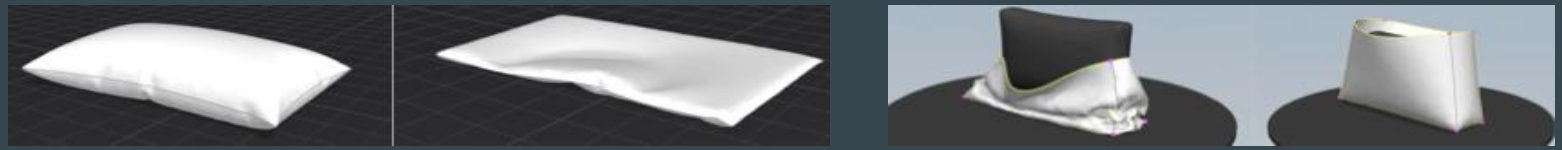
WebGL Cloth Simulation

Final Project for CIS-565
Ziwei Zong

Introduction

Features:

1. WebGL Cloth Simulation using **transform feedback** and **ping-pong texture** method. (gpgpu cloth simulation)
2. Fabric Properties: Pins, pressure, hardness(bending strength), elastic etc.



fabric with different (left) pressure, (right) bending strength.

3. User interaction with cloth: drag, wind, tear etc.

Transform Feedback and Ping-pong

Transform Feedback:

The process of capturing primitives generated by the vertex processing steps, recording data from those primitives into buffer objects.

Ping-pong texture:

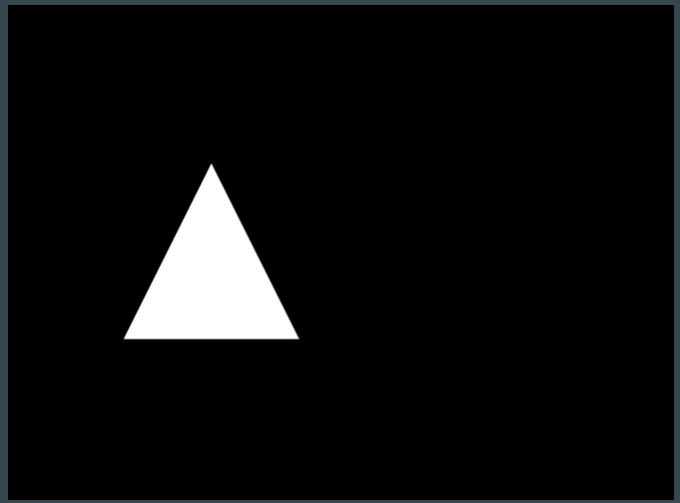
The input of a simulation step is the outcome of the previous one.

Loading two buffers in GPU, one store input, the other store output. After one simulation step, swap the pointers of the two so the previous output becomes input.

Current Progress

Basic Setup

VAO/VBO Setup



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.