Cellular Automata ReadMe file

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FILES

- A Brief History and Symposium On Cellular Automata (OUR RESEARCH PAPER)
- ECA.py our python code for Elementry ECA written by Bishop Clark our team member
- flock_js.pde processing code for deminstration of a boid system written by D.Shiffman cited at [4] [8] [20]
- GameOfLife.py our python code for deminstrating Conways's game of life
- README.html provides a webpage to view the README
- README.pdf proveds a PDF for the the README
- GROUP PROJECT PRESENNTATION CELLULAR AUTOMATA (OUR SLIDE SHOW)
- requirements.txt a file that holds all necessary python libraries
- RESEARCHPAPERTEXSRC.zip this is a zip file that holds all of the LaTex code

A Brief History and Symposium On Cellular Automata

1. This is our reseach paper it is 9 pages long and has 20 citations
2. This paper is comprised of 6 sections including the abstract:

- ABSTRACT
- I. INTRODUCTION TO C.A
- II. VONNUEMANN'S C.A.AND CONWAY'SGAME OFLIFE
- III. ELEMENTARY CELLULAR AUTOMATA
- IV. CELLULAR AUTOMATA APPROACH INFLOCKING
- V. QUANTUM CELLULAR AUTOMATION

Cellular Automata Code Requirments

1. To Run ECA.py and GameOfLife.py Python 3 must be installed along with pip to install the necessary libraries.
2. To Run the flock_js.pde you must have processing installed either as a js library or as an IDE, we recommend the IDE
3. This code is our own code developed by our research on the subject area, we had help from our citations.
4. Use pip install -r requirements.txt this will recursively install all of the necessary Python Libraries to Run both code sets

Running GameOFLife.py

1. From the command line call: python GameOfLife.py
2. This code is our own code developed by our research on the subject area, we had help from our citations.

3. For the game of life on lines 9 and 10 can cause the frame to be adjusted, we recommend WIDTH and HEIGHT to be either 30 or 7 for a zoom in or zoom out view

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Running ECA.py

1. From the command line call: python ECA.py
2. The list binary number included in the variable 'ruleset' can include any 8 bit binary number separated into 8 elements.
3. The amount of generations can be modified in the 'requested_generations' variable.
4. For the width (amount of random states), the range can be modified in the first 'for' loop

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Running flock_js.pde [4][8][20]

1. We cited this code above and in our work: were are not the creaters of it but it was used for Boid deminstration, to run this code install the Processing IDE at: https://processing.org/download/
2. Once the IDE is installed open the file using the GUI, locate the flock_js file and open it inside the IDE.
3. Hit the play button and enjoy

Condenced Citations(Citations Are neat in both the Slides and in the Reseach Paper):

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[19] U. Mehta and V. Dhare, Quantum-dot Cellular Automata (QCA): A Survey.
[20] D. Shiffman, ”The Coding Train” [Online]. Available: https://www.youtube.com/channel/UCvjgXvBlbQiydffZU7m1aw