Appendix – Program Details

Programming language: Python 3.7

Classes:

|  |  |
| --- | --- |
| Name: | Size: |
| evolutionaryart.py | (996 lines) |
| evolve.py | (266 lines) |
| fitness.py | (33 lines) |
| gene.py | (80 lines) |
| genome.py | (344 lines) |

Packages:

|  |  |
| --- | --- |
| Name: | Version: |
| MatPlotLib | (3.0.0) |
| OpenCV | (3.4.3.18) |
| TkInter | (8.6) |
| Pillow | (5.3.0) |
| NumPy | (1.15.2) |
| Image | (1.5.25) |
| ImageIO | (2.4.1) |
| Pandas | (0.23.4) |

Provided Functionality:

* Edit genetic values
* Edit algorithmic parameters
* Edit data output parameters
* Import image (File)
* Import image (Camera)
* Show image
* Export GIF
* Evolution controls (Run, Pause, Stop)
* Edit algorithmic parameters while pausing
* Edit data output parameters while pausing
* Export final image when manually stopping
* Export GIF when manually stopping
* Display current generation number
* Display current fitness score
* Display current relative fitness
* Show current image (phenotype)
* Plot fitness graph(s) from data output
* Clear plotted graphs