

Meeting Minutes

Date: 10 May 2019

Location: Imperial College, IBM Hursley (via video conference)

Present:

IBM	Jon McNamara, Louise Cooper, Emily Larkin
Project Group	Joshua Rizal Chan, Lua Ying Hao, Ng Yi Song, Patrick John Chia, Joel Yeow

Agenda

1. To provide IBM team with an update on project progress
2. To surface concerns and requests to IBM team
 - a. Expected arrival date for Nvidia Jetson Nano
 - b. Uses of IBM Watson
 - c. Expand dataset

Minutes

Item	Action By
<p>1. <u>Progress Update -- Data Collection.</u> Project group updated IBM team on progress of data collection for Makaton dataset.</p> <ul style="list-style-type: none">• 2970 training videos for 5 actions, 594 videos for each action• From 3 group members: 20 backgrounds, 9 angles each, for 5 actions (2700 videos)• From volunteers: 17 volunteers, 3 angles each, for 5 actions	None
<p>2. <u>Progress Update -- Machine Learning.</u> Project group updated IBM team on progress with machine learning.</p> <ul style="list-style-type: none">• CNN + LSTM attempt 1: Performed on 20bn-Jester dataset using a lightweight pretrained CNN, Mobilenet V2, whose generated features are passed as input into our self-trained LSTM. Initial results yielded a validation accuracy of 52% on recognition of 4 hand gestures in dataset• CNN + LSTM attempt 2: Performed on 20bn-Jester dataset using a more complex pretrained CNN, Inception V3, whose generated features were passed as input into our self-trained LSTM. Initial results yielded a validation accuracy of 60% on recognition of 4 hand gestures in dataset• Issues identified with CNN + LSTM: CNN captures features of objects in the frames and are less applicable in our case as objects in the frames are similar, thus does not help in narrowing down class of action	None

<ul style="list-style-type: none"> Considering other algorithms such as C3D, 2 stream networks with fusion 	
<p>3. <u>Progress Update -- Server.</u></p> <ul style="list-style-type: none"> Set up environment on Google Cloud Platform with K80 CPU using free credits Installed Nvidia drivers, Cuda and CudNN to be able to use exploit capabilities of GPU on tensorflow-GPU version May be looking to extend to more Google servers to improve exploration and training progress 	None
<p>4. <u>Progress Update -- Materials.</u></p> <ul style="list-style-type: none"> Ordered Pi camera, push buttons, ultrasonic sensor, ambient light sensor Jetson to arrive within the next week Will work on ensuring sensors and hardware components work with Pi 	None
<p>5. <u>Progress Update -- Administrative.</u> Have arranged meeting with academic supervisor.</p>	None
<p>6. <u>IBM Platforms.</u> IBM platforms can be used for machine learning.</p> <ul style="list-style-type: none"> Sign up for academic initiative to use IBM Cloud To find out how to get computing power from IBM via college 	None
<p>7. <u>Blog post.</u> To publish blog post and provide IBM team with link.</p> <ul style="list-style-type: none"> To include references to IBM technologies used, where relevant 	Joshua Chan
<p>8. <u>Data Collection.</u> Requested for help with data collection from IBM team.</p> <ul style="list-style-type: none"> Emily to get additional videos from IBM colleagues Louise to contact Precious Homes for Makaton training videos 	Emily Larkin, Louise Cooper

Action Items

S/N	Para	Action	Party	Deadline
1.	6	To find out how to get computing power from IBM via college	-	-
2.	7	To publish blog post	Joshua Chan	13 May 19

3.	8	To get additional videos from IBM colleagues	Emily Larkin	-
4.	8	To contact Precious Homes for Makaton training videos	Louise Cooper	-