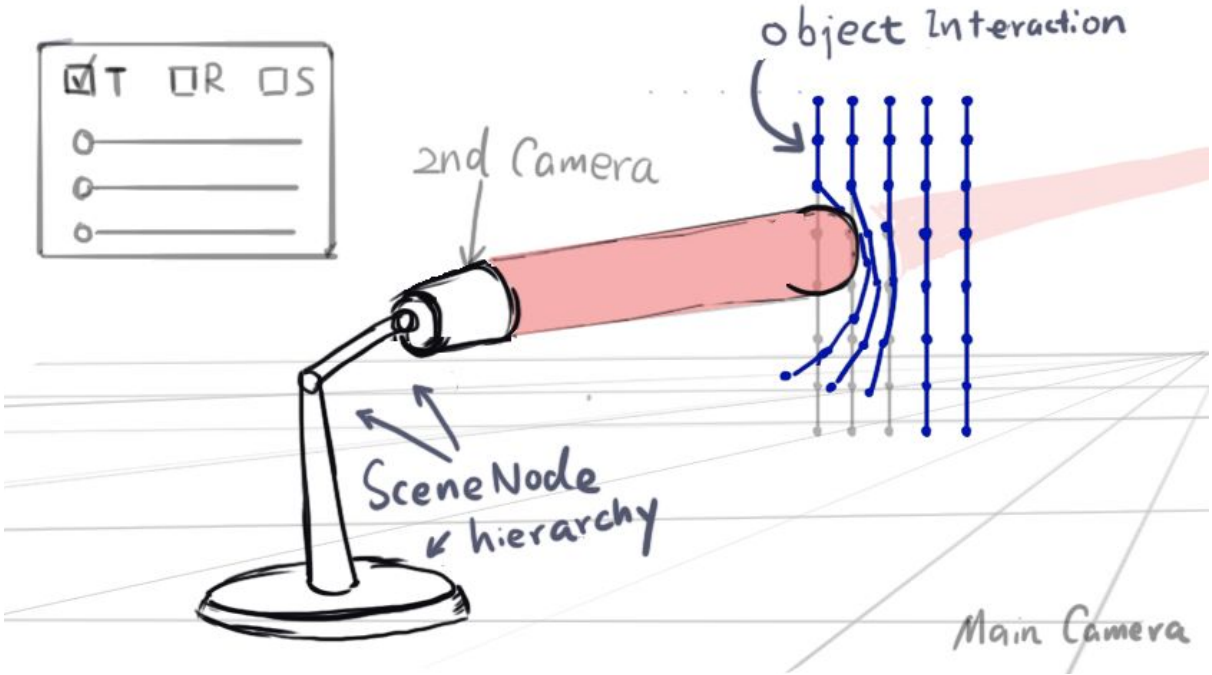
Ghost Gaze

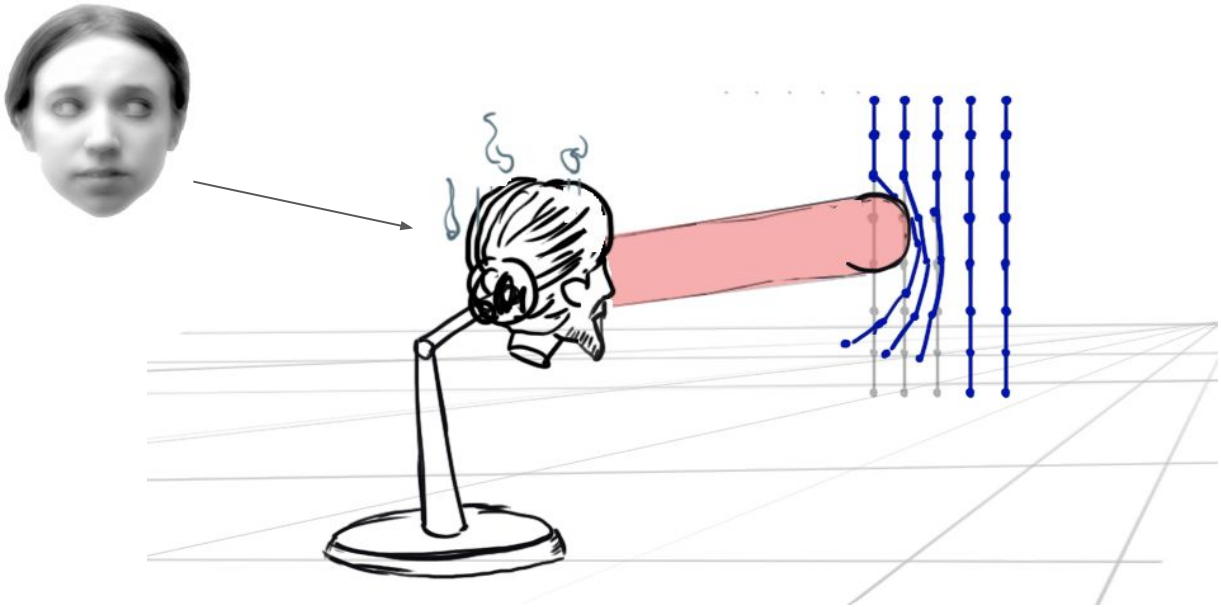
Real Time Algorithms

Project Draft



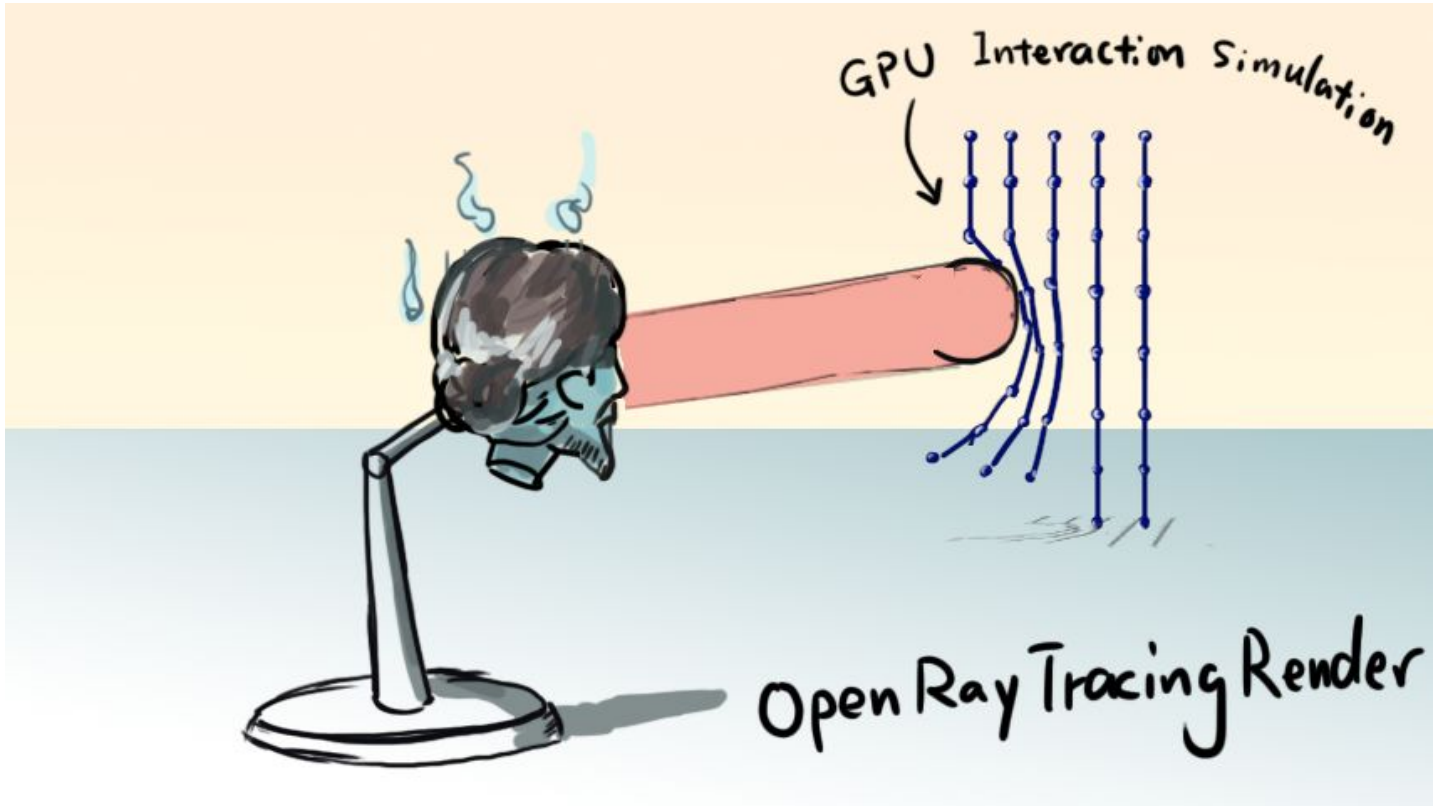
Object interacts (pushed away) where the lamp looks at.

Where is the ghost?

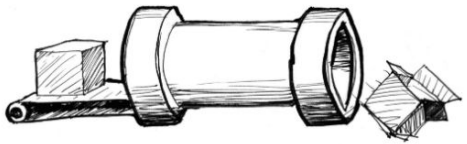


We will replace the lamp with a **ghost**. It looks fun!

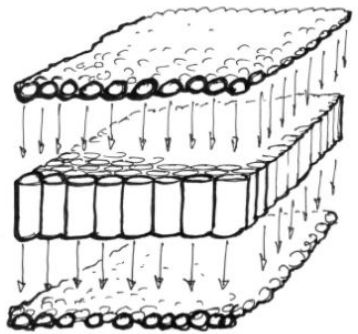
Technology Demo



CPU vs GPU



CPU
Discrete asynchronous executions



GPU
Microprocessors running in parallel

Real Time Ray Tracing

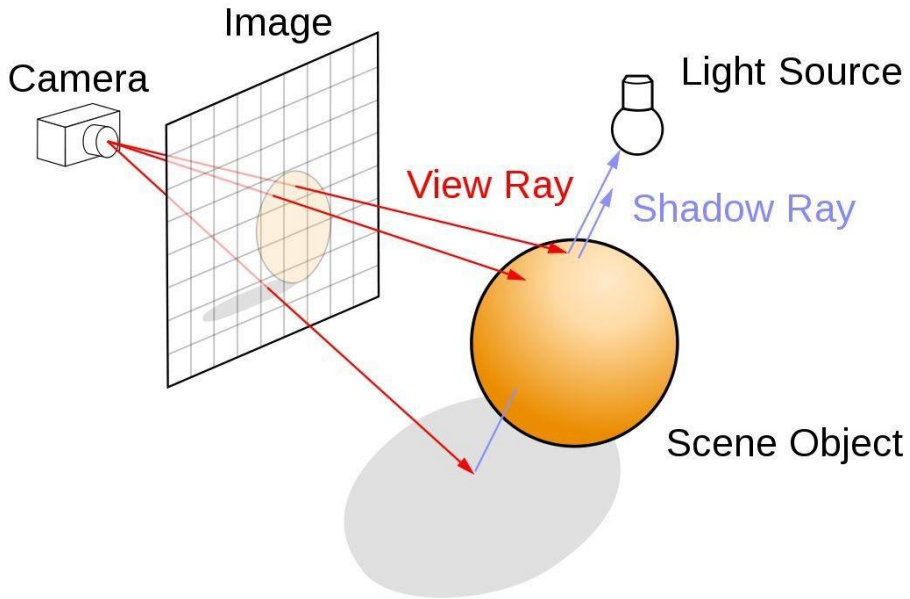
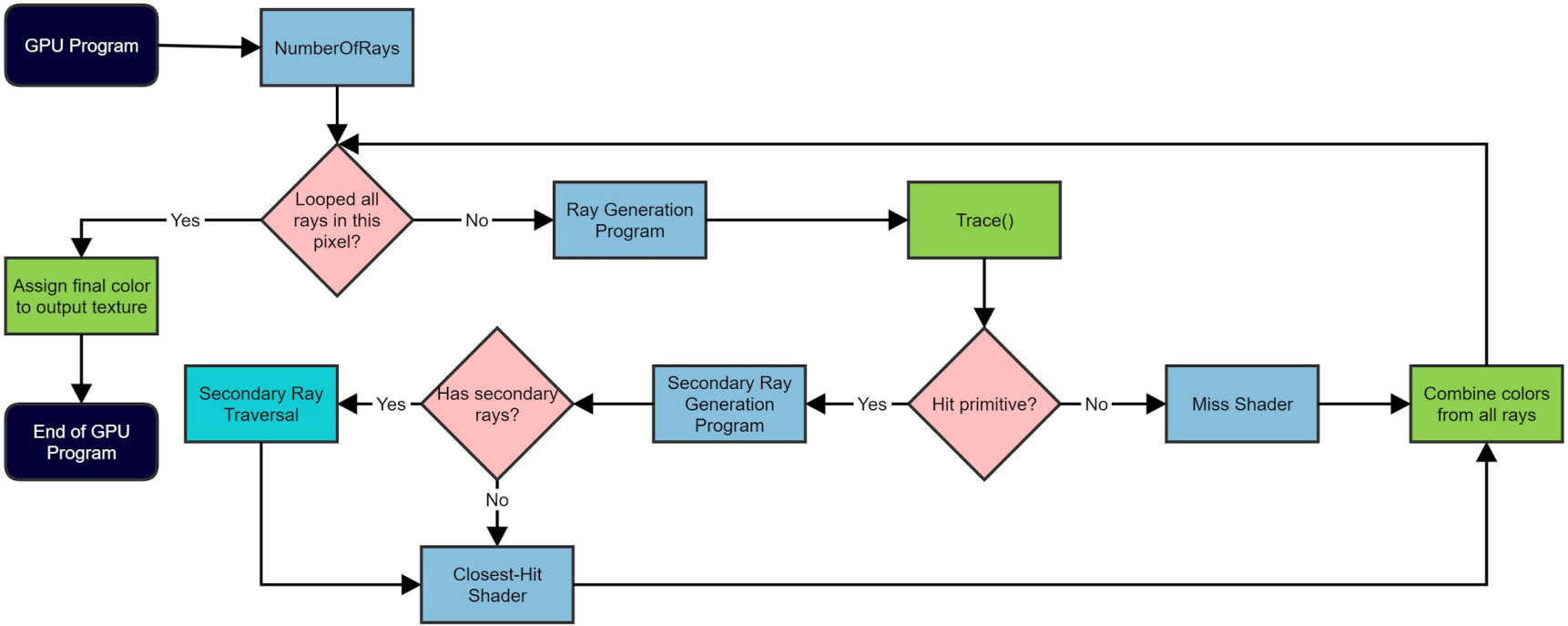


Figure 1. Ray Tracing Basics provided by Nvidia

Ray tracing will be used to render the geometry in the scene.

Ray Tracing Pipeline



Real Time Simulation

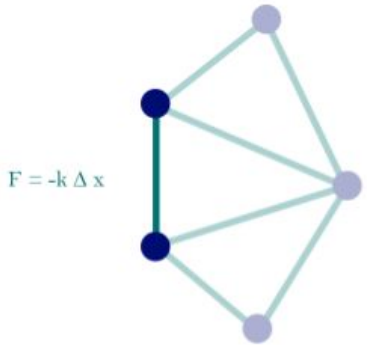
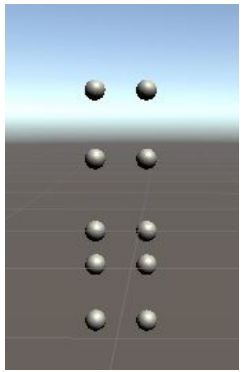
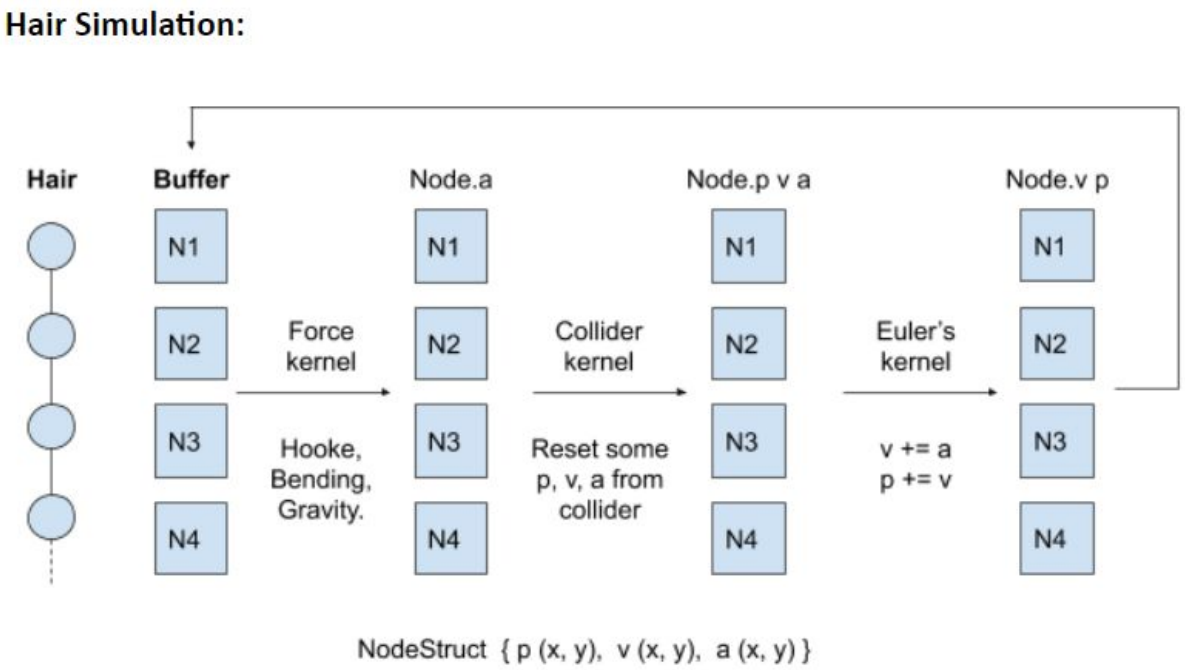


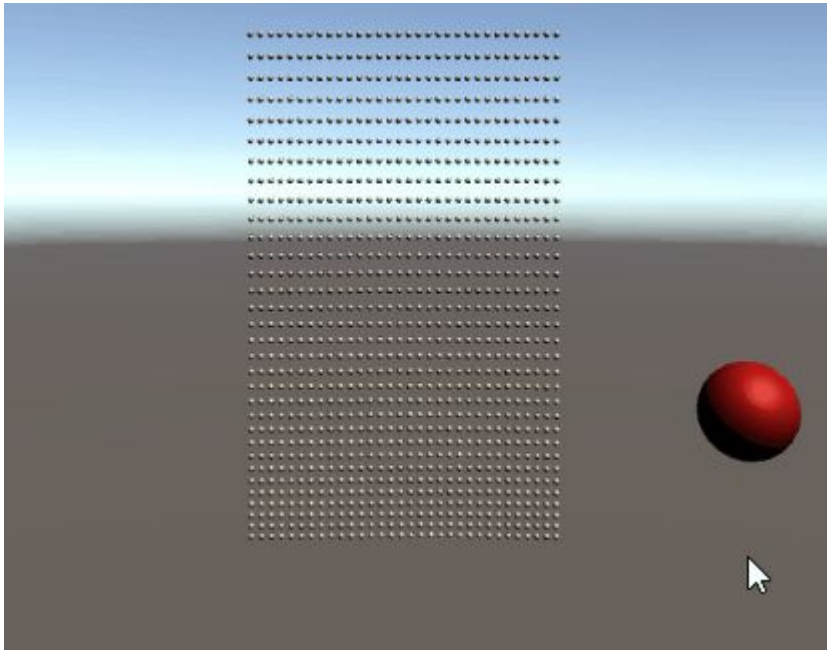
Figure1. Simulation Model

```
while( i < max_itterations):
        Calculate f  (gravity, Hooke's law, relative velocity);
        Calculate a1, a2;  a = f/m ;
        Calculate v1, v2;  v = v + a ;   (Euler's method)
        Calculate p1, p2; p = p + v ;   (Euler's method)
        i ++ ;
```

Real Time Simulation







Task Breakdown

Date	**Tasks**
Dec 2nd - Dec 6th	• Control UI is fully functional. • Ghost head modeling. • SceneNode hierarchy setup • Main Camera Navigation. • Small Camera follows Ghost eye direction.
Dec 7th - Dec 13th	• Open-Ray-Tracing rendering framework • Physic Simulation
Dec 14 - Dec 16	• Check if the app runs smoothly. • Figure out the best setting for GPU rendering and simulation. • Making a nice video.