Problem and Design Analysis

My term project, Animated Andrew, tackles the problem of 3D implementation of recursive backtracking and breadth first search. We can imagine how these algorithms would work to find a path given ideal and linear conditions, but in a constantly changing and uneven 3D game setting, this becomes a more daunting task. Thus, I created a game in which a user tries to achieve a simple task that involves avoiding enemies. I wrote a series of algorithms that simplify the description of the 3D world so the search algorithms can deliver enemies to the player. The entire thing was essentially a very in-depth analysis into how we can run search algorthms on a constantly changing and large 3D list (what I used to represent my map).

Specifically, I created the game in Panda3D and used models from Panda3D samples and art libraries for the actors, but all of the environment models (walls, floor, sky, ramps) I created in Blender. My user interface in terms of basic key presses and much of the main character movement code came from the Panda3D Roaming Ralph Demo (cited in the readme.txt and main.py files). I created the title and game over screens myself. My user interface was simple and non-instrusive and similar to the demo’s because many users of the demo are used to its controls and often expect them from any Panda3D game built starting from it. I thus, made any additional key responses near to the keys that were already part of the UI.

Other games that I found online did influence the design of my project, but none had an extremely significant effect (except for the Roaming Ralph demo since I started from it). The game that mine most closely resembles is PacMan, but in 3D. Pacman I believe also uses breadth first search and generally has a similar idea to my game. In terms of appearance, however, I would not say that I can list any singular game that had an overwhelming effect since I designed my game to play like most other 3D roaming game like Ratchet and Clank, Sly Cooper, etc.