

Simulating Forest Fire Through Neptyne

By Hun Rim

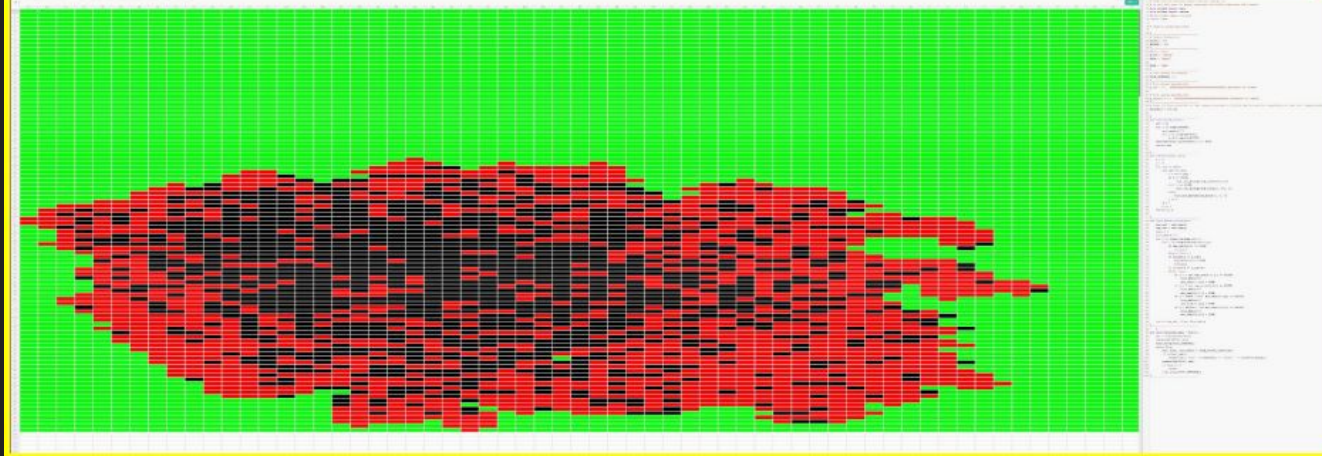
P_Out and P_Spread

Calculated through randomly generated values embodying the natural factors which may have effect on the forest fire. (e.g. Wind, Light Intensity etc.)

```
14 TICK_INTERVAL = 3
15 rain = randint(1, 2)
16 humidity = randint(3, 5)
17 wind = randint(3, 4)
18 light = randint(6, 8)
19
20
21 def calcOut():
22     if rain == 2:
23         return math.ceil(wind * rain / light * 4)
24     else:
25         return math.ceil(wind * humidity / light / 2 * 4)
26
27 p_out = calcOut()
28 p_spread = p_out * (10 / light);
29
```

Demonstration

The following is the demonstration of the forest fire. (This is different from what would result in the final version of the code as the final code is an edited version but wasn't tested due to server issues.)



Conclusions

1. Increasing the p_{spread} causes the fire to spread quicker and increase number of trees burnt per fixed amount time higher. However, because it burns so quickly, in the end fire gets isolated by burnt trees and decreases the total damage done.
2. Increasing p_{out} probability affects the rate at which the fire kills the trees. Which is certainly detrimental for the forest, although, because the trees die, it reduces the chance of fire spreading into further areas. Overall, benefiting in the extinction of the fire.