My senior design project – Kalliope – is supposed to be a web application focused on streamlining the process of researching by offering insights and outputting recommendations based on academic papers input. From my perspective, I will have my chance to work as a backend-software developer/data engineer. That leads to the fact that this project is an excellent ending point for my journey here at UC which I can work on utilizing my knowledge on back-end development, data processing, database management and ETL module implementation. With my contributions, I do believe that this tool will come in handy for users to have an easier researching process.

My academic journey has laid a strong foundation for this project. Courses like "CS4092 : Database Design and Development " and “CS5151: Database Theory” provided me with a solid understanding of database design and optimization, crucial for managing the vast amount of research data Kalliope will handle. Additionally, "EECE3039C: Software Engineering" emphasized collaborative development practices and agile methodologies, which I plan to apply when managing project timelines and feature rollouts. These courses have not only equipped me with technical expertise but also honed my problem-solving skills, allowing me to approach complex challenges with structured methodologies.

Aside from rigorous coursework, my co-op experiences have further sharpened both my technical and non-technical skills, preparing me for this project. During my internship at Logix Technology as a Data Engineer Intern, I worked on designing and implementing large-scale databases, handling millions of entries, which directly relates to the data management requirements of Kalliope. I also gained hands-on experience with Python, SQL Server, and APIs. These technical skills will be essential for developing the backend infrastructure and ensuring scalability in my senior design project. Moreover, working in a professional environment taught me valuable non-technical skills such as effective communication, teamwork, and project management, which are critical for successfully collaborating with my talented teammate during this project.

I am deeply motivated to participate in this project because I am passionate about data. By making research more accessible and streamlined, I am able to learn and practice my knowledge as well as having hands-on experience with data. The overwhelming amount of academic literature can make it difficult for researchers to find relevant information quickly, and I am excited about developing a solution that addresses this challenge. Our preliminary approach involves breaking down the project into distinct features which in this case will soon be finalized when we get deeper to the development phase. I will also emphasize user experience, ensuring that the optimization is thoroughly executed to maintain usability across various usage. By applying both my technical expertise and past project management skills, I expect the result to be a well-rounded tool that is what users are looking for – a tool to enhance their process of researching.

To self-evaluate my contributions, I will define specific milestones to track progress throughout the project. We will deploy version control using GIT in order to connect different stacks of workload and make sure they are functional. I will consider the project successful when it meets the functional requirements, we stated in the contracts. Additionally, feedback will play a critical role in assessing the usability of the tool. If the feedback reflects that users find the tool helpful and easy to use, I will consider my work successful. By the end of the project, I hope to deliver a polished application that I can proudly present as a significant contribution to academic research.