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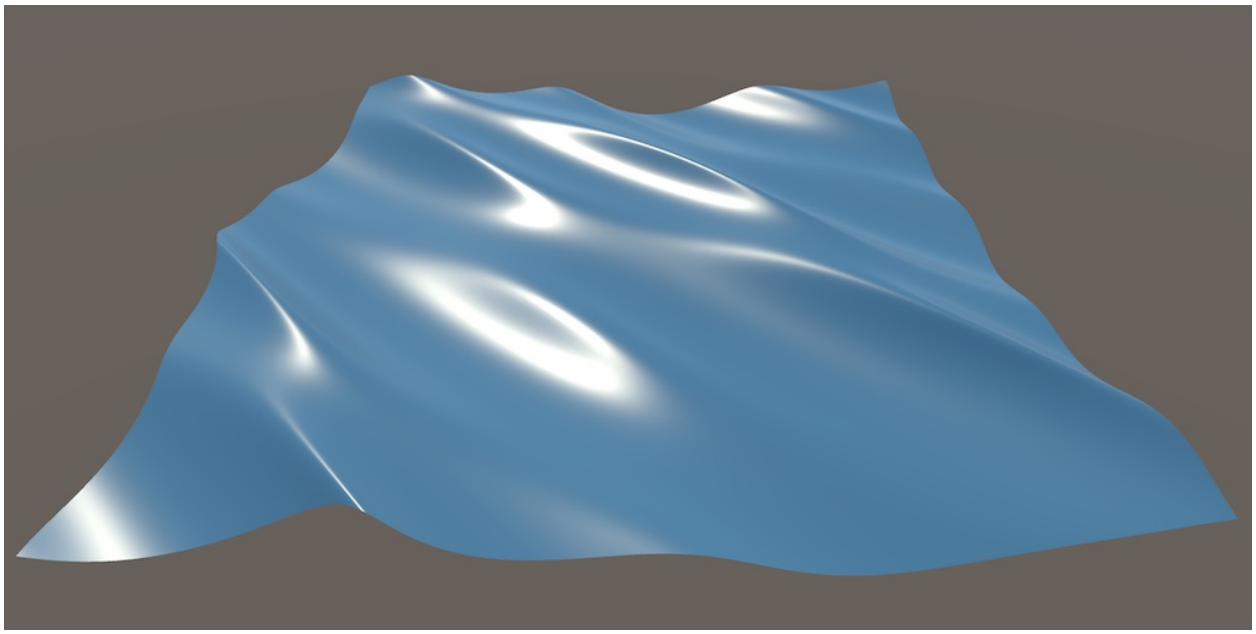
CS457 WINTER 2021: SHADERS FINAL PROJECT

GERSTNER WAVES



PROJECT PROPOSAL

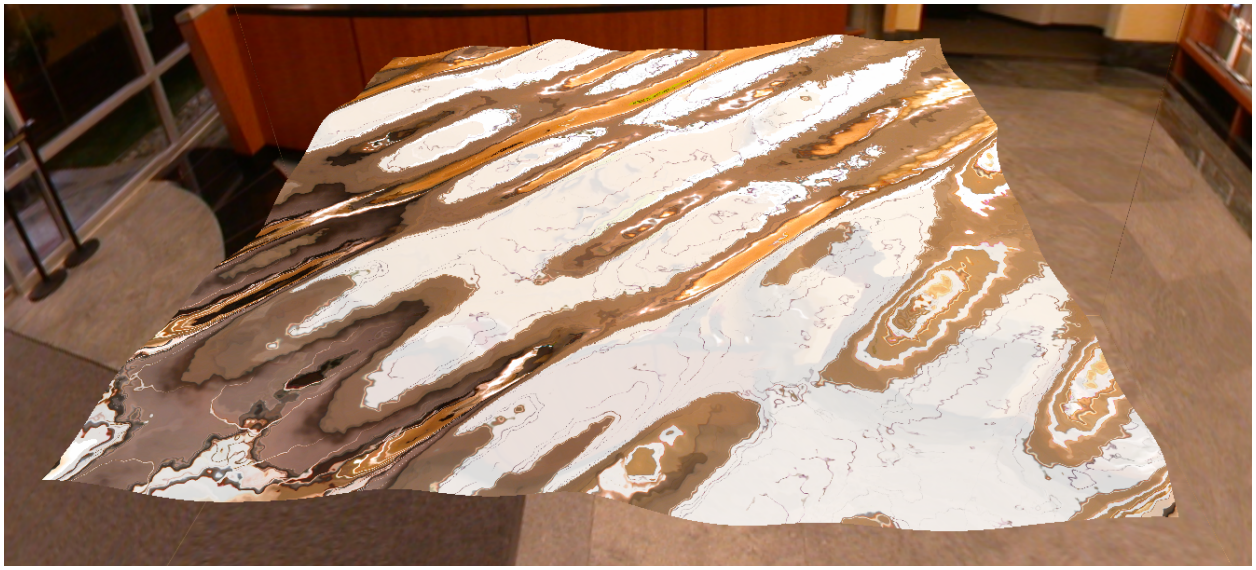
For my shaders final, I wish to create a realistic (or as real as possible) water shader using the Gerstner Wave formula. My stretch goal for this project is to implement this wave material within a cube mapped environment with refractions.

GOALS

- **Primary Goal:** Implement Gerstner Waves and make look realistic
- **Secondary Goal:** Implement Cube Mapped Environment with reflection/refraction

Source

- https://catlikecoding.com/unity/tutorials/flow/waves/
- https://en.wikipedia.org/wiki/Trochoidal_wave
- https://developer.nvidia.com/gpugems/gpugems/part-i-natural-effects/chapter-1-effective-water-simulation-physical-models



PROJECT EXECUTION

In short, I feel that I was able to accomplish my goals. I started with my project 4 code, removed the pleet function, and incorporated the gerstner wave function in its place. I also managed to incorporate full control over the three Gerstner Waves, incorporate animation, and use the existing reflection function from project 4. Overall, I am very satisfied with the results, and will likely to continue to tweak my code in the future. The sources that I listed in my final project proposal proved to be very helpful.

GOALS

- ✔️ **Primary Goal:** Implement Gerstner Waves and make look realistic
- ✔️ **Secondary Goal:** Implement Cube Mapped Environment with reflection/refraction

Final Project: Gerstner Waves (Shaders Final Project)

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https://youtu.be/md8R7_zgzLc