Camott-EcoSim

Camilo Talero[1]
Scott Saunders[2]

Dept. of Computer Science, Faculty of Science, University of Calgary, 2500 University Drive N.W., Calgary, Alberta, Canada T2N 1N4
Scott.Saunders@ucalgary.ca
Camilo.talero@ucalgary.ca

Abstract. A Simple evolution based ecosystem simulator.

1 Introduction

We chose this project because all members of the group are interested in the emergent properties of evolution and ecosystems. We want to observe how an ecosystem evolves over time based on some controllable initial conditions, as we want to see how much the evolution of organisms is determined by the environment and how they are influenced by it.

2 Related Work

Critterding, and many other projects for evolution.

3 Project Details

We will start with evolution on basic creatures by adding/removing body parts with varying characteristics. An example of this, would be a mouth, which could be specialized to be better at eating plant matter, or meat.

4 Software Tools

Initially we are planning to attempt this in Unreal Engine, as it supports Linux and is open source, however failing that, we will be using Unity. Sources:
-https://www.unrealengine.com/what-is-unreal-engine-4
-https://unity3d.com/
As for models, we are planning on either very basic ones, using blender to create some, or possibly using some Creative Commons or other freely licensible.

5 Time line

The following represents the milestones we hope to reach in our project:

1. Implement a mouth appendage and movement.
2. Implement world generation, creating obstacles and other procedurally generated aspects of the environment.
3. Implement Food-spawn.
4. Implement multiple appendages.
5. Implement a single creature that can evolve over time using the appendages.
6. Implement multiple creatures based on the previous step.
7. Implement multiple food sources.
8. Look for evolved behaviour, repeat some of the previous steps until satisfied.
9. (Optional based on time) include climates and environmental conditions like humidity and temperature.