WebGL Cloth Simulation

Final Project for CIS-565
Ziwei Zong

Roadmap

MileStone 1 (Nov 23) : Simulation Implementation using Transform Feedback

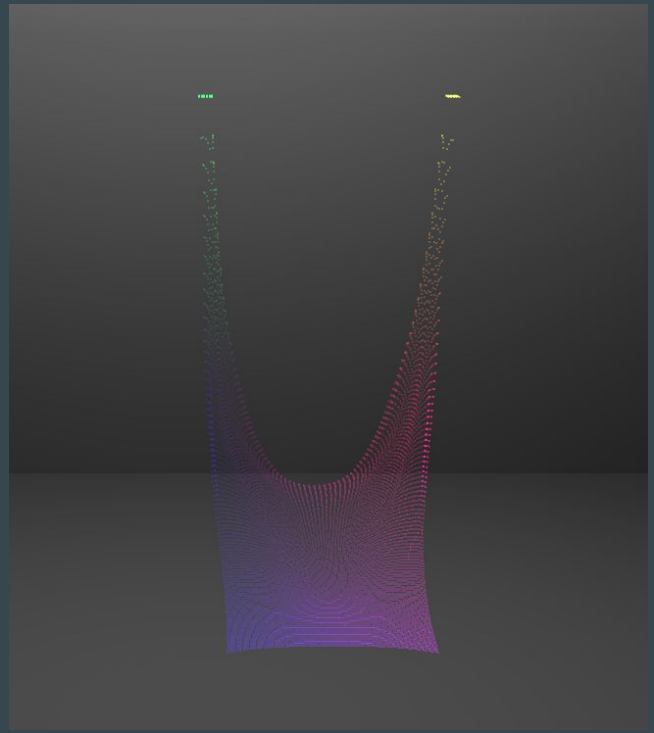
MileStone 2 (Nov 30): Implementation of fabric properties (pin, pressure etc.).

MileStone 3 (Dec 07): User Interaction with cloth (drag, wind, tear, etc.).

Final (Dec 11) :

- Ping-pong method implementation
- Optimization and performance Analysis:
    - Particle/Spring numbers
    - Transform Feedback VS. Ping-Pong
    - Size of timestep.

Milestone 1 Almost Achieved...



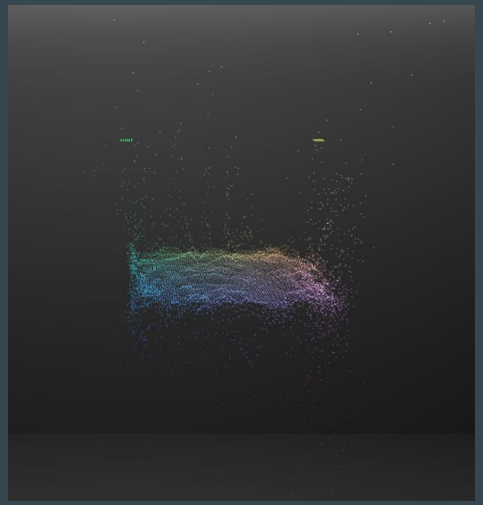
Transform Feedback:

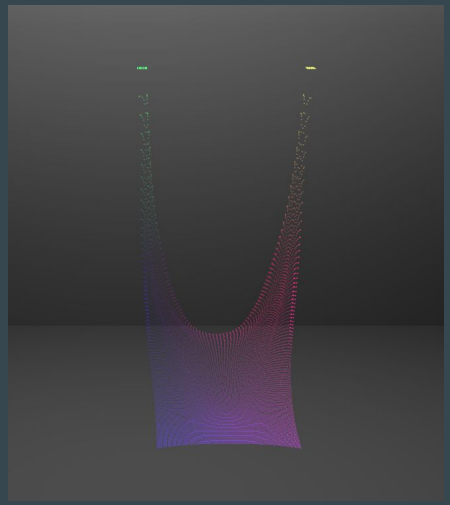
- Thanks to Brandon Jones's WebGL 2-Particle Demo
- Varying used : "gl_Position" (cloth particle position)
- Customized varyings not working.

Neighbor Vertices:

- "gl_VertexID" not supported. Stored in position.w instead.
- Buffer texture not supported.
  - Uniform Buffer Objects : tried but failed.
  - Convert vertex array to texture on CPU.

Simulation





- Timestep
- Mass
- Spring parameters
  - ...

Plan for Next Week

- More robust simulation and better rendering
- Camera Control
- UI: Cloth Size, Spring parameters, etc.

- Customized varyings for transform feedback
- UBO

- User Interaction with cloth (drag, wind, tear, etc.).