# Queen’s University of Belfast

# Computer Science

# Minute of Project Supervision Meeting

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| **Student Name:** | **40126401** | | |
| **Project Module Code:** | **CSC4006** | | |
| **Project Supervisor:** | **Blesson Varghese** | | |
| **Meeting Number:** | **10** | **Date of Meeting:** | 7/1/2018 |

**Progress since last meeting, and decisions arrived at during meeting:**

Regarding the technical progress to date I have:

- Docker build and run scripts for all the applications I wish to benchmark

- I have got working two new applications: speech to text converter Pocket Sphinx and forced alignment tool Aeneas that I feel are appropriate for the edge.

- I have created several scripts to run my command line benchmark tool.

Currently the tool CS Fogbench does the following : Asks for user input to decide what benchmarks to run on the cloud or the edge and which applications to run. I generate time metrics using the bc package to find the execution time, time in flight and end to end times. Currently all these values are saved to a text file. Over the next few weeks I plan on parsing this file to generate more useful data and potentially output the values to a csv file and find the cost of running the application on the edge or aws. I also plan on generating heap memory data using valgrind's massif tool, cpu usage and latency data.  Currently iPokeMon is automatically built but the user must manually start the cloud server (due to the stdout and stderr not being automated at the moment), I also hope to use a command line version of JMeter to send the workload to the server (that will be deployed to aws or the odroid board).

I have taken your advice from the previous communications:

- docker is used to ensure easy deployment of applications and future extension (open source)

- I have researched a plethora of bench-marking tools and applications (all of these are displayed on my gitlab readme)

The metrics I am pursuing are influenced by the papers I've researched, as well as what could be beneficial to different applications and can help my research stand out. Inspired by GooglePerfKit I wanted to explore incorporating system benchmarks as an option which I have working, essentially offering the user the option to benchmark the system they are running the benchmarks on in addition to the application. This has been beneficial to my research as I have gained insight into the limitations of the hardware I am using on both AWS and the odroid board used to simulate the edge.

I currently make use of tools such as UnixBench and sysbench to generate stats on the system running the application. Currently this is my aws instance and odroid board, I feel this offers great insight along with metrics gained from the applications. I found that executing yolo takes longer on the edge, which is as to be expected as the CPU and resources available in the cloud for detection are superior. Over the next few days I am getting the edge metrics gathered for application benchmarks. I am using scp and ssh to communicate and send files between the local edge device, cloud and edge. I also make use of an aws S3 bucket to store the detection results of all my applications (except iPokeMon).

**Action Points:**

I will continue working on both the overleaf document and technical work. I will be spending more time on the overleaf document over the next week, updating it with my latest work. I have also several papers that may be beneficial to my research (these are presented on my gitlab readme).

After pitching my technical and documented work, I will be expanding the benchmarked applications (YOLO, PocketSphinx, Aeneas and iPokeMon). I will potentially look for robotics applications and IoT applications such as FogBench. I will also add a third pipeline (Cloud/Edge) in addition to the Cloud and Edge Only pipelines.

I will finally expand upon and refine my generated metrics (communication, performance and cost).

**Date of next meeting:**

15/1/2019

**Agreed minute should be signed by the student and initialled by the supervisor.**

**Student's Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Supervisor's Initials: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Supervisor's Comments:**