Artificially Intelligent Game

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Project description

An adaptive video game that uses a mixture of selective techniques and genetic algorithms to learn how to scare the user. Using an artificial intelligence that detects how scared the user is from inputs given, the AI slowly learns which fears in its list are most effective to provide a tense and fun experience for the player. This game will be determining how much time will be taken between each fear being triggered and what specific fear to use through a fitness system and category based on previous experiences. It will learn through a constant feedback loop, taking the players reaction, quantifying it, and then feeding that to the AI system. The game itself is set in a hospital during a disease outbreak, the player must battle with staying awake using means available to them, while avoiding obstacles and AI provided stimuli. The goal is to create a vaccine for the disease and escape.

Results

The base game was built within Unity where we manually coded the scripts pertaining to interaction and level design all done using C# and blender. The AI works based on two systems, the Time AI and the Fear AI. They both use biased randomness when choosing their respective components for the AI, which are then improved by monitoring the user's reactions, and generating a fitness. These are called by the Fear Manager which will implement the fear into the game after it receives the necessary information from the AI systems. We monitor the users in game movement and mouse position in order to generate a fitness to train the AI system. Using these four systems we have achieved a learning feedback loop, which was our original goal. We managed to also create an entertaining narrative and gameplay surrounding the AI to make it more immersive.