Object Detection in Images

Overview

This repository contains a project on Object Detection in Images using state-of-the-art deep learning techniques. The

objective of this project is to accurately detect and classify objects in various images using pre-trained models or

custom-trained models. The project is implemented in Python using popular libraries like TensorFlow, Keras, OpenCV, and

Matplotlib.

Features

- Detects multiple objects in a single image.

- Uses pre-trained models such as YOLO, SSD, or Faster R-CNN for high accuracy and performance.

- Capable of handling various image formats and resolutions.

- Generates bounding boxes around detected objects and labels them with class names and confidence scores.

Video Explanation

For a detailed walkthrough and explanation of the project, watch the following video:

https://www.youtube.com/watch?v=VIDEO_ID

Requirements

To run this project, you will need the following dependencies:

- Python 3.x

- TensorFlow

- Keras

- OpenCV

- NumPy

- Matplotlib

- Pillow

You can install the required libraries by running:

pip install -r requirements.txt

Project Structure

- Object Detection in Images.ipynb: The main Jupyter notebook containing the implementation of the

object detection pipeline.

- images/: A folder containing the sample images used for object detection.

- models/: Pre-trained models used for detecting objects.

- requirements.txt: List of dependencies required to run the project.

How to Run

1. Clone the repository:

git clone https://github.com/your-username/object-detection-in-images.git

cd object-detection-in-images

2. Install the required dependencies:

pip install -r requirements.txt

3. Open the Jupyter notebook and run the cells to execute the object detection pipeline:

jupyter notebook Object Detection in Images.ipynb

4. You can replace the sample images in the images/ folder with your own images to test the object

detection capabilities.

Results

The object detection model outputs images with bounding boxes around detected objects, along

with class labels and confidence

scores. Here's an example of an output image:

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