



Advanced 3D Graphics

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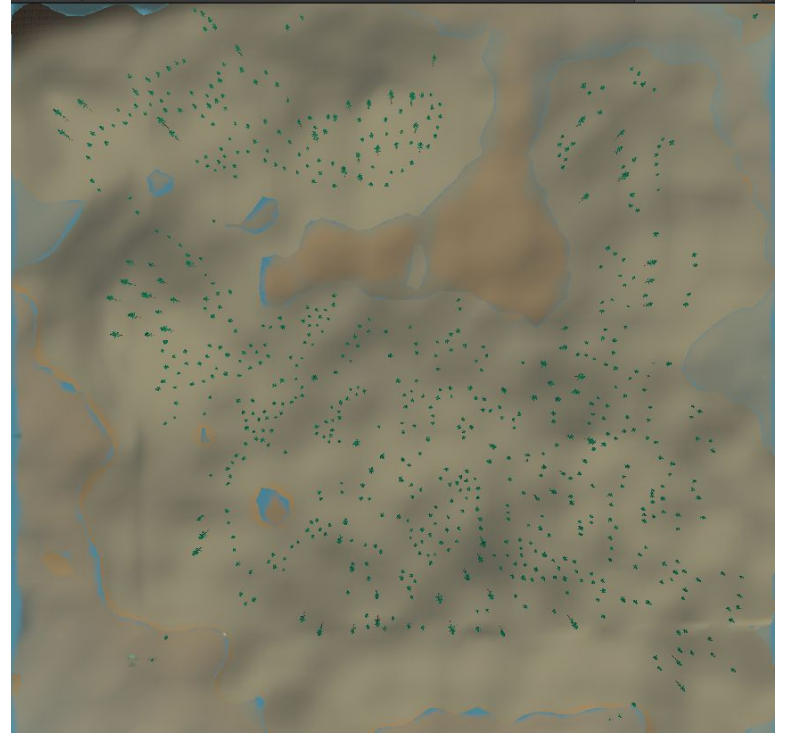


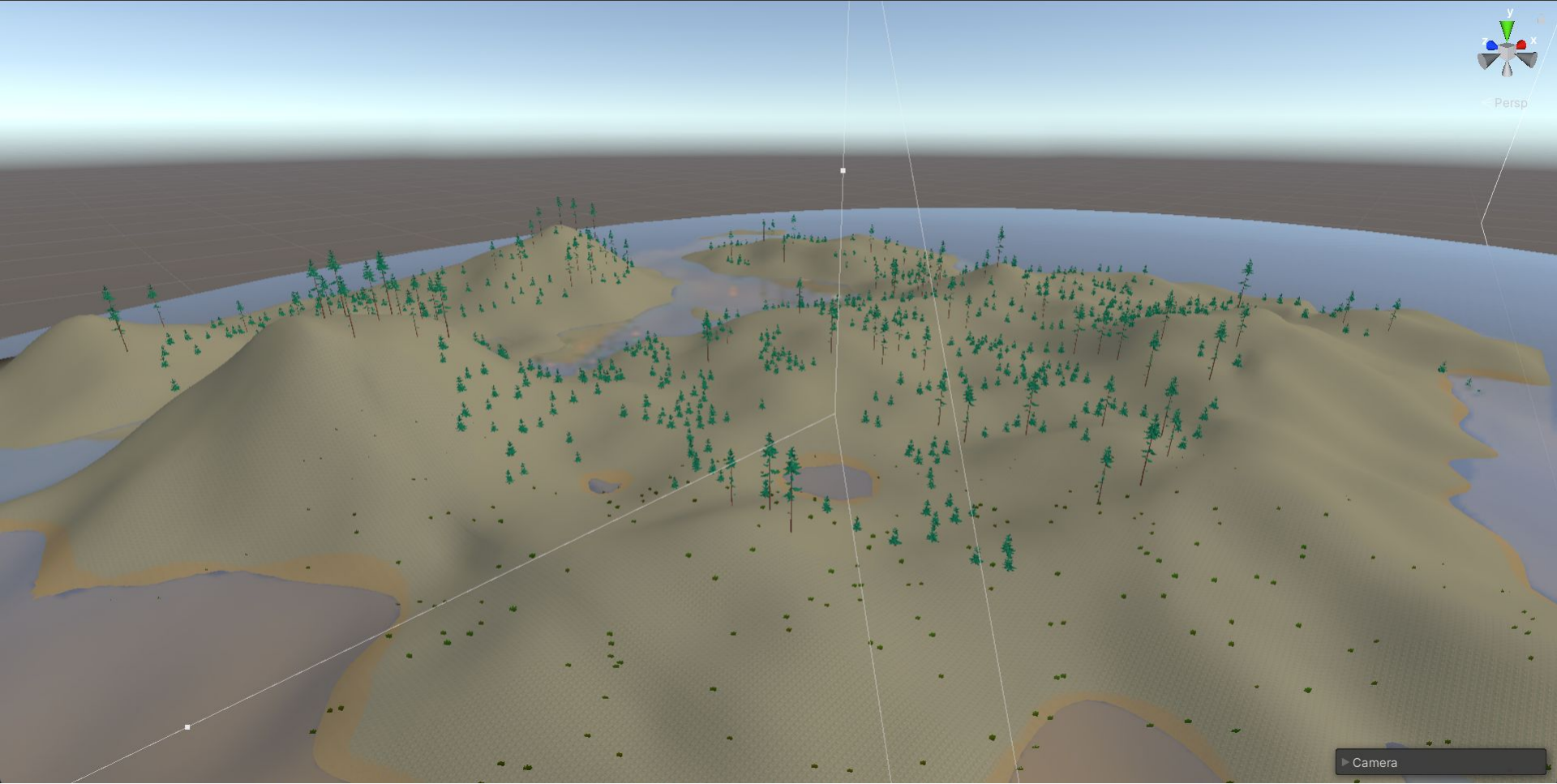
Overview of the steps

1. Terrain generation
2. Rendering
3. Animation
4. Evolution and simulation

Terrain generation

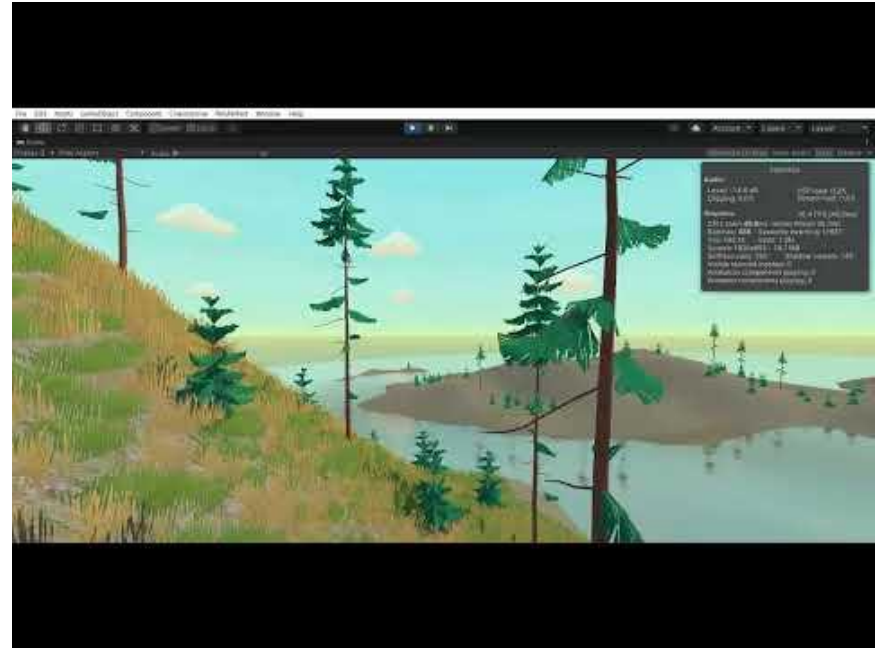
- Perlin noise with multiple octaves
 - Smooth results
 - Good control
- Generating whole terrain straightaway
- Small touches to create points of interest





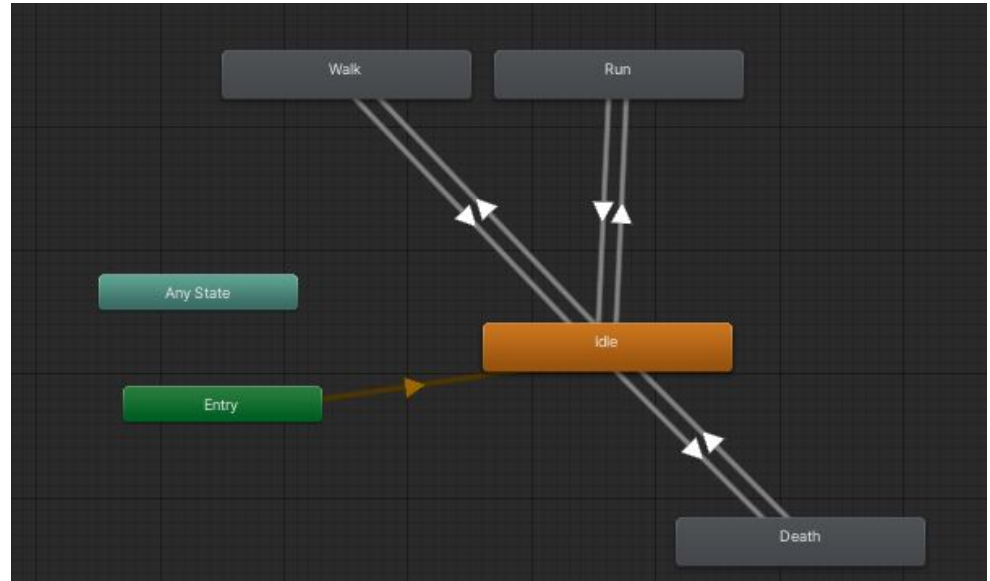
Rendering

- Need to fill emptiness of naked terrain texture
- Add water in areas with fixed height
- Complex brush for trees
- Add grass everywhere
 - Computationally heavy
 - GPU Gardener



Animation

- Prerecorded animation
- State machine to control current animation and transition







Additional stuff

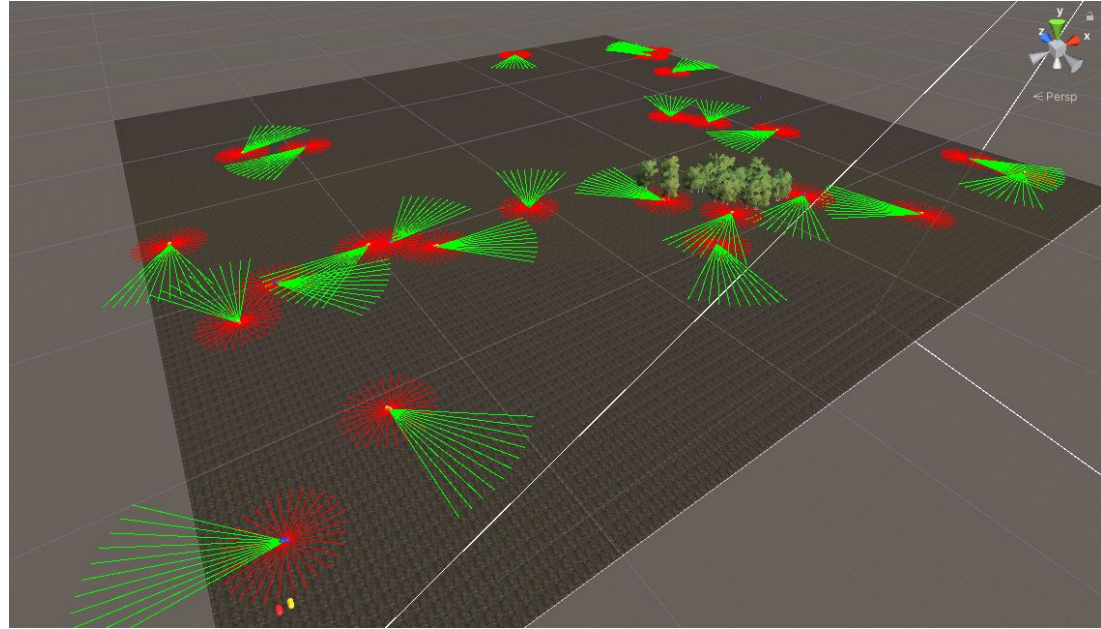
- Posteffects
- Rendering pipeline
-



Evolution

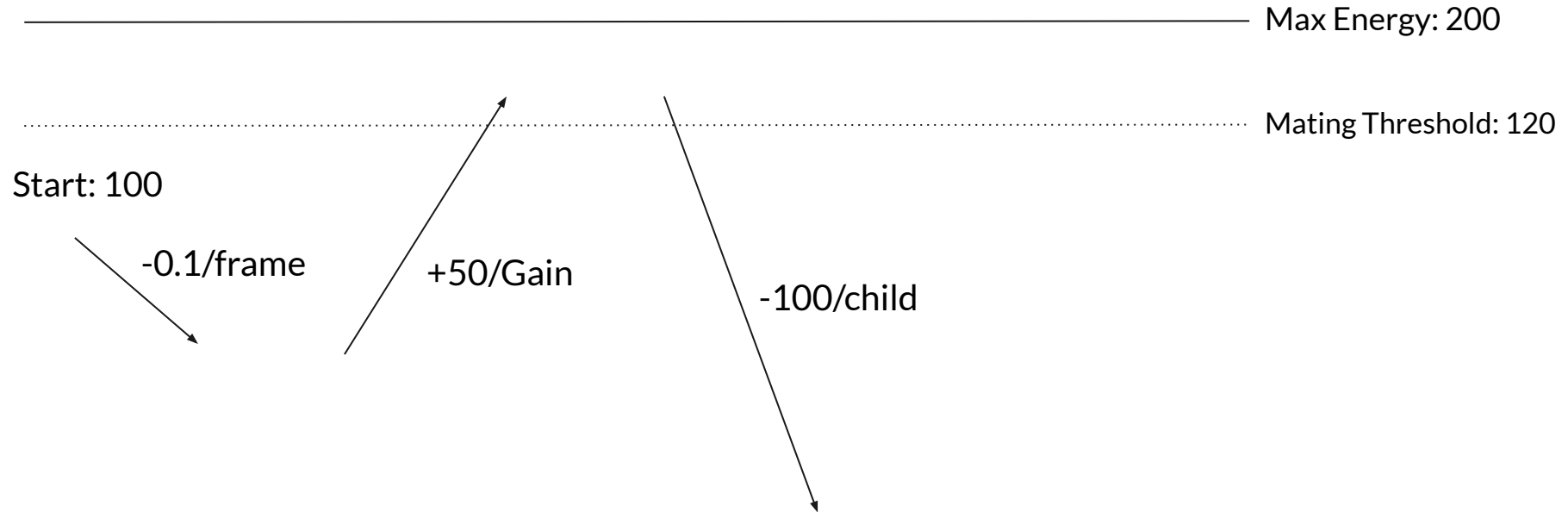
Receptors

- Ray casting for **vision** and **proximity**
- distance for **food**

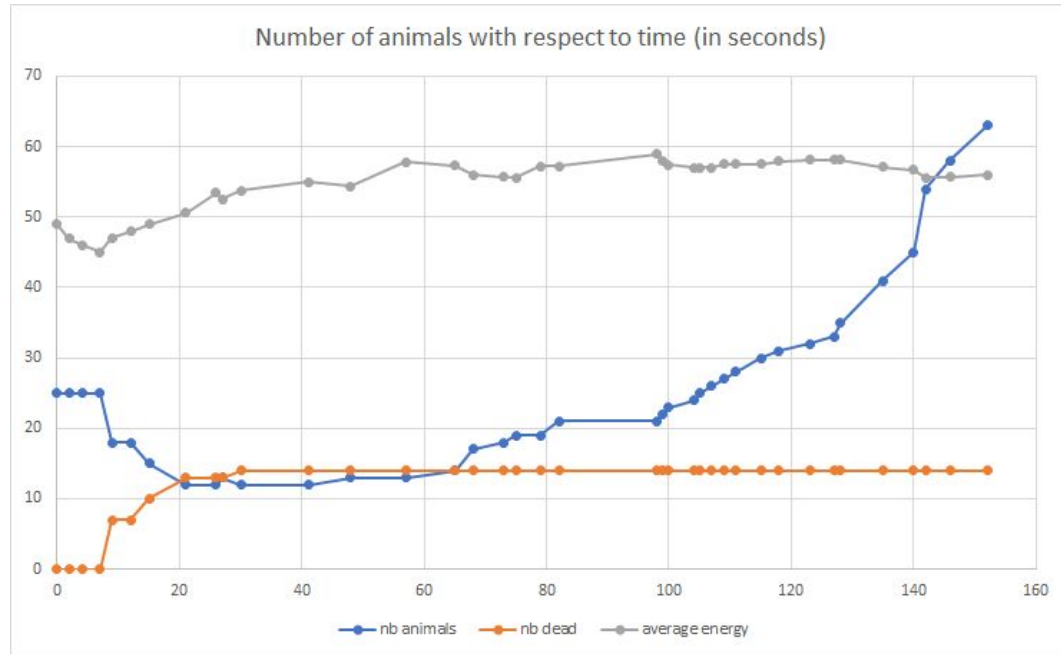




Energy evolution



Vegetation growth rate of 2



Vegetation growth rate of 0.5

