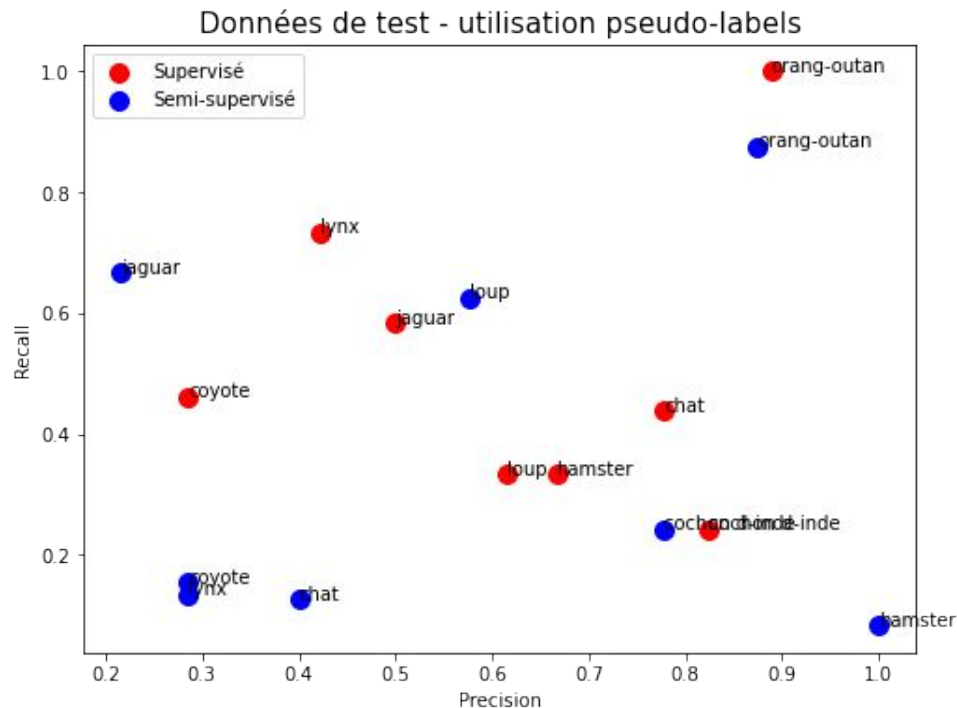
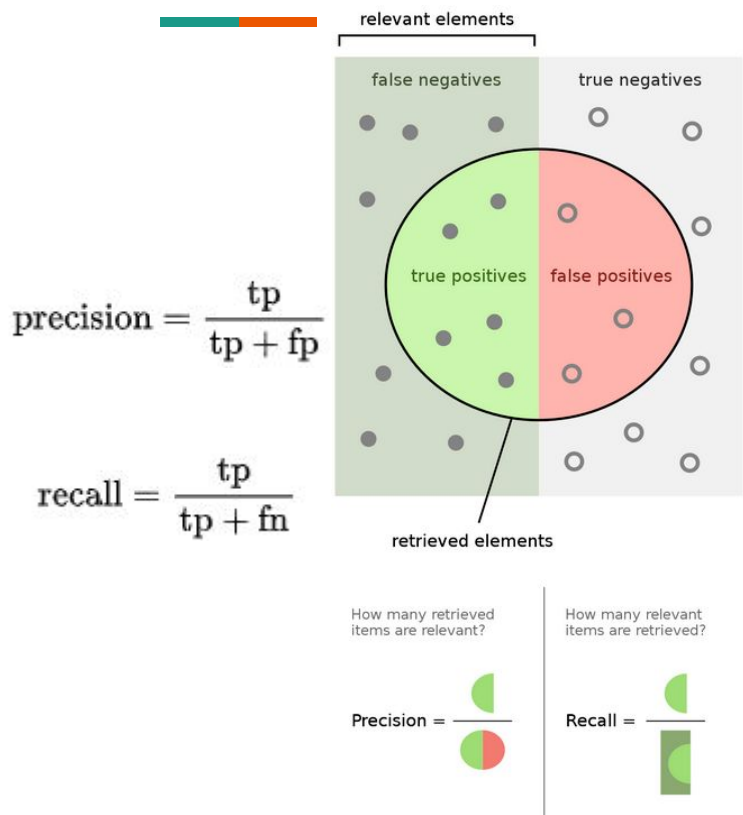
III. Semi-supervisé naïf



Matrice de confusion : données de test



III. Semi-supervisé naïf



Conclusion



- Bonnes prédictions des boîtes englobantes
- Mauvaise classification
- Semi supervisé trop naïf
- Pistes d'amélioration :
 - Plus d'active learning
 - Teacher-Student