

# Adaptive Anisotropic Remeshing for Cloth Stimulation

Kisha Tarog

May 8, 2015

## 1 Summary

In the research paper, "Adaptive Anisotropic Remeshing for Cloth Stimulation" by Rahul Narain, Armin Samii, and James F. O'Brien, these researchers conducted several ways to develop a technique for cloth stimulation. Specifically, they wanted a technique that dynamically refines and coarsens triangle meshes so that the triangle meshes automatically conform to the geometric and dynamic detail of the simulated cloth. Problems with current cloth simulations was the fixed simulation mesh where wrinkle details required tons of memory. So, resulting computation and memory costs for high-resolution simulations can be and are burdensome. To get to this point and solve this problem, they used anisotropic meshes and introduced a fast technique for performing strain limiting on large meshes.

Anisotropic filtering is a technique that enhances the quality of textures on surfaces according to the camera angle in the computer graphic simulation. It reduces blur and preserves details at any angle. But because of this, memory bandwidth grows exponentially.

Two insights are that cloth simulation has been a topic for the past 20 years and continues to be because no one has truly been able to simulate cloth movement as there aren't proper algorithms that are produced yet to capture the movement. Also, the dynamic remeshing algorithm is phrased as the task of finding the coarsest mesh whose edges are all short enough to resolve simulation detail. One oversight is in scenarios where

the vertex velocities are smoothly varying, the velocity difference term could cause slightly more refinement of the mesh than strictly necessary. So, even though their technique is more sound than others, it needs more refinement in the algorithm to cover those edge cases.

## 2 Reference

To find this paper, click on the following link `http:`

`//graphics.berkeley.edu/papers/Narain-AAR-2012-11/Narain-AAR-2012-11.pdf`