EE/CprE/SE 491 WEEKLY REPORT 1

9/12/2024 – 9/19/2024

Group number: 35

Project title: Universal Response Engine: LLMs for Good

Client &/Advisor: Ahmed Nazar and Mohamed Selim

Team Members/Role:

Abrahim Toutoungi - Stakeholder Liaison

Gabriel Carlson - Communications Manager

Halle Northway - Meeting Coordinator

Brianna Norman - Project Deliverables Manager

Ellery Sabado - Timeline Coordinator

Emma Zatkalik - Assignment Manager

Weekly Summary

The group reviewed various learning materials about Large Language Models (LLMs) provided by our advisor. The overall objective this week was to give ourselves a foundation of knowledge to build off of for our project. We had materials that gave a broader overview of LLMs, a more detailed and in-depth description of how LLMs are used to generate text with transformers and attention layers, and a tutorial stepping through some basics using open AI. No notable changes were made to the project due to us being in the learning phase of the project.

Past Week accomplishments

- Researching LLMs
    - Learning more about embedding layers when encoding text input and decoding generated responses to the input
    - Learning about how transformers are used with attention layers (self-attention and multi-head attention)
    - Researching implementations of LLMs
- Customer Discovery
    - Understanding the potential needs and wants of our future users
- Gantt Chart
    - Started creating a Gantt chart planning out our future tasks and deadlines
- Deliverables and Team Progress
    - Collaborated and finalized team contract and team report
    - Began considering actions and tasks for team website

Pending Issues

- Ran into some issues with filling out future Gantt chart tasks since we don't have/understand the full scope of the project

- Gantt chart (due next week)
- Check if ChatGPT playground is free - it is
- https://huggingface.co/ (free models and tutorials)
- Figure out how to run an LLM on laptop or google colab (for next 2-3 weeks)
- Learn more about LLMs (narrow in on a design)

Individual Contributions

Name	Individual Contributions	Hours this week	Hours cumulative
Abrahim Toutoungi	- Checked if ChatGPT playground was free - Worked on report and team contract - Figured out LLM on laptop	4	4
Garbiel Carlson	- Worked on researching and installing ollama - Worked on setting up python demos using ollama - Additional research on how LLMs work and are implemented	4	4
Halle Northway	- Conducted customer discovery - Researched LLMs through videos and articles - Experimented with running LLM demos through browser	4	4
Brianna Norman	- Worked on Team	4	4

	Contract - Researched LLM training process and usage - Conducted customer discovery interviews and compiled relevant takeaways		
Ellery Sabado	- Learn about Vector embedding tutorials - Customer discovery - Read up on Introductions to LLMs and their foundations - Watched videos of Neutral Networks	4	4
Emma Zatkalik	- Research about LLMs - Learning about transformers and embedding layers - Trying to run LLMs on a browser and personal computer - Customer discovery interview and notes	4	4

Comments and extended discussion (optional)

Plans for upcoming week

- Finalize Gantt Chart
- Continuing research about LLMs and machine learning
- Experimentation with running LLMs through tutorials/datasets on huggingface.co
- Experiment how to run LLMs on basic datasets

Summary of weekly advisor meeting

From the interviews:

- Availability
- Concise
- Precise
- Accuracy

Crash Course Notes

- ML > AI > GenAI > LLMs
- In ML it's a series of numbers represented a certain way so that it can be understood easily. Used the graph points learning as an example.