

SE 4920 STATUS REPORT 2

1/31/2025 - 2/13/2025

Group number: sdmay25-30

Project title: *Explainable AI for source code applications*

Client &/Advisor: *Arushi Sharma*

Team Members:

Manjul Balayar

Sam Frost

Akhilesh Nevatia

Ethan Rogers

Rayne Wilde

Period Summary

This week we made some incremental progress on the team's colab. However, we faced some small roadblocks in our package deployment that needed to be overcome as soon as possible for further development. Otherwise, we looked into various resources for bringing the project components together in the colab and web app.

Last period accomplishments

Manjul Balayar:

- Getting familiar with tools necessary for web app
- Looked into previous web app repository's progress

Sam Frost:

- Take work from CoCoNet repo and add to current version
- Experiment with deployment options

Akhilesh Nevatia:

- Tried implementing Hyperbolic Clustering directly through repo written based on give hypHC paper, but failed due to not shortage in my understanding of required inputs
- Started skimming through the hypHC paper, and making notes of ways we need to change the processed activations to build a similarity matrix used as an input to generate Embeddings in the Hyperbolic Space
- documented my notes in the repo in a readme under clustering algorithms

Ethan Rogers:

- Looked through shown GitHub repositories for added functionality
- Identified additions to be made to existing pipeline portion

Rayne Wilde:

- Fixing CI/CD pipelines and current clusters and containers
- Developing Homelanding page and deploying it also via a container
- Deploying initial web-app as a container

○ **Pending issues**

Manjul Balayar: N/A

Sam Frost: N/A

Akhilesh Nevatia: N/A

Ethan Rogers: N/A

Rayne Wilde: N/A

Individual Time Contributions

Name	Hours This Week	Total Hours
Manjul Balayar	4	7
Sam Frost	6	9
Akhilesh Nevatia	5	13
Ethan Rogers	4	6
Rayne Wilde	3	8

Plans for the upcoming period

Manjul Balayar:

- Start working on the web app, setting up the web app directory

Sam Frost:

- Integrate functionality into web app
- Progress closer to live deployment

Akhilesh Nevatia:

- Plan to start implementing basic code for hyperbolic clustering on my branch, and running example implementation given of the paper on github locally for reference
- Further Reading next steps of the paper if I don't get bottlenecked in between, and moving towards integrating hyperbolic hierarchical clustering into our library

Ethan Rogers:

- Ensure the group package is built and implemented successfully in the group Google Colab
- Begin adding functionality to Process Activations scripts

Rayne Wilde:

- Fixing UI/UX functionality and contents
- Make containers robust and resilient
- Fixing structure of code base
- Adding additional configurations and safety requirements
- Adding testing pipelines

Summary of weekly advisor meetings

This week we discussed a roadmap to fixing package deployment for use in our example Colab alongside the planned web app. Additionally, we looked into a paper and discussed its feasibility on being implemented. This paper describes hyperbolic clustering, which is sought after by our project's client for visualization purposes.