Ship Motion iPad App

Overview
When employees join the Navy, they do not always have a good understanding of how a ship interacts with the ocean and waves. Therefore, the Navy wanted a simulation tool that they can use to educate employees about that interaction. An iPad app gives the Navy a useful simulation tool that is portable and simple.

Objectives
Our main objective was to design and build an iPad app to improve new Navy employees’ understanding of how a ship acts in the ocean with active waves.

Approach
- We were not able to meet with the sponsor right away, so we spent the time until then learning how to write iOS apps and researching physics engines.
- After traveling to the sponsor’s site and talking to him, we narrowed down his needs and felt that we could begin.
- Based on his needs, we determined that we’d be using Unity3D, a physics engine.
- We requested the data we’d need from the sponsor, such as a 3D model of the ship and wave equations.
- At this point, we drew mock-ups of the app and decided how we wanted it to look and work.
- We divided the project into 3 main parts: the waves, ship-wave interaction, and the GUI. Each part was worked on individually.
- After the completion of the parts, we combined them and tested for integration errors.
- We then fixed errors that came up, and put the finishing touches on the app.

Outcomes
- The Navy will have a new tool that they can use to train individuals, saving them from having to pay for employees’ travel expenses and the cost of putting them on a boat.
- They will also have a reference tool that can be used when an employee needs to just refresh on their knowledge of ship motion.