

Name: Yi-Jung Chang

Project Number: Project 7

Project Name: OpenCL/OpenGL Particle System

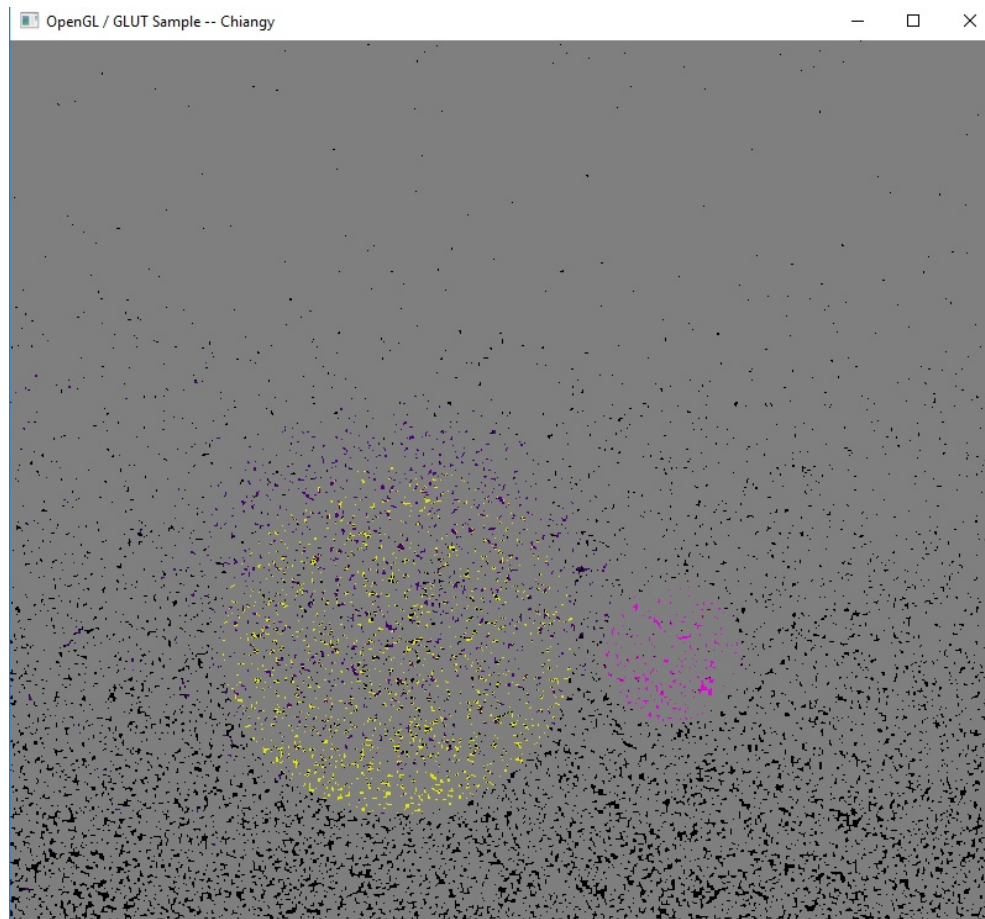
1. What machine you ran this on

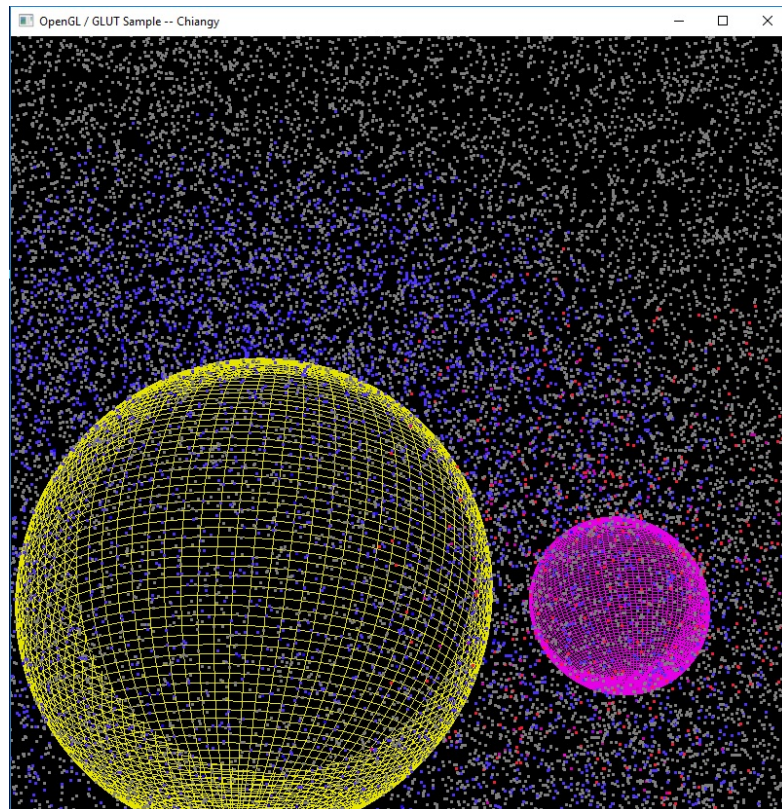
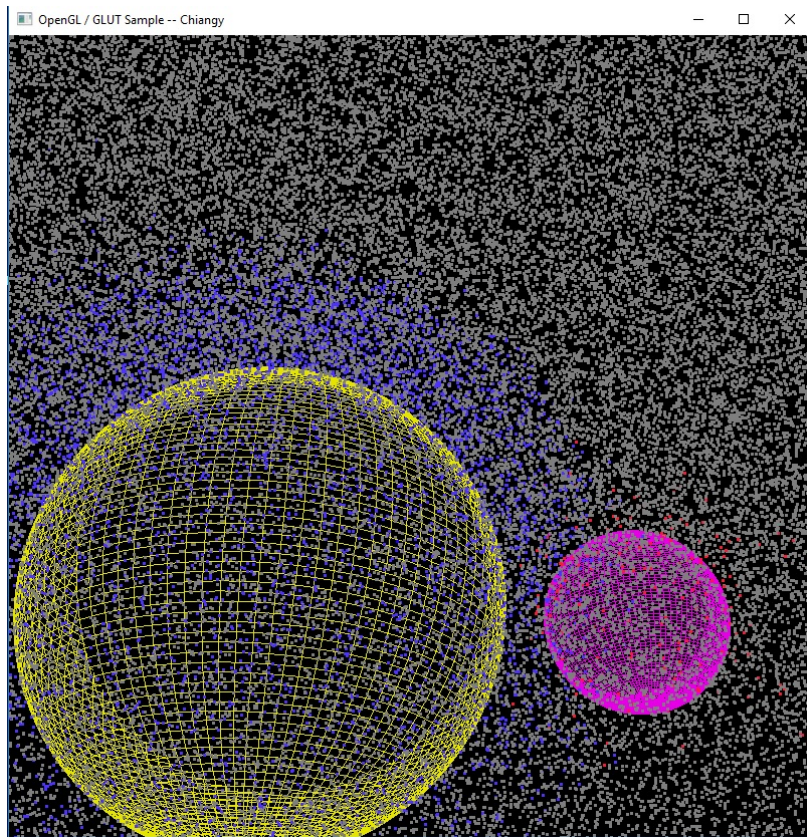
I ran this project 7 in CGEL which is windows 10- based graphics system.

2. What dynamic thing did you do with the particle colors

Originally, the particle colors are random. I change initial value. I set color red = 0.5, color green = 0.5, and color blue = 0.5. Therefore, the initial color is gray. Also, when the particles hit sphere 1, they bounce with like Blue color because I subtract red color to 0.3, green color to 0, and blue color keeps 0.5. In addition, when the particles hit sphere 2, they bounce with like Red color because I subtract blue color to 0.2, green color to 0., and red color keeps 0.5.

3. Include at least one screen capture image of your project in action

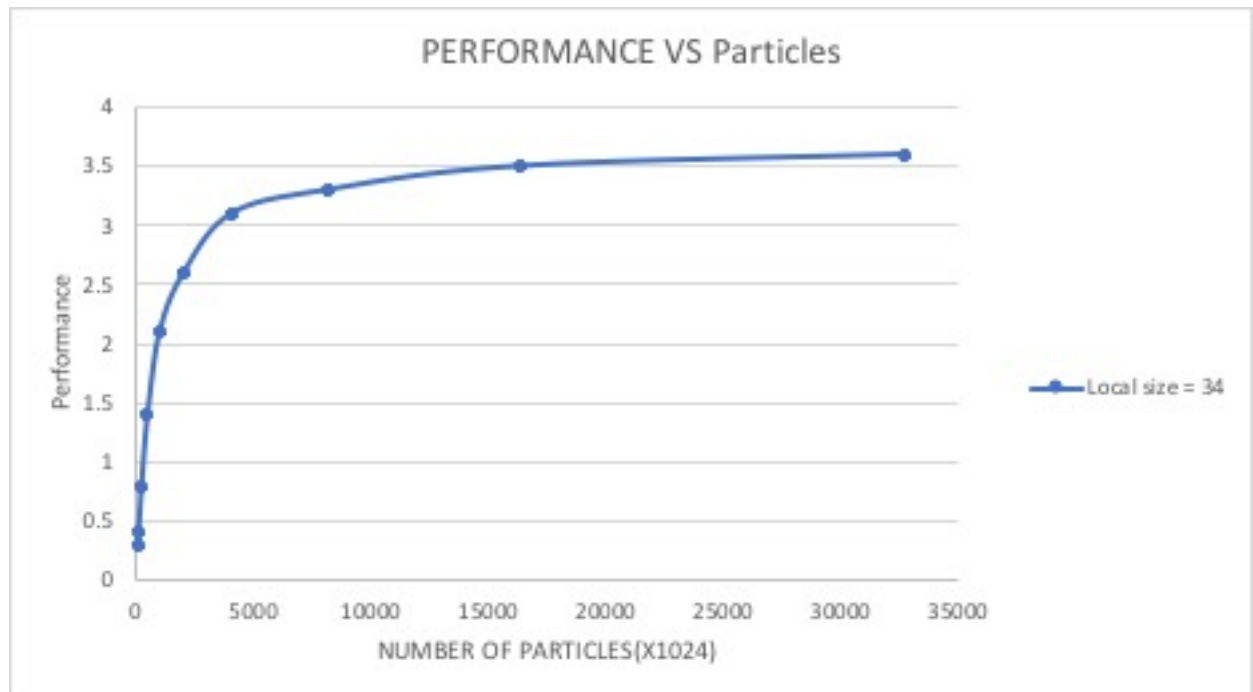




4. Show the table and graph

	64	128	256	512	1024	2048	4096	8192	16348	32768
local size 32	0.3	0.4	0.8	1.4	2.1	2.6	3.1	3.3	3.5	3.6

The first row is number of particles (x1024) and local size is fixed.



5. What patterns are you seeing in the performance curve?

According to the table and graphic, it is easy to know that when the number of particle is small, the performance is also very low. However, when the number of particle is 1024x1024, the performance is bigger than 2.1 GigaParticles Per Second. About number of particle = 8192 x 1024, the performance almost approaches the maximum performance that is about 3.5. Therefore, when the number of particle is bigger than 8192 x 1024, the performance didn't increase a lot.

6. Why do you think the patterns look this way?

The more number of particle, the better performance. I think that this project was using OpenCL and OpenGL at the same time so using OpenCL and OpenGL together can make us have better performance.

7. What does that mean for the proper use of GPU parallel computing?

For GPU parallel computing, if data size is too small, it is hard to observe its performance. Also, it is good for using CPU and GPU together because they have different advantages.