Artificial Life Simulation #2

1.0 About

This project is to simulate two types artificial life forms which can feed, grow and reproduce. The first type which resembles plants can reproduce and grow. And the second type can reproduce, grow, move and feed on first type. And also both lifeforms can evolve when they reproduce.

2.0 Implementation

The world which is simulated in here is a grid with an area of 50x50. A single cell of the grid can only be occupied by a single creature of any type at any given step. The first type of creatures which are represent in larger colored dots have three gens which represents a RGB value . It can create an offspring in a random empty neighboring cell in each time step. When it creates a new offspring the three gens are transferred to the new offspring. But a small mutation is also added to this three gens. The second type of creatures which are represented in smaller blue dots also have three gens.. And it can eat a type one in random neighboring cell and move to that cell. When it eats a type one it's life increases by one unit. But in order to eat a type one the difference between it's gen values and type one's gen values must be less than 30. And it also reproduce like type one (with mutations) but it only place the new type two in a cell that is occupied by a type one which has at least one gen of that type one must be closer to the type two's corresponding gen. And also if a type two does not have a type one to eat it looses one unit of life. When it looses all the life units it dies.

3.0 Pre Requirements

This script is written in python. Install 'python' and 'Tkinter' to run the script. (use synaptic package manager in Ubuntu to install them.)

4.0 Running the Application

Use fallowing command to run the application.

python main.py

Left click on any place on the window to place a type one in there. And right click to place a type two. But a type two can only place on a type one. Press 'R' key to reset and 'P' to pause. And use 'Up' and 'Down' arrow keys to change the step time (speed).

Screen shots

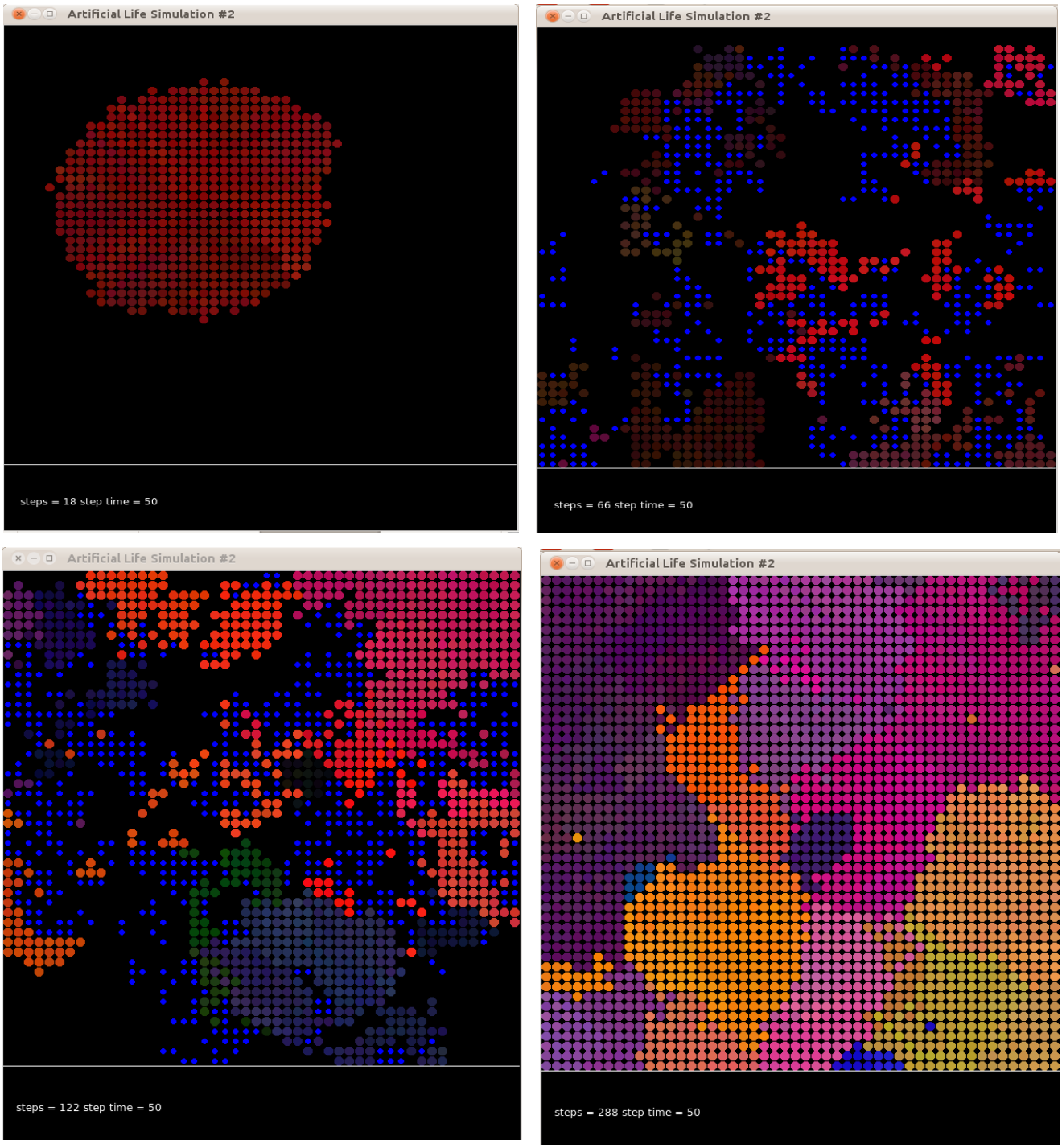

Figure 5.1

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7.0 Licenses