CS 559 Project 3

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We wrote Project 3 from scratch, pulling in just a couple classes from our Project 2’s. We completely redesigned the Mesh class to be as efficient and scalable as possible. We tested this by displaying a **12 million** vertex Sphere in less than one second (Position, Normals, Wireframe, and Texture Coords). Everything is generated and stays on the GPU (data is not computed or stored on CPU).

# Bonus Items

* Mesh Class (All on the GPU)
  + CUDA OpenGL Interop
  + Factor problem into sub-problems (blocks and grids)
  + Modern wireframe and normal visualization (F key, N key)
  + Plane, Sphere, Ribbon, and Staircase generation functions
* Camera Class -> ability to look around while traveling on Spline
* Post Processing effects using Subroutines ( O key )
* Texture caching logic (effective hack for now, will use reference counting in the future)
* Can move forwards and backwards in time in additional to pause and speed up ( + - keys)
* Mars mode 1440x720, geometry being modified in real time with CUDA (M key)

# Other Items

* Test program for Compute Shaders
* Old Project 3 (Model loading and other effects)
* 2650 lines of code total VS (860 in shaders, 3378 in code in Wesley’s P2)
* Debugging features – CUDA debugging and graphics debugging

We both agree that the code created in this project can be used by either partner for any purpose.

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