Bi-Weekly Report Number 9

Computer Vision for Object Detection in Medicine

Team Number 6

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Week Overview

During the past two weeks we focused on the user interface and setting the system up. With some research we decided on using Electron and AngularJS as our front-end. However, as we needed TensorFlow and some of the Google API libraries, our core program still required us to use python. After the initial setup, we were having trouble connecting our existing Python application with Electron therefore we decided to move our front-end client all onto Python using PyQt to make our UI design. When making the application we decided to first focus on the main functionalities and then build upon it at a later date. These functionalities being, displaying the live video feed and live list of objects. The application will also store object removal and replacement into a database, from which we can produce operation summaries later.

We have also managed to deploy our WebAPI onto Azure. To do this we created a Flask application that retries the video frame data using JSON. Then it runs the image through the detection algorithm. The detection data is then sent back to the client using JSON format to transfer the data. To establish secure connections and run our API, we are using NGINX with Gunicorn to run the Flask application.

List of tasks Completed

- Setup VM on Azure
- Deployed WebAPI on VM
- Created client-application which interacts with WebAPI
- Displayed live video feed on client
- Displayed live object feed on client
- Logged object changes to database

Plans for Next Two Weeks

- Add login to client
- Display end of operation object checker
- Display list of operations and summaries
- Analyse model to test accuracy

Individual tasks completed

Benedict

In the last 2 weeks I setup the WebAPI on Azure. I also created a simple application which connects to the API. After the UI was created, I updated the application to display the video feed using PyQt as we had been using cv2 previously.

Shirin

The past two weeks I have focussed on setting up the user interface. After setting up the basic interface using electron, we realised that the UI system did not allow us to fully connect to the python back-end. As a result, I created a new UI using PyQt which allows us to connect our system easily.