

EE/CprE/SE 491 WEEKLY REPORT 3

9/26 - 10/3

Group number: Team #37 - sdmay25-37

Project title: Non-Euclidean Game

Client: Josh Deaton

Advisor: Dr. Joseph Zambreno

Team Members/Role:

Tasman Grinnell Project Manager/Rendering Engine Engineer

Josh Deaton Rendering Engine Lead

Ben Johnson Rendering Engine Engineer

Cory Roth Rendering Engine Engineer

Spencer Thiele Game Design Lead

Zach Rapoza Game Design Engineer

Lincoln Kness Game Design Engineer

- **Weekly Summary:** Game design specifications were discussed and ironed out for a final draft. The Game Design team began experimentations with Unity to create a mock-up demo for Proof of concept/presentation materials. The Rendering Engine team continued with experimentation and general skeleton design for the final engine. This week's goal was to create basic animations in time for the Rendering team's Friday meeting.

- **Past week accomplishments**
 - Tasman: Began experimenting with OpenGL, learning proper conventions with modern OpenGL (Vertex Buffers, basic shaders). Continued looking into some of the underlying math and alternate Non-Euclidean spaces for implementation. Glanced at some examples of Non-Euclidean games with their implementations. Began looking into very basic animation with OpenGL.
 - Josh: Watched all of the hyperbolic dev log videos. Watched some videos on stereographic and orthographic projection. Continued working on OpenGL fundamentals. Started working on OpenGL demonstration of a projection.
 - Ben: Started layout of engine framework. Debugged source code of the best reference Hyperrogue.
 - Lincoln: Setting up Unity and beginning on learning basics before we start prototyping, meeting with the design team to flesh out more core concepts on our chosen game
 - Cory: Met with the rendering team to discuss what is important to pursue in research and understanding. Looked into Minkowski space and continued developing self project in OpenGL. Created OpenGL program that spun a star
 - Zach: set up unity, went over unity resources with the team, watched some unity videos, got approval of engine teams for game concept, finalize design team game concepts
 - Spencer: Finalized game concepts, organized mechanics into core and auxiliary, compiled a list of Unity resources, began Unity prototype.

- **Pending issues**
 - Tasman: Haven't looked into it, but I'm wondering about how to apply shaders to different portions of a triangle/quad in OpenGL as well as how animation works with interactive input.
 - Josh: non-Euclidean space is warping my brain and I don't understand.
 - Ben: N/A
 - Lincoln: N/A
 - Cory: N/A
 - Zach: N/A
 - Spencer: N/A

○ **Individual contributions:**

<u>Name</u>	<u>Hours This Week</u>	<u>Total Cumulative Hours</u>
Tasman	6	19
Josh	6	20
Ben	4	17
Lincoln	6	20
Cory	8	20
Zach	5	14
Spencer	8	19

○ **Plans for the upcoming week**

- Tasman: Continue exploring animations and shader programming with OpenGL. Try to understand complex shaders for preparation for the Non-Euclidean projection.
- Josh: Continue working with projections and OpenGL. Start creating useful shaders for doing non-euclidean rendering
- Ben: Implement a game loop and basic API for adding & drawing sprites. Possibly also compiling transformation shaders from Hyperrouge.
- Lincoln: Putting more time into learning unity and trying to begin prototyping over the next week.
- Cory: Look into the best way of storing tiles or tiling. Game will want to store ground as a collection of tiles and 2-D map may or may not work. Explore rotation transformations in OpenGL
- Zach: further understanding unity, and start basic prototypes in unity
- Spencer: Begin Unity prototyping on initial core concepts.