EE/CprE/SE 4910 WEEKLY REPORT 2

9/19/25 – 9/26/24

Group number: 40

Project title: 3D Gaussian Splatting With Dynamically Raytraced Lighting

Client: Jackson Vanderheyden & Brian Xicon

Advisor: Simanta Mitra

Team Members/Role:
Ethan Gasner - Documentation Manager.
Kyle Kohl - Communication Manager.
Jackson Vanderheyden - Graphics Scope Manager.
Brian Xicon - Machine Learning Scope Manager.
Luke Broglio - Schedule Manager.

- **Weekly Summary**

For this second report, we mainly investigated, researched, and learned the tools we expect to use for our final project. We discussed the project further to continue to refine our plan for the end deliverable. We continued discussing “general info” about how we will implement the project and a slightly more individual-focused timeline. We also performed tasks specific to our team Role.

- **Past week accomplishments**

Completed product research for our project

- **Individual contributions**

NAME	Individual Contributions	Hours this week	HOURS cumulative
Ethan Gasner	Equal Contribute on assignments/meetings In addition I also visited the pytorch.org website and looked through their tutorial examples and documentation to familiarize myself with pytorch more.	6	12
Kyle Kohl	Equal Contribute on assignments/meetings. I also, similarly to Ethan, learned more about pytorch and gaussian splatting in general	6	12

	through the help of online resources and Jackson.		
Brian Xicon	Studied the necessary libraries needed for the machine learning aspect of the project, came up with a list of main features the machine learning side of this project will have to implement moving forward with this project.	6	12
Jackson Vanderheyden	Broke down more traditional methods of rendering 3D models through rasterization and raytracing for the AI team. Researched PBR raytracing and the material properties that need to be encoded in the Gaussians. Took a look at how we want to interface our project within unity.	6	12
Luke Broglio	Luke Broglio: This week I finished some of my initial practice work with unity compute shaders and started to do some more advanced and relevant experiments. I also started to research the unity render pipeline	6	12

- **Plans for the upcoming week**

Ethan Gasner: Ensure this weekly report is finished and submit it once done. Meet With the team and discuss more about project specifics. Continue to learn and research more about Pytorch for our AI/ML integration.

Kyle Kohl: Learn more about pytorch. Communicate with team members about roles and expectations

Jackson Vanderheyden: My tasks will include continuing to analyze what needs to be done to do a ray-traced render in Unity. Look into how to trace a scene composed of triangle meshes and Gaussian. Continue to refine our definition of what physically based rendering is and the architecture of the ray tracer.

Luke Broglio:

My task will be to continue to practice with unity compute shaders to better understand how to work with them for ray tracing. Continue in my learning about Unity's render pipeline.

Brian Xicon: For the upcoming week I want to communicate with our advisor and just see

the feasibility of some of the main features for machine learning and see if a more concrete timeline can be created for the machine learning side of our project.

- **Summary of weekly advisor meeting**

Week 1: Our Advisor, Simantra Mitra, is currently out of the country and, therefore, we could not meet with him.

Week 2: Due to the career fair we, again, didn't have a meeting. HOWEVER, we did send this report and last week's report in an email to him in replacement of a meeting.