

EE/CprE/SE 492 Biweekly Report 1

Aug 22 - Sept 16

Group Number: Sddec22-14

Project Title: Machine Learning for Human Biometrics

Client: JR Spidell (Collins Aerospace)

Advisor: Dr. Akhilesh Tyagi

Team Members/Role:

- Ron Mei Hang Teoh - Database Manager
- Yee Shen Teoh - Hardware Manager
- Zi-Jan Wong - ML Manager
- Nathanael Morris - ML Manager
- Ritvik Maripally - Security Manager

Weekly Summary

Met for the first time after summer and we caught up with our client, JR, and our advisor, Dr Tyagi. We realigned our progress and established our goals for the first few weeks with our client. Our client gave us a few challenges that are related to our project that would also bring our project one step closer to our goals.

Past week accomplishments

Jan: Worked on a Powerpoint slide deck to document and summarize my progress so far. Used pythagoras theorem to calculate the difference between real and predicted coordinates. This would be the error calculation matrix for now. Have discussion with our client and there are errors to fix in the error calculation matrix.

Ron: Installed the latest version of InfluxDB, since a new version was released during the summer. Configured the InfluxDB Client (org, token, etc.). Tried to install InfluxDB on the Ultra96 board (linuxOS).

Yee Shen: Running ultra96 with a monitor to check if the board is working well. Also installed and supervised the downloads of a few different softwares like opencv, updating python, and etc so that we can run the AI software and database on the ultra96 board without error.

Ritvik: Adding more scenarios with PKM methods. Planning for how to add more of in depth reasoning to each one. Adding NIST and HIPPA Standards as well.

Nathanael: I Input the eye movement data through the REMoDNaV algorithm to get eye movement classifications and compare it to the correct observed data to find what the error percentage is for the algorithm. This can then be used as a baseline for improvement, so we can see if our modified algorithm lowers the error percentage.

Pending issues

- N/A

Individual contributions

NAME	Individual Contributions	Hours this two week	HOURS cumulative
Ron Mei Hang Teoh	<ul style="list-style-type: none"> - Installed latest version of InfluxDB - Configure Influx Client - Did a little research on Docker - Install InfluxDB on Ultra96 	12	12
Yee Shen Teoh	<ul style="list-style-type: none"> - Install application on ultra96 - Running ultra96 with monitor to make sure it is working as intended 	12	12
Zi-Jan Wong	<ul style="list-style-type: none"> - Slide deck - Error calculation matrix 	12	12
Nathanael Morris	<ul style="list-style-type: none"> - Reviewed REMoDNaV and eye movement files - Found accuracy of eye classifications through error calculation 	12	12
Ritvik Maripally	<ul style="list-style-type: none"> - PKM Methods - Going over HIPAA Standards - Scenarios - NIST 	12	12

Comments and extended discussion

- Had our weekly team meeting for general updates and team plans for the week ahead. (attendance: Ron, Zi-Jan and Yee Shen)

Plans for the upcoming week

Jan: Continue working on the slide deck. Identified errors in the error matrix with our client, need to brainstorm on that part.

Ron: Working on configuring Influx Client to work with Ultra96 board and working on gaining a deeper understanding on docker for the project.

Yee Shen: Continue downloading applications if needed and work with the team to try and integrate the software that they have been preparing into ultra96 and check for any errors that occurs.

Ritvik: Continue Making more scenarios and present it. Find more countermeasures to common and more sophisticated attacks from outsiders.

Nathanael: Work on the slide deck to inform the team about the accuracy of the predicted eye movement classifications. Start figuring out the best approach to improve accuracy of classifications.

Summary of weekly advisor meeting

We recap on our progress during the meeting, and our advisor told us that our progress seemed smooth and we are off to a good start this semester.