Prototype presentation

INDY-1
Environmental Simulation

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INTRODUCTION

- AI is a great way to process data on a massive scale to make predictions
- There are a lot of changes in the environment due to climate change and human development
- Animals are being forced to interact with new environments
- Thus, a simulation of animals in theoretical environments can help humans predict and coexist with animal behavior
- This project is a proof of concept of an idea using AI “cells” that operate in simulated environments according to real-world data it has learned

Features

AI Models

Demo models using real world data

Simulated Ecology

Environmental layers will act as the models' inputs

Model Information

AI models will be translated into visuals

AI Cells

Move and interact with a simulated environment

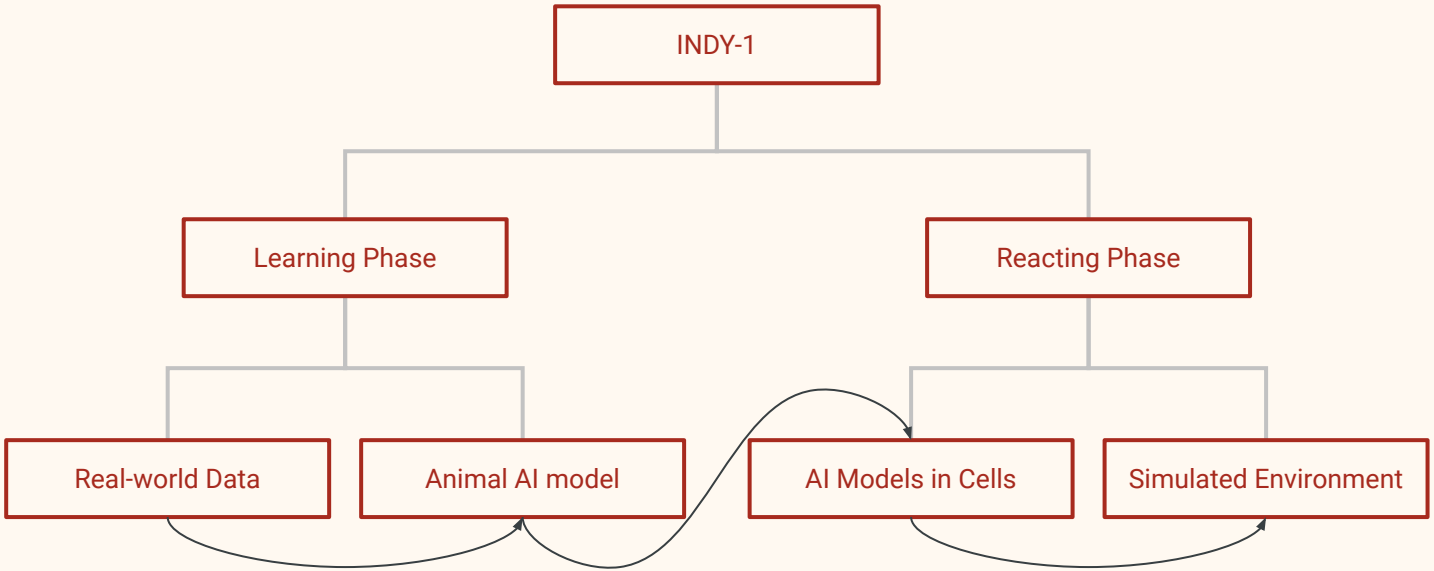
Editable Layers

Turn layers on/off to see relative effects of each

Real World Data

Models will be trained from real animal behavior

Architecture of the Project



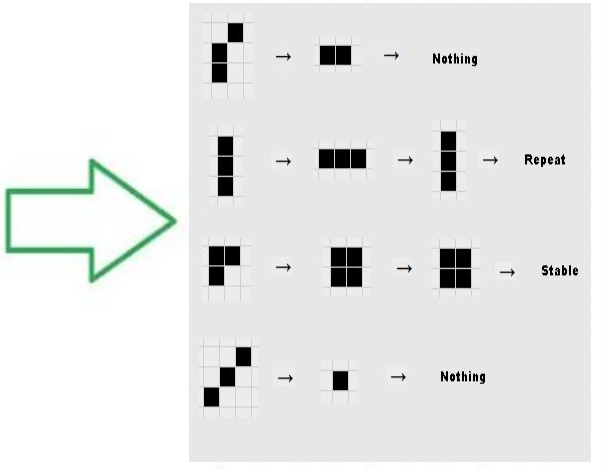
Learning and Reacting Phase

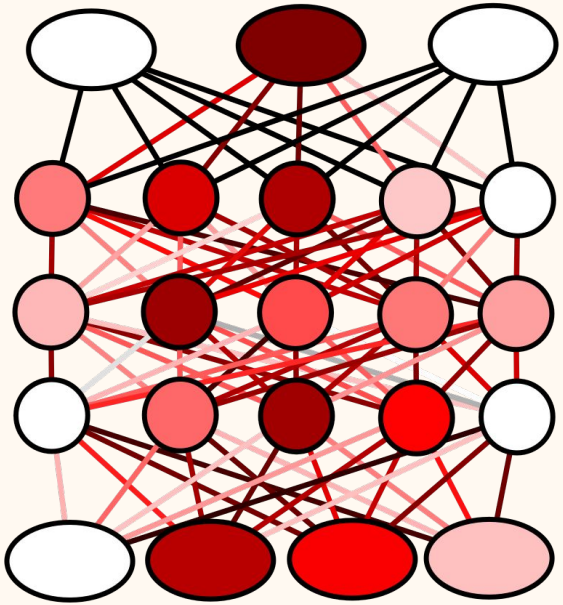
Learning Phase

Models are trained off real world data of animals

Reacting Phase

“Cells” use species models to make decisions



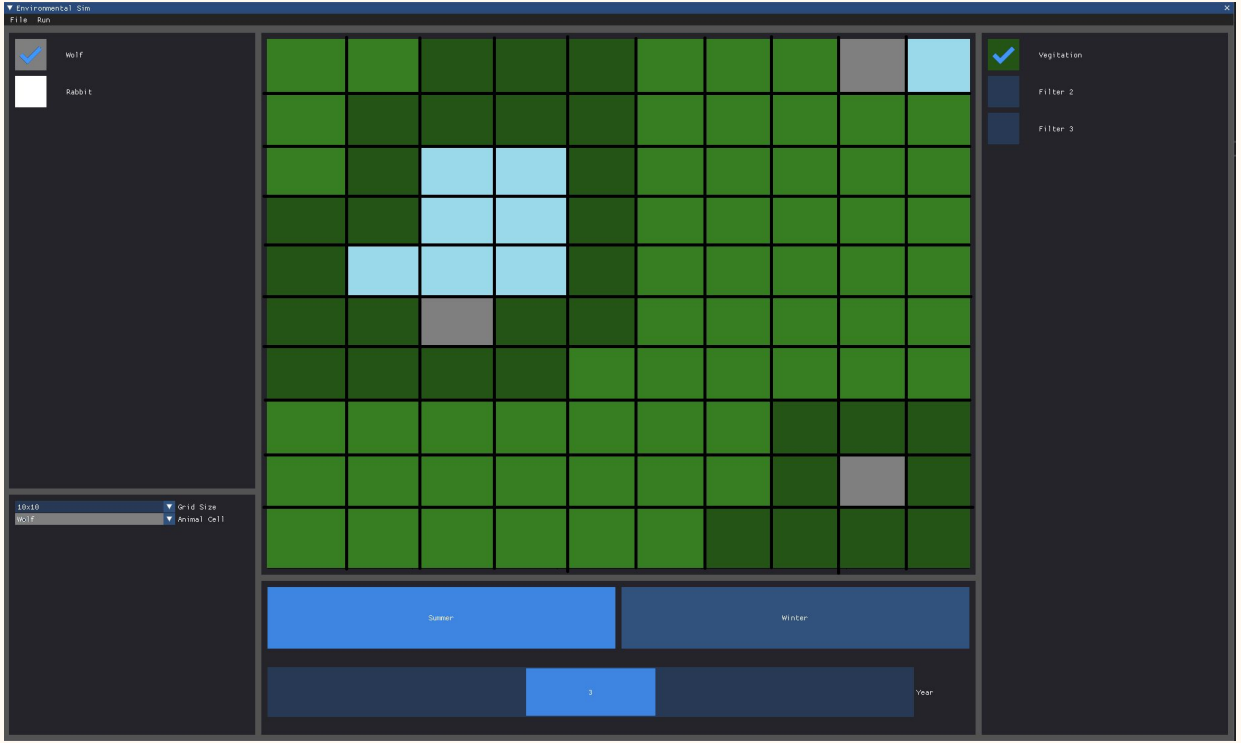


AI Model Example

- AI models will be perfectly viewable using a gradient to show how much each layer of data will have an effect on the animals' behaviors
- Shown here is an example of how one input interacts with and changes various nodes and outputs
- Input layer: receives the data, each node representing a feature of that data
- Hidden layers: process input data
- Output layer: produces predicted outcome of the model

UI

- Environmental Filters
- Cells of various species



Future Implementations

- Fully interactive timeline feature in simulation
- Complete animal models (demos) based off real-world research
- Complete timeline of a simulated scenario of two species
- Merging, Splitting, Dying, features of each cell dependent on their environment
- Developed UI, recreating the terrain and other environmental factors