AI S20 Assignment 2 Report

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Links

Github repository (will be made public after the deadline)

Rejected tests

All final algorithm inputs, outputs and animated collages

General information

The code was implemented, tested and is expected to work in `Python 3.7.7`
Input/output file paths can be changed by changing constants, but to use the code without changing it, put the input image in the same directory as the `.py` file and name it `input.png`. The output will be saved as `output.png`

Algorithm description

The algorithm I used is (as required by the assignment) an Evolutionary Algorithm. In the first generation, all members of the population are black images. Each generation, the worst half of the population is discarded (`fitness`' function description is below). The "survivors" are then copied and changed by `mutated` function (its description is below).

The fitness function (and method of using the input images)
For the fitness function, I used the RootMeanSquare algorithm on [the difference between [the member of the population] and the [original image]]. That way, the AI will try to approximate the original image and will produce something similar to it.
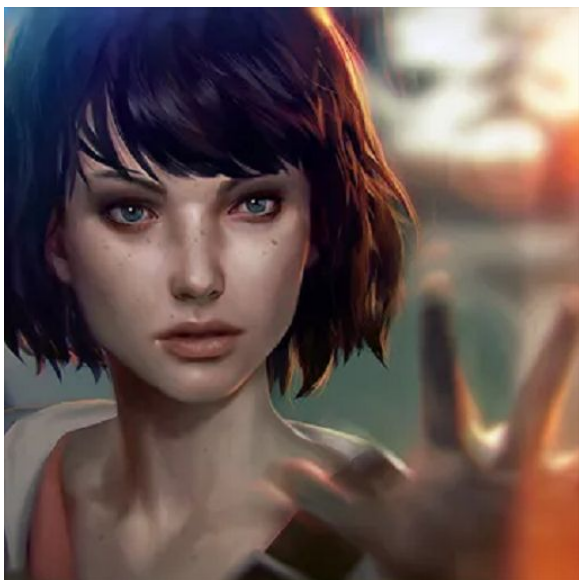
The "mutated" function
This function adds [randomly colored] [random word of the source code of source code] to the [random place of image]. I have actually tested some other mutation functions (results can be found here), but I found this one the best looking and the most artistic.

Why do I think it is an artistic output?

I believe that art is about expressing yourself, so I have coded my AI so that it adds a piece of itself to each of its works. Despite the algorithm tries to be as close as possible to the original image, it is not just copying it; it adds something new to it. The resulting pictures have a distinguishing style, which is the style of this particular AI. It looks kinda unrealistic on purpose, to reflect that it was an AI's work.

Examples of inputs and outputs

There are some examples below, but the *complete* set of images I have tested and animations of AI's work can be found here (just if you want to see more).

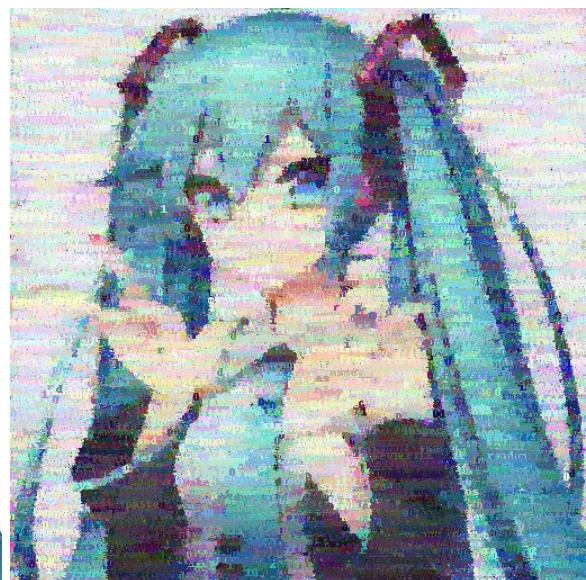*Life Is Strange* / open animated

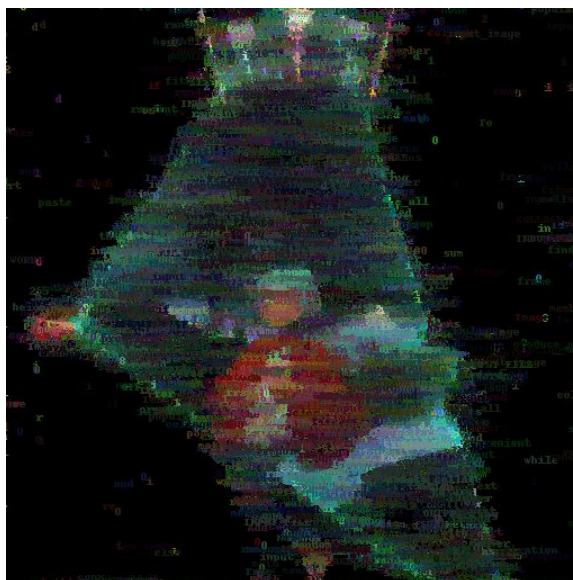*To the Moon* / open animated

Everlasting Summer / open animated

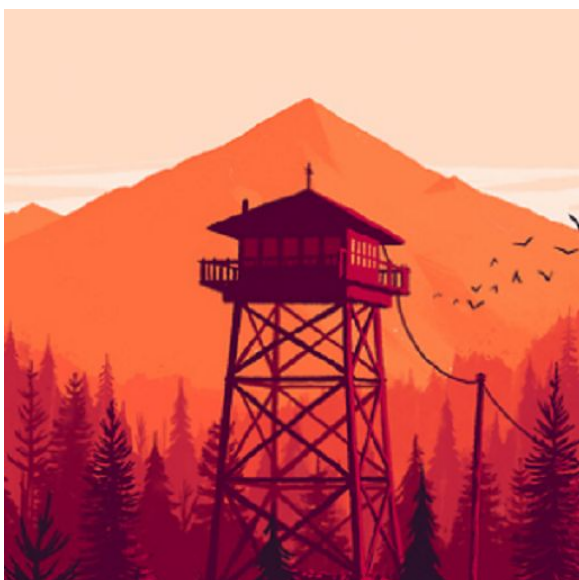

VA-11 Hall-A: Cyberpunk Bartender Action / open animated
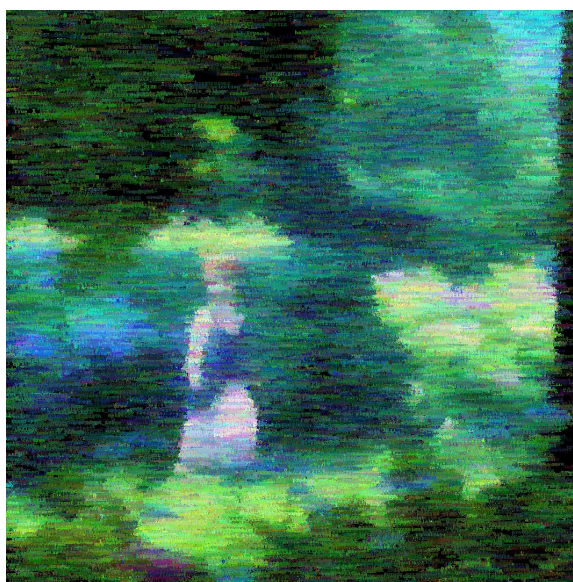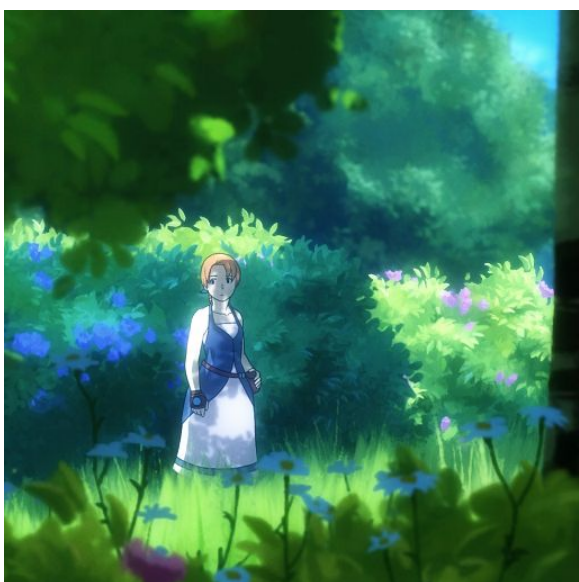

Hatsune Miku / open animated
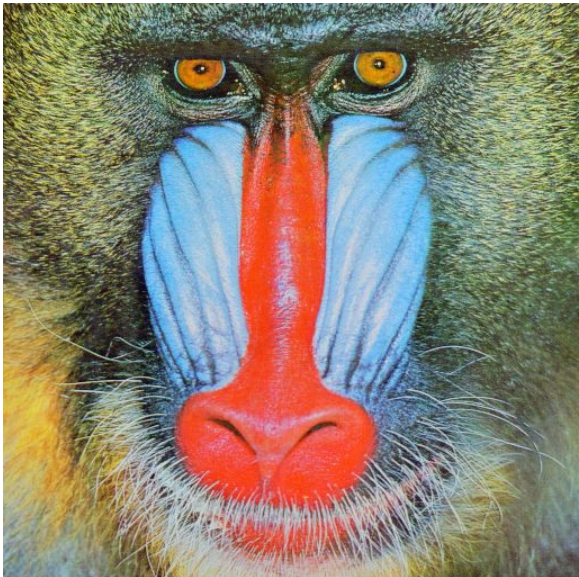
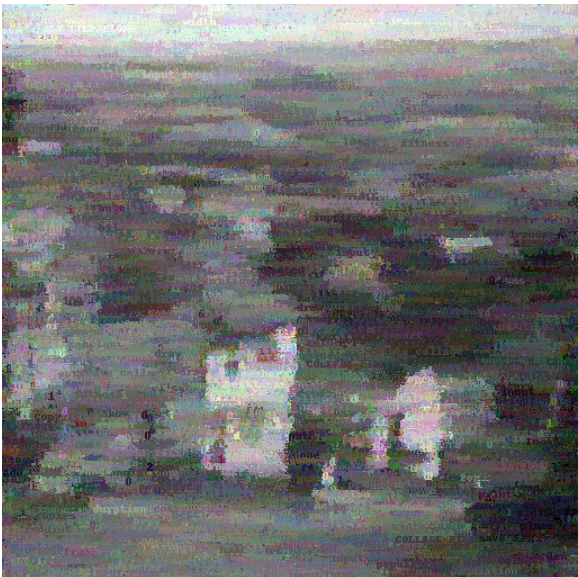*Oxenfree* / [open animated](#)

Firewatch / [open animated](#)
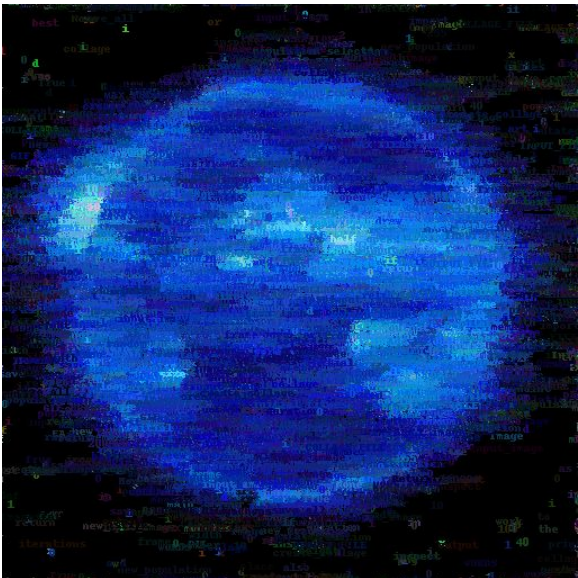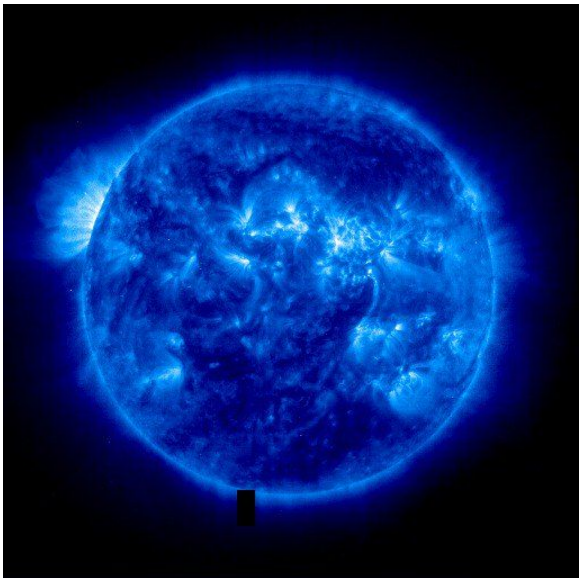

Forgotton Anne / [open animated](#)

Some of target images from previous year

open animated

open animated

open animated