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Review Article

Object Recognization System

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I N F O

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A B S T R A C T

In recent years Artificial has shown immense growth and future scope. One specific area where its potential is growing with every passing year is Natural Language Processing (NLP).With the help of artificial intelligence voice assistants can communicate with users in natural language.They are very easy to use and today in this growing digital world their use is expected to grow only further. From being in our home speaker to in our pocket in the form of smartphones it is safe to say they have consolidated their position in our everyday life. The purpose of this research paper is to understand the growing use of voice assistants in our daily life.

Keywords: Artificial Intelligence, Object recognition, Image AI

Introduction

Object detection is a technology that falls under the broader domain of Computer Vision. It deals with identifying and tracking objects present in images and videos. Object detection has multiple applications such as face detection, vehicle detection, pedestrian counting, self-driving cars, security systems, etc.

The two major objectives of object detection include:

- To identify all objects present in an image
- Filter out the object of attention

The aim of object detection is to detect all instances of objects from a known class, such as people ,cars or faces in an image. Generally, only a small number of instances of the object are present in the image, but there is a very large number of possible locations and scales at which they can occur and that need to somehow be explored. Each detection of the image is reported with some form of pose information. This is as simple as the location of the object, a location and scale, or the extent of the object defined in terms of a bounding box. In some other situations, the pose information is more detailed and contains the parameters of a linear or non-linear transformation.

Methodology

Performing Object Detection with Image AI

Now let's see how to actually use the ImageAI library. I'll explain step by step how you can build your first object detection model with ImageAI. Our first task here is to create the necessary folders. For this tutorial we need the following folders:

- Object detection: root folder
- models: stores pre-trained model
- input: stores image file on which we want to perform object detection
- output: stores image file with detected objects

After you have created your folders, your object detection folder should have the following subfolders: Open your preferred text editor for writing Python code and create a new file detector.py. Import ObjectDetection class from the ImageAI library. Now that you have imported imageAI library and the ObjectDetectionclass , the next thing is to create an instance of the class ObjectDetection as shown here:

Let's specify the path from our input image, output image, model.After instantiating the ObjectDetection class we can now call various functions from the class. The class contains the following functions to call pre-trained

models: setModelTypeAsRetinaNet(), set Model Type As YO LOv3 (), set Model Type As Tiny YOLOv3(). For the purpose of this tutorial, I'll be using the pre-trained Tiny YOLOv3 model, hence we will

use the set Model Type As Tiny YOLOv3() function to load our model.Next, we are going to call the function set Model Path (). This function accepts a string which contains the path to the pre-trained model: The dictionary items can be accessed by traversing through each item in the dictionary.

Feasibility study

Object detection is a computer technology related to computer vision and image processing that detects and defines objects such as humans, buildings and cars from digital images and videos. This technology has the power to classify just one or several objects within a digital image at once. Object detection has been around for years, but is becoming more apparent across a range of industries now more than ever before.

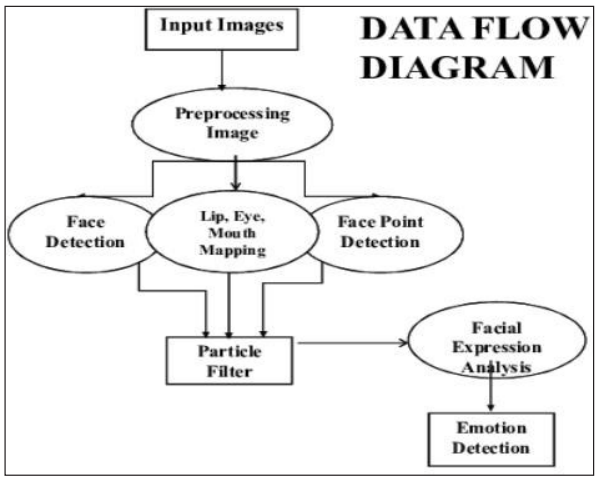

Figure 1

Why do we need?

The object recognition system can be applied in the area of surveillance system, face recognition,

- fault detection, character recognition etc
- The objective of this thesis is to develop an object
- Recognition system to recognize the 2D and 3D objects in the 2 image.

The performance of the object

Recognition system depends on the features used and the classifier employed for recognition.

Data Flow Diagram (facial object recognization study)

DFD is a graphical representation which provides information flow between input and output data. It is also known as a "Data Flow Chart or Bubble Chart". A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated.

Innovation in Field

Object detection is a key ability for most computer and robot vision system.

Although great progress has been observed in the last years, some existing techniques are now part of many consumer electronics (e.g., face detection for auto-focus in smartphones) or have been integrated in assistant driving technologies, we are still far from achieving human-level performance, in particular in terms of open-world learning.

It should be noted that object detection has not been used much in many areas where it could be of great help. As mobile robots, in general autonomous machines, are starting to be more widely deployed (e.g., quad-copters, drones and soon service robots), the need of object detection systems is gaining more importance.

Finally, we need to consider that we will need object detection systems for nano-robots or for robots that will explore areas that have not been seen by humans, such as depth parts of the sea or other planets, the detection systems will have to learn to new object classes as they are encountered. In such cases, a real-time open-world learning ability will be critical.

Conclusion

There are not only different types of recognition, but also different ways of recognizing objects, which may involve different processes. Therefore, both Marr‟s and Nishihara and Biedermann viewpoint invariant theories are not entirely satisfactory accounts of the processes involved in recognition.

Although both theories clarify some points of the process, both present problems.

Then again, viewpoint dependent theories also present an incomplete account of object recognition. There may be, as suggested by Tarr and Bulthoff, multiple representational systems and they may work cooperatively rather than alternatively, as suggested by Foster and Gilson. Indeed, further research that moves beyond the viewpoint debate is needed for a better understanding of object recognition.

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