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CS428 Computer Animation

December 6, 2020

P0: Final Project Proposal — Super Roll a Ball Deluxe

We would like to create a game where a player must avoid patrolling enemy agents and collect tokens to advance further into the map until they can reach a prize/objective. The game will have a “demo mode” while waiting for a player to join which will simulate the gameplay involved. The assignments that we would be building off of are:

B0 - Getting Started With Unity — Roll a Ball will serve as the basis for the game. The player and enemy agents will be spheres or “marbles” in a simple game world with tokens and a locked door with a prize/objective.

B4 - Social Force — We will be implementing a social force algorithm in which agents can alert other agents in a radius to chase the player once the player enters the guarding radius of an agent. The player can then find safe zones to hide causing agents to lose the player and conversing with one another as they return back to their positions. Agents will patrol parts of the map as the player collects a set number of tokens in order to open the locked door to the prize/objective.

B5 - BTs — Interactive Behavior Trees will be used to dictate how agents play and react to one another. In demonstration mode, an IBT for the player agent will be used

to simulate how to play the game. Enemy agents will have an IBT to dictate how they will patrol and react to either a user controlled player or player agent.

The demonstration/evaluation of the project can be determined via the “demo mode” and how well a player agent simulates gameplay against the enemy agents. Additionally, evaluations can be further made by a user controlled player and how well enemy agents react to their behavior.

From: **Mubbasir Kapadia** mk1353@cs.rutgers.edu
Subject: Re: CS428 Final Project Consultation
Date: December 4, 2020 at 2:22 PM
To: Anthony Tiongson ast119@scarletmail.rutgers.edu
Cc: Samuel Sohn sss286@cs.rutgers.edu

Hi Anthony,

This is reasonable. I would request that you provide more details of what exactly the player experience will entail. I would also ask that the behavior trees be interactive (IBT's) and of a level of complexity that is comparable to what you have been developing in your assignments.

Best,

Mubbasir Kapadia
Director, Intelligent Visual Interfaces (IVI) Lab

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From: Anthony Tiongson <ast119@scarletmail.rutgers.edu>
Sent: Friday, December 4, 2020 2:05 PM
To: Mubbasir Kapadia <mk1353@cs.rutgers.edu>
Cc: Samuel Sohn <sss286@cs.rutgers.edu>
Subject: CS428 Final Project Consultation

NOTE TO SAM: Duplicate email, sorry I accidentally emailed you earlier via my private email

Professor,

My idea for my group project is actually to expand the first individual project B0 to possibly create a full single player experience using what we learned in B1 (basic navigation), B4 (social forces), and B5 (behavior trees). A user will compete against an agent or group of agents with behaviors predetermined depending on what level (scene), such as adversarial agents that will either pursue or evade the user or create a movable obstacle to them (such as spiraling). Behavior trees can be used to implement how the adversarial agents will behave depending on the actions/position of the user.

We are currently working on other ideas but I just wanted to see how you felt about this one.

Let me know if this idea is sufficient or lacking in any way. Thanks,
Anthony Tiongson
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