3D Crane Simulator

In this project we were tasked with developing a simulation to help train Boeing crane operators. To develop the simulation we used a game engine Unity and Blender to create 3D models of the crane and warehouse. The models were imported into Unity and we then used scripts written in C# to allow the objects to interact with each other and the environment. The crane is controlled with an Xbox controller and the user wears an Oculus Rift to experience a virtual reality, allowing the user to virtually step into the crane before physically operating the real one.

In developing the simulation we encountered some difficulties. Programming the physics behind the object interactions was problematic. Halfway through the project we reached a point where we had to decide if the entire simulation should rely on physics or if we should hard code some of the movement. We made the decision to hard code the movements and their limitations so that we'd reduce the risk of encountering unexplainable bugs.

Besides some minor bugs, the project went very smoothly and we were able to stay on schedule and on budget throughout the semester. Bi-weekly meetings on Tuesdays and Thursdays with our sponsor kept us in constant communication and allowed us to develop a product that fit their vision.

At the conclusion of development, we did a report out to Boeing. We presented the project and allowed the stakeholders to try out a demo. As a result, this proof of concept simulation demonstrates the ability to virtually model the live environment and effectively allows someone to virtually step into it. This will prove effective in many ways to aide with crane operator training.