

Color gradient functionality

Idea: Have the birds change colors along a gradient uniformly and pseudorandomly.

Implementation: Bird objects have a color-vector attribute, which is a three dimensional array/list of integers. These integers correspond to the RGB values for each bird.

$$\text{Color-vector} = \{R, G, B\}$$

Now, White corresponds to $R=255, G=255, B=255$

Black corresponds to $R=0, G=0, B=0$

Using this knowledge, we construct $\text{color-sum} = R+G+B$ at each time step.

If $\text{color-sum} \geq 760$ (when birds are very close to white)

Subtract 1 from $R, G,$ or B at random.

If $\text{color-sum} \leq 5$ (when birds are very close to black)

add 1 to $R, G,$ or B at random

otherwise,

either add or subtract (at random) 1 from $R, G,$ or B
(Chosen randomly)

The result is that the birds change colors pseudorandomly along a gradient between white and black.

One of the caveats to this method of controlling the colors, is that Birds can stay roughly the same color for arbitrary periods of time.

Additionally, birds can change colors arbitrarily fast as well.