Meeting's report for ELLEN WANG

Honour's student

20-09-2021

1. Agenda for today's meeting

- Present findings on readings and research (10 minutes)
- Go through the data and loading it into an editor
- Identifying Lacunes on MRI images
- Clarification on Research Question

2. Work already completed

- Research on Lacunes
- Go through research articles sent by Jiyang
- Completing the Data Access Form

3. Meeting Minutes from previous week

- Jiyang: Lacune and medical expert
- Pierre: Supervisor, RF expert and has a Masters in Neuroscience
- Audrey: RF expert
- Method: Random forests
- Explore this method and all its different iterations and variations
- Project: Predict location of lacunes in MRI scans, supervised learning process
- Data: will need access to this after filling out a form. This data has already been manually labelled and will be easier to predict.
- A lot of the work in Honours year is to address interesting research questions, and this may change over the year.
- Melinda used Deep Learning to do this task, try out Random Forests for the same purpose and try and improve the prediction
- Random Forests are easier to interpret, can be modified to better fit the specific dataset
- The medical images data is very difficult to interpret, can depend on the orientation of the brain, may need to slice 3D images to see 2D versions.
- Lots of recent literature online, try and reproduce their results first before further modifying and creating your own.
- Aim to have a consistent meeting schedule once every week or two weeks (30 minutes to 1 hour) to jointly discuss findings and results.
- Share github and link to overleaf and Trello
- Before each meeting, send out an agenda 2 days before the meeting, write down minutes and discussions, action tasks and what things to do before the next meeting.
- There should be one file for each meeting
- You may create a google drive if you want
- Confidential data, will need to fill out data application form, talk to Jiyang about this
- Will need access to Katana, a computing cluster

- Github should be private for now
- Reach out to Jiyang for journals to read and explore
- Pierre to provide advice on literature surveying, and existing data results
- Aim to create some meaningful features to feed into the model, some findings will need to be fed back to Jiyang to figure out their medical importance.
- Question from Pierre and Audrey: Will the model just be images or will it include additional information such as the age of the patient and their medical history?
- Answer: At the moment, we will start with images as lacunes are defined in their image and not so much the patient
- Localisation of the candidates, lacunes are a sudden change in grey scale?
- The aim is to reproduce some existing results in our own data before using more recent developments in the algorithm to improve.
- This project will be driven by Jiyang's questions and we will aim to aim to address these.
- Random forest for MRI will be built on understanding the classical random forest. Remember to consider things such as hyperparameters!

4. Planned work after this meeting

- Apply for Katana access
- Go through MRI images
- Install the correct editors and viewing platforms for MRI images