EE/CprE/SE 491 BI-WEEKLY REPORT 02

01/28/2024 – 02/10/2024

Group number: 10

Project title: Accurate Cancer Prediction Using Artificial Intelligence

Client & Advisor: Professor Gaffar

Team Members:

Bishal Ghataney - Senior Engineer

Norfinn Norius - Client Communications

Thriambak Giriprakash - Minutes and Administration

Mark Hanson - Developer

Eric Schmitt - Developer

Chris Tague - Developer

Bi-Weekly Summary

We have created a user interface that allows users to easily upload a csv file containing cancer data and get the prediction results. In the past two weeks we have started optimizing our neural network model to achieve higher accuracy on the test data. We have also designed a basic UI that can accept an uploaded csv file. Our next steps are to validate the format of csv files that are uploaded to the UI, integrate the UI with the model and enable the prediction functionality.

Past week accomplishments

- Bishal Ghataney:
    - Researched the different layers possible with a convolutional neural network

- ○ Researched the different types of AI models and the benefits/disadvantages between them
- ○ Worked on improving the accuracy of the model
- Norfinn Norius:
  - ○ Worked on formatting the data being used to train the model
  - ○ Researched and helped implement the Python code needed to train the model in Google Collab
  - ○ Researched how to integrate the AI model with a UI using Tensorflow.js
- Thriambak Giriprakash:
  - ○ Began integrating UI with the backend
  - ○ Researched Google CoLab's API
  - ○ Began developing api calls in front end code to send a CSV file with spectra to the AI model on CoLab.
- Mark Hanson:
  - ○ Researched how to:
    - ■ Download the model with all the weights and bias intact off Colab
    - ■ Integrate the model with the backend so it can be used for predictions
  - ○ Began testing the integration of the downloaded model with JavaScript
- Eric Schmitt:
  - ○ Researched how to get version history on google Colab and how to link it with github
  - ○ Researched how to create visualization of data on Colab and helped Chris implement the visualization
  - ○ Created an alternative UI but ended up not using it due to Chris making his at the same time
- Chris Tague:
  - ○ Built a basic UI to upload the csv file to
  - ○ Added a visualization of the data on Colab with Erics help
  - ○ Began integrating the UI with the backend
  - ○ Began testing ways to improve the accuracy of the model

Pending issues (If applicable: Were there any unexpected complications? Please elaborate.)

- Google colab doesn't have version history
- There appears to be a way to link colab to github (for version history) but this may not work with gitlab
- Accuracy of the model must be improved
- Reformat data to allow seamless normalization
- Finding a suitable API protocol to connect our backend to our front end.

Individual contributions

Name	Hours this week	Cumulative Hours
Bishal Ghataney:	6	24
Norfinn Norius:	6	24
Thriambak Giriprakash:	6	24
Mark Hanson:	6	24
Eric Schmitt:	6	24
Chris Tague:	6	24

Comments and extended discussion (Optional)

We have very little data to train and test our model on. This may impact the accuracy of our model, but will not impede its implementation.

Plans for the upcoming week

The entire team together will be working on getting the UI put together, doing additional training on the model to get it more accurate, and start looking at connecting the model to the UI. Our project doesn't have a lot of different parts so all team members will be working together on these steps.

<u>Summary of weekly advisor meeting</u> (If applicable/optional)

Our advisor / client recommended that we begin building our User Interface and that we also have some of our team dedicated to improving the accuracy of our AI model.