



Bi-Weekly Report Number 7

Computer Vision for Object Detection in Medicine

Team Number 6

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Week Overview

Client meeting No.4 (22/01/2019)

In our client meeting we presented our prototype using TensorFlow CPU. Although it was slow it demonstrated that we could identify 2 similar instruments using our model. In the meeting we discussed the next steps in the project. It was obvious from our training, that we would not be able to produce an optimal model that worked accurately on all types of instruments. This was because there are limitations on the number of instruments that are available to us and the range of scenes we could produce for our images. Therefore, the model that we will make for the final product is for proof of concept. This is because it will only work accurately on the limited set of instruments we are supplied and only those particular instruments as we have only 1 or 2 of each one. Thus, making the model impractical for commercial use.

We also discussed how we could develop an application that uses the model we have trained. Our goals include creating a web service that uses the model and an application that could interact with it. The web service will take a series of images as input and would output a feed of instruments that have been detected for each frame/image. The local application will take a video input such as a webcam and send the data to the web service. With the data that it retrieves back, it will display the current life feed as well as storing the data in a database which can be used later for data analytics.

In the last 2 weeks we have been looking into ways to measure how good our model is at doing its job. Methods that we have looked at in particular are Cross-Validation and Mean Average Precision. We have also been preparing to train the model on more objects by taking pictures of more medical instruments. Further progress on the web service is also being made. We have also worked on setting up the web services, focusing on trying to build a REST API.

List of tasks Completed

- Clarify our requirements and deliverables at the end of the project
- Started taking more pictures of a wider range of instruments
- Researched into ways to classify the accuracy of a model

Plans for Next Two Weeks

- Continue building the web service
- Split the current application into a front and back end
- Take more pictures
- Measure accuracy of our demo model

Individual tasks completed

Benedict

In the last 2 weeks I have been researching into how to measure the model and have been taking more pictures to train the model further.

Shirin

During the past two weeks I have focused on making the web service. This has been challenging as sending information from the local machine to the VM has turned out to be more difficult than expected. In turn this has led to me trying different techniques and trying to setup a REST API.