Detect your favorite animal

Objective :

Place a square around your favorite animal in selected images.

Mission statement :

- Create your own dataset from pre-existing datasets.
- Describe your final dataset.
- Define and implement your modelisation strategy.

Note: if you decide to build your own dataset from scratch, you can. But don't forget that you will need a tool to draw boxes and catch the coordinates for your animal of interest on each picture.
Example of such tool: jupyter-bbox

Suggested Dataset :

- Open Images
- Kaggle animal detection dataset
- Google dataset search

Ressources:

- Potentially useful libraries:
  - YoloV8
  - Google images download
  - MediaPipe
  - Dark Flow
  - Image AI

    - jupyter-bbox
- Blogs:
    - GeekforGeeks: Detect an object with OpenCV-Python
    - FreeCodeCamp: How to Detect Objects in Images Using the YOLOv8 Neural Network
- Notebooks:
    - Object Detection using Opencv
    - learn_yolov5_on_animal_datasets
    - Yolo v3 Object Detection in Tensorflow
- Youtube videos:
    - Murtaza's Workshop - Robotics and AI: Object Detection OpenCV Python
    - Murtaza's Workshop - Robotics and AI: Yolo v3 | OpenCV Python

Livrables :

- **A notebook** (html or ipynb)
- **BONUS:**
    - Script: build a program that can take an image as an input and return an image with a square around your favorite pet.

Evaluation criterias (110 / 100 pts) :

Skill	Description	Points
Documentation (markdown)	• Your code is commented when needed. • The model and hyperparameters selection is explained. • The performances are commented on. • Bibliographical references are present.	30
Code (python)	• All blocks necessary to implement your strategy are present. • Specialized libraries have been used. • All notebook cells have been executed successfully sequentially.	30
Performances	• A baseline is defined. • All necessary comparisons are done. • Figures are readable and legends are present. • A proper evaluation metric was selected. • Points for this part are weighted by the performance of your model	40
Application (bonus)	• The script is functional.	10