

## Performance study

- Specs
  - Machine: Dell Inspiron 13-5378
  - CPU: Intel i7-7500U (4) @ 3.500GHz
  - OS: Void Linux
- Programming language: Rust
- Number of rays per pixel: 1
- Image resolution: 1000x1000
- Each leaf node has 1 primitive

Number of Spheres	Time to render in seconds (with BVH)	Time to render in seconds (no BVH)	Speedup factor
10	10.26	4.05	0.39
100	23.52	9.10	0.38
1,000	58.24	62.03	1.06
10,000	288.64	604.77	2.09
100,000	2177.38	6008.89	2.75
1,000,000	11821.60	N/A	a lot

I gave the spheres random locations within the unit cube. It's possible that many of the spheres' bounding volumes overlapped. This may affect the numbers. Each element of my bvh is either a leaf, which stores 1 primitive or a node which stores a bounding volume and 2 bvh's. Based on the table on the course website, I was expecting much bigger speedup factors but the speedup factors are clearly increasing so maybe my implementation gives better results at much higher numbers of spheres.