Project Plan: INDY-1
Environmental Simulation Engine with AI/ML

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College of Computing and Software Engineering

Kennesaw State University

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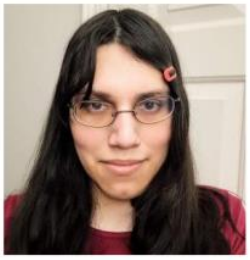
Prof. Sharon Perry

Overview

We are creating an agent-based simulation of animal group movements in response to environmental factors. Populations are modeled by multiple agents, each of which models a unit of population (i.e. a herd or pack). Each species' population agents are controlled by one neural network, which has been trained on historical ecological data. The simulation takes place on a 2D grid, with each cell representing a small area of land. Users are allowed to insert "human interference" into the simulated area to see how the local fauna will respond. Simulations can be saved, loaded, and data from the entire simulation can be saved for study.

Project Team

Name	Role	Phone Number	Email
Selene Espinosa	Owner, Project Manager, Misc Coder.	770-580-9856	sebae97@gmail.com
JaDante Hendrick	Developer	912-224-1291	jdpackers544@gmail.com
Jake Dunkley	Developer	678-646-2554	jakeddunkley@gmail.com
Anna Alquisiras	Documentation, Researcher	404-819-7914	annaalquisiras@gmail.com
Sharon Perry	Advisor, Instructor		Sperry46@kennesaw.edu



Selene

JaDante

Anna

Jake

Project Website

https://github.com/environmental-simulation/environmental-simulation.github.io

Final Deliverables

1. Fully operational software, deployed and in production

2. Project Documentation

Milestone Events

1. By Feb 17th be able to access all project environment

   - Upload to GitHub. All developers should have shared git environments to be able to push branches to the repository.
   - Complete Design Documentation.
   - Defining and Reviewing requirements.

2. By March 3rd framework setup

   - Research data to begin generating a training data set.
   - Basic UI dummy functions
   - Basic Simulation Setup
   - CNN review

3. By March 17th have a prototype ready to present to peers

   - Review prototype design
   - Operational sub menus and basic agents complete.
   - Test prototype
   - Documentation updated

4. By March 24th have Final Integration / Full Documentation /

   - Final CNN algorithm to process the data.
   - Be able to comment on all code functions for better readability and maintainability.
   - All functions listed are written out in documentation.
   - Draft of final report

Meeting Schedule Date/Time

Remotely, the members will meet on Tuesdays or Thursdays from 2:00 PM – 3:00 PM.

The team will meet every class period on Mondays and Wednesday, in-person. Besides that, the team will have discussions online, via Discord.

Collaboration and Communication Plan

Communication and collaboration tools

- GitHub, Google Drive
- Discord, Microsoft teams

Development tools

- Visual Studio Code

Project Schedule and Task Planning

See the Gantt chart file attached.

Risk Assessment

Project Management Risks

- Lack of communication that causes productivity loss
- Not being able to grasp an understanding of new resources and tools

Maintainability Risks

- Unable to properly organize the code with appropriate and detailed explanations which causes other programmers to not understand why a block is applied.

Liability Risks

- Having users not understand that this is proof of concept.

Signed By:

___ Selene Espinosa _____ _____2/3/2023_____

Project Owner Date