**CSS 497 Abstract Form**

**Name**: \_Po-Lin Tu\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Faculty Advisor**: \_Professor Kelvin Sung\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Quarter/Year**:\_Summer 2023\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Title**:\_Dive: An 2D Underwater Horror Exploration Game\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**The abstract should be limited to 200-400 words describing the nature of the project and the results obtained. The abstract is due prior to submission of your final report to your faculty advisor**.

| For my capstone, I worked in a team of five to develop a 2D video game featuring underwater horror and exploration. For me, the primary purpose of our capstone project was to learn about how to build a fun video game, how to implement the behaviors of the enemies in the video game, and how to incorporate tools powered by AI into the development life cycles of the video game. Overally, the result of our capstone project is a video game that has gone through three playtest sessions and has two maps for the player to explore.  To build a fun video game, we knew that we should reference the video games that we liked. Thus, as we designed the mechanics for our own game, we often used the other video games, such as Rain World and Subnautica, as references to figure out whether a mechanic could be fun for the players. It was immensely important, as Professor Kelvin Sung said, to verify whether the video game could in fact be fun from the players’ perspective. As a result of this, Professor Kelvin Sung held three playtest sessions so that we could have people play our video game. We ended up adjusting things like character controls and level design to account for the feedback from the playtesters.  To implement the enemies in the game, we decided to use the A\* pathfinding algorithm so that an enemy could find the optimal path to the main character. The reason why we chose this algorithm over the others was that this algorithm was more efficient and that there was an existing A\* pathfinding project for Unity, the game engine that we used. Importing this project provided all the pathfinding functionality we needed, and we implemented four different enemy behaviors by extending from this pathfinding algorithm.  To develop a video game, we must have images for all the objects, including the main character, the enemies, and the weapons, in the game. Nevertheless, creating all the images on our own was too time-consuming. We realized that this was where we could and should use tools powered by AI to speed up our development process. We eventually relied on a tool called Midjourney to generate all the visual elements in our game. Thanks to the help of this tool, we got enough time to finish and polish two different underwater maps. |
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**Faculty Advisor**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Signature**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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