



Predator-Prey Reinforcement Intelligent Model Engine

Model Simulation Report

Model Name: lion_and_deer

Date: 2024-11-06

Environment

Grid Side: Defines the size of one side of the grid, making it a square.

15

Episodes: Total number of episodes to be executed in the simulation.

50

Steps per Episode: Number of steps allowed in each simulation episode.

10

Population

Initial Count: Specifies the initial number of agents at the start of the simulation.

Predator: 15

Prey: 40

Max Count: Defines the maximum number of agents allowed in the simulation.

Predator: 100

Prey: 100

Spawn Rate: Percentage chance of agent reproduction.

Predator: 99%

Prey: 99%

Step Decay: Amount of life points lost by agents for each step taken.

Predator: 7%

Prey: 7%

Neural Network

Learning Model: Specifies the type of learning model used by predator and prey agents in the simulation

Predator: DQN

Prey: DQN

Advanced Layer: Specifies any additional layers or network modifications used to enhance agent learning.

Predator: None

Prey: None

Communication: Indicates if offline communication is enabled or disabled for each type.

Predator: Enabled

Prey: Enabled

Quantitative Population Data

Predator Stats			
	Reward	Done	Step
Mean	2758.58002	47.36	9.0
Median	2778.333	48.0	9.0
SD	214.10362841694115	4.430620724006965	0.0
Max	3276.417	58	9
Min	2263.167	37	9
Variance	45840.363701299604	19.630399999999998	0.0
Range	1013.25	21	0
IRQ	252.1880000000001	6.0	0.0
Prey Stats			
	Reward	Done	Step
Mean	-621.91004	0.84	9.0
Median	-610.0835	0.0	9.0
SD	143.79365919621907	1.2547509713086502	0.0
Max	-183.167	7	9
Min	-1144.5	0	9
Variance	20676.6164250384	1.5744000000000001	0.0
Range	961.333	7	0
IRQ	182.41650000000004	1.0	0.0

Behavior Data

Predator Behavior Stats		Prey Behavior Stats	
Prey Captured:	2368	Predator Escape:	42
Nearby Prey:	4262	Nearby Predator:	8397
Exploring Map:	387	Exploring Map:	398

Population Charts

