Our senior design project is a virtual reality artificial intelligence-based art gallery. This will be a VR application that allows the user to walk through a museum of AI generated art. The main focus of the project will be AI but as we had an interest in VR, we decided to turn the project into a walkable museum. We would also like to add an interactive element, perhaps a prompt or dropdown list that helps create the art in the museum but are still thinking about it. This project should showcase our understanding and implementation of AI while also adding in the fun element of VR. I am working on mostly AI and helping implement it into the VR side of the project.

At UC I have currently only taken one artificial intelligence class, CS 4033 AI Principles and Applications, but am currently enrolled in another, EECE 5136 Intelligent Systems. I think that the knowledge I have gained from these two classes will be the most useful when helping create the machine learning algorithms that will eventually create the art shown in our museum. I also expect that we will be using python as it is what our team seems to be most comfortable using. As such, my python knowledge that I gained from CS 2021 Python Programming will also be helpful. As for the VR and Unity aspect I don’t have much experience from my classes in terms of programming. I am currently however, taking a class on game design, IT 2050C Game Design and Society, which I believe will help with the construction of the museum or its layout as I expect that will be like game map design.

As for co-op experience, I spent all my time working at the UC Sim center with P&G, but I only expect I’ll be relying on the knowledge I learned from my last 2 semesters working there, January – August of this year. During that co-op, I worked in python to help analyze and predict results from data obtained from a scan of a machine placing labels on a bottle. As I had to predict whether the label placement was correct, I made use of a lot of machine learning algorithms in python, mostly using scikit-learn. For this I ended up using decision trees as they also made a good visual and were good at categorical predictions. I also had to predict input values, for this I continued to use scikit but instead of decision trees, I focused on regression algorithms such as linear regression. I expect that this experience with machine learning in python will help with the creation of the art in our project.

I am motivated to work on this project because I have a big interest in VR. I’m hoping that by working on this project I will be able to learn more about VR and get experience programming for it. I also am excited to learn more about how Unity works as I have limited knowledge on the software. I am interested in game development so while this isn’t the same, it does use the same type of software and would be helpful for me moving forward. As for the AI aspects, I’m not as excited but I do enjoy seeing the results of machine learning algorithms. I also understand that currently Computer Science has a large focus on AI and that it’s important I have a good understanding of it before I graduate.

For this project I think the best approach would be to design things separately then try to bring them together. Designing the museum first to take in empty pieces of art, then designing the art then finally loading the art into the museum. Realistically I do not think we will be able to create an AI from the ground up that creates something that we would normally consider to be art, as such I expect we’ll either create bad art with our own algorithm or make use of previously created algorithms with some editing on our end to create the pieces for the museum. I am hoping to create a museum that at least changes with each visit, showing something different each run even if the art isn’t the best. For evaluating my contributions, I will set goals each week to try and meet, changing them as needed if I can’t meet them. I will know I have done a good job if the code runs as expected and if I like the result. As art is subjective, I know that we could just randomize pixel colors and call it art, but I wouldn’t like that result and wouldn’t consider it to be a good job.