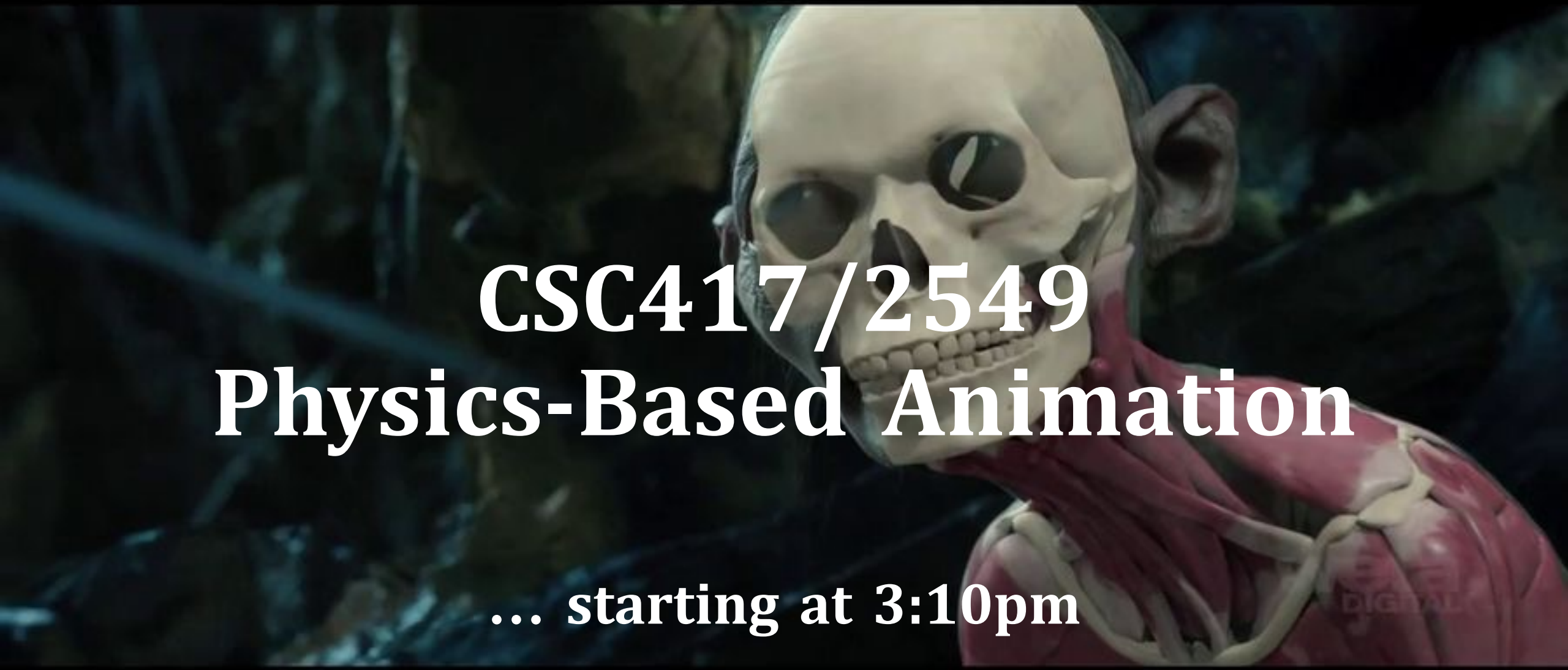
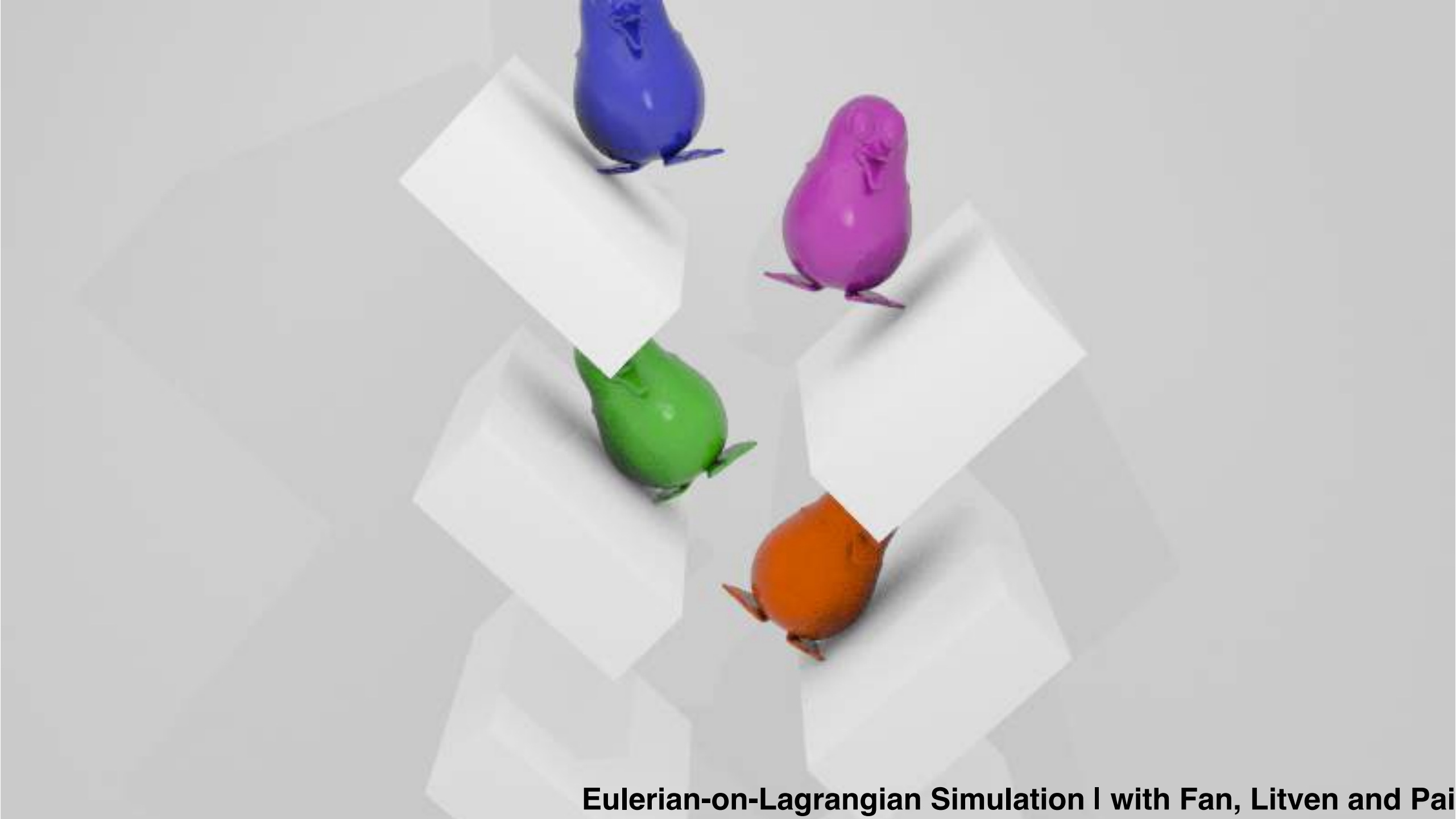


CSC417/2549
Physics-Based Animation

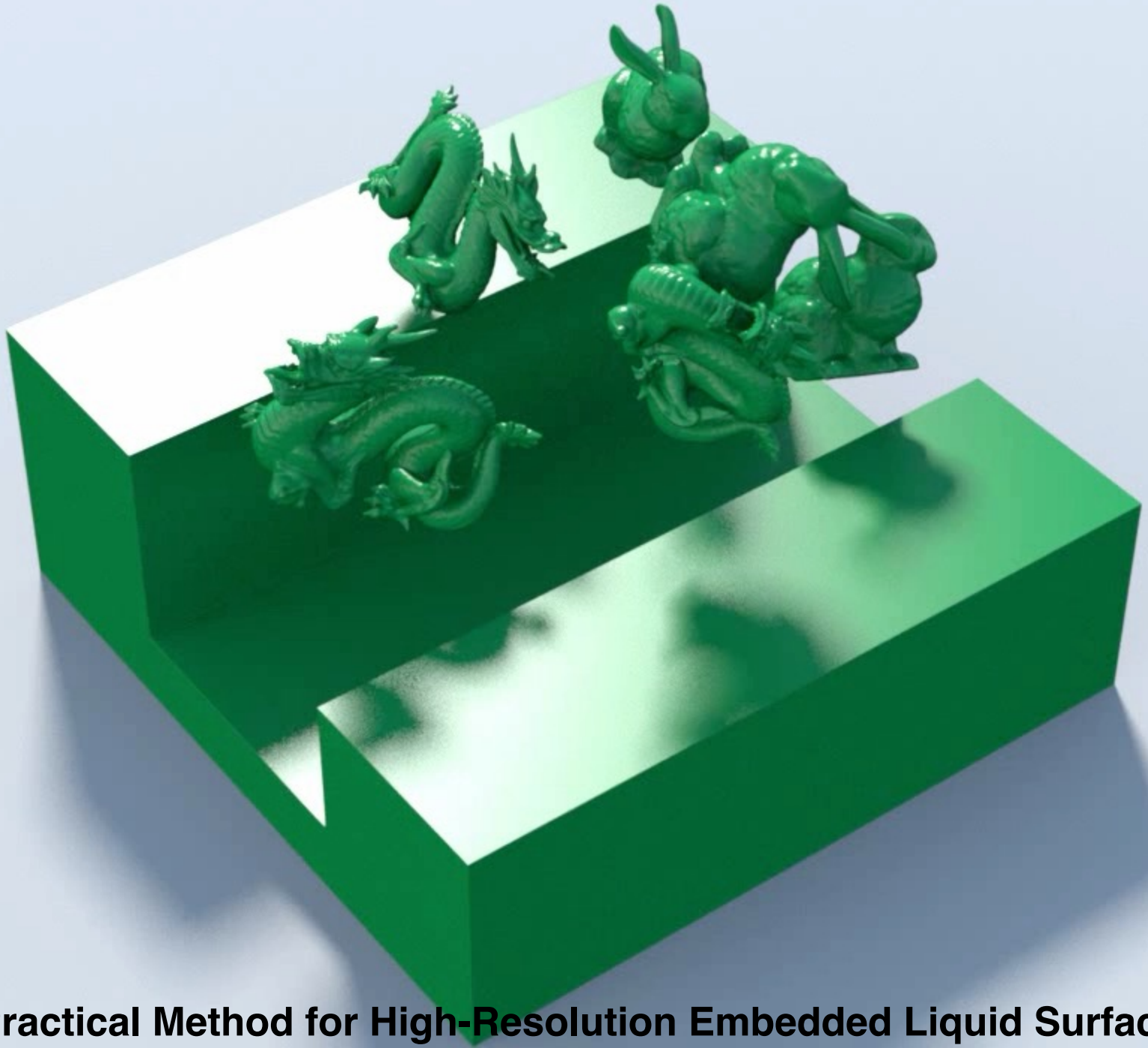
… starting at 3:10pm

This class is taught as a flipped classroom

All the lectures are on YouTube, available right now!!

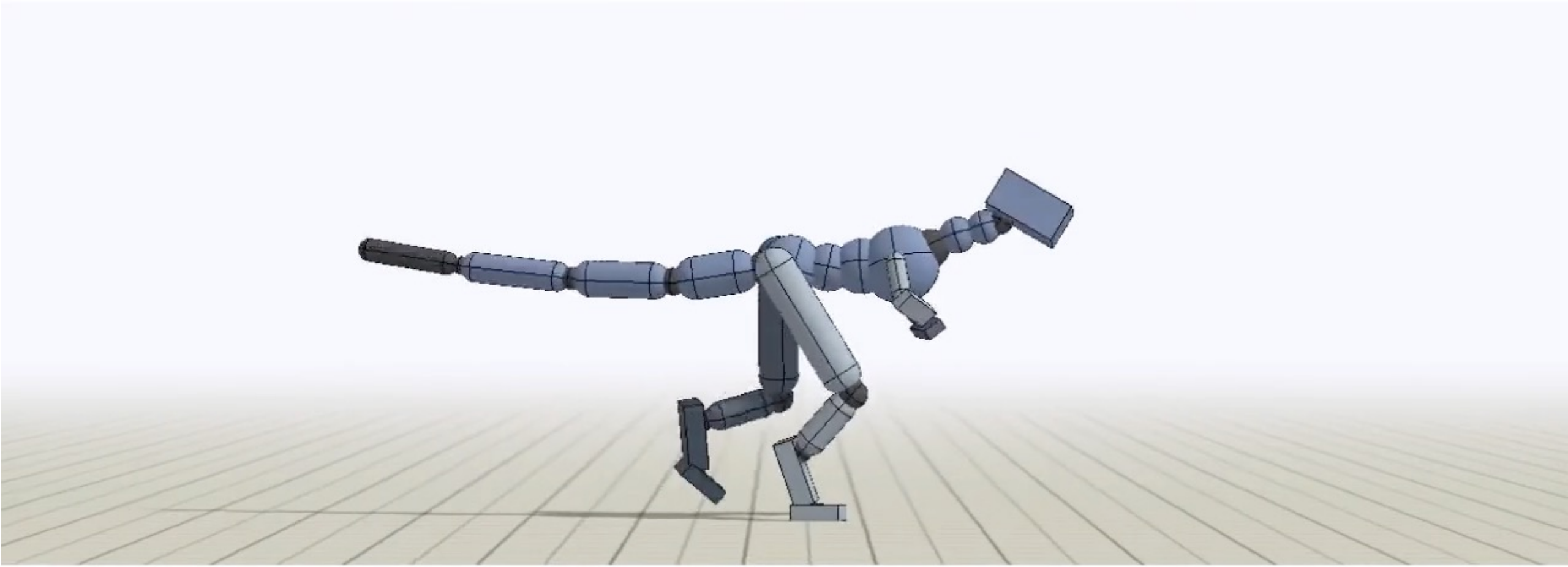


Eulerian-on-Lagrangian Simulation | with Fan, Litven and Pai



A Practical Method for High-Resolution Embedded Liquid Surfaces | Goldade et al

T-Rex: Walk



Simulated Character

DeepMimic: Example-Guided Deep Reinforcement Learning of Physics-Based Character Skills

l Peng et al.

The Tools of the Trade

Linear Algebra

Multivariate Calculus

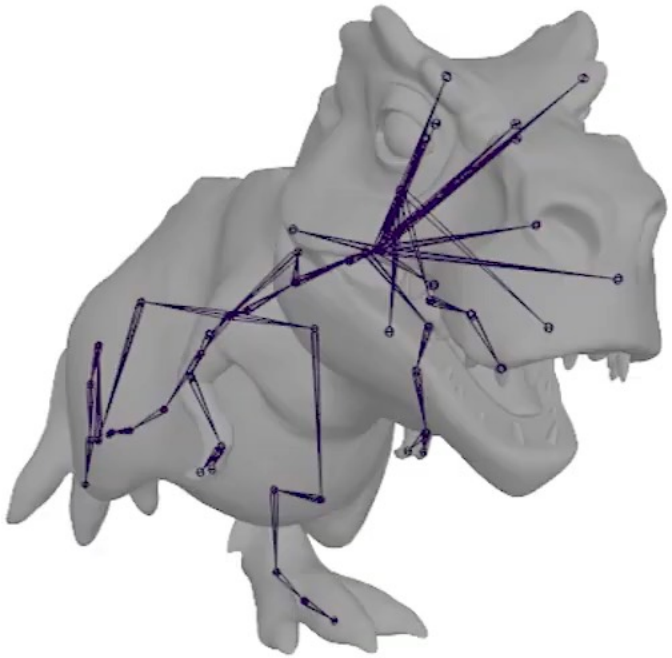
Calculus of Variations

Numerical Methods for Ordinary Differential Equations

Numerical Methods for Partial Differential Equations

Optimization


Don’t Panic



Input

Output

Complementary Dynamics I with Zhang, Bang and Jacobson

Administrivia

Course web site (includes course information sheet):

https://github.com/dilevin/CSC417-physics-based-animation

Instructor:

Prof. David I.W. Levin diwlevin@cs.toronto.edu

TAs:

Yixin Chen

Haoda Li

Jonathan Panuelos

TA Email Address: csc417tas@cs.toronto.edu

Administrivia

Discussion Board

https://piazza.com/utoronto.ca/fall2021/csc417

Assignments will be submitted via MarkUs

https://markus.teach.cs.toronto.edu/csc417-2021-09

Academic Honesty section of webpage is required reading for the course

Lecture Schedule (Due dates are day/month)

NOTE: Video and Assignment content maybe updated as the course progresses

Week	Topic / Event
1	**Reading** Academic Policy Grading Scheme Late Policy **Videos** Introduction **Slides** **Research Highlight** Fast Mass-Spring Systems **Assignment 1 (1D mass-springs)** bonus 24/9
2	**Video** Explicit and implicit time integration **Slides** **Research Highlight** Discrete Elastic Rods **Working on A1**
3	**Video** Mass-spring systems in three dimensions **Slides** **Research Highlight** Shape Matching **Assignment 2 (3d mass-springs)** bonus 1/10

Due Dates and Late Policy

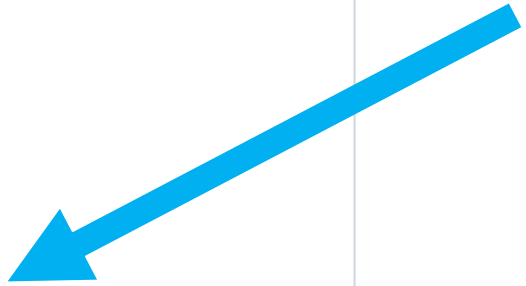
This course has a progressive late policy

Lecture Schedule (Due dates are day/month)

NOTE: Video and Assignment content maybe updated as the course progresses

Week	Topic / Event
1	**Reading** Academic Policy Grading Scheme Late Policy **Videos** Introduction **Slides** **Research Highlight** Fast Mass-Spring Systems **Assignment 1 (1D mass-springs)** **bonus 24/9**
2	**Video** Explicit and implicit time integration **Slides** **Research Highlight** Discrete Elastic Rods **Working on A1**

5% Bonus Date



Due Dates and Late Policy

This course has a progressive late policy

Assignments 1,2,3,4 must be handed in by **November 19th at 11:59 pm**.
Assignments 5 and 6 must be handed in by **December 17th at 11:59 pm**.
The final project must be handed in by **December 21st at 11:59 pm**.

Extensions to the dates above can only be issued by the instructor.

Grading Scheme

60% Assignments (top 5 of 6 grades)

40% Final Project (can be done alone or with a partner)

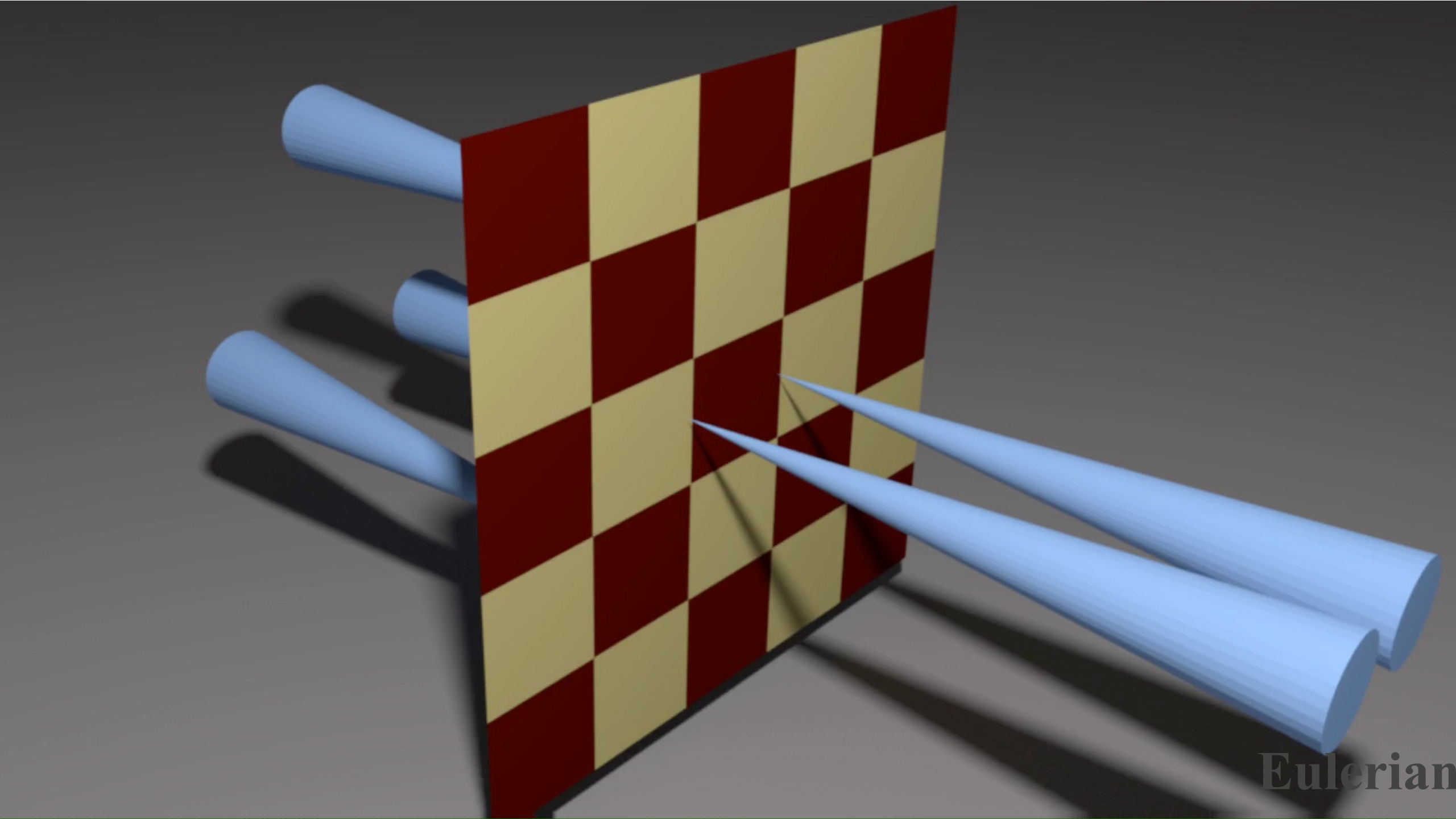
Final Project

Details coming soon …

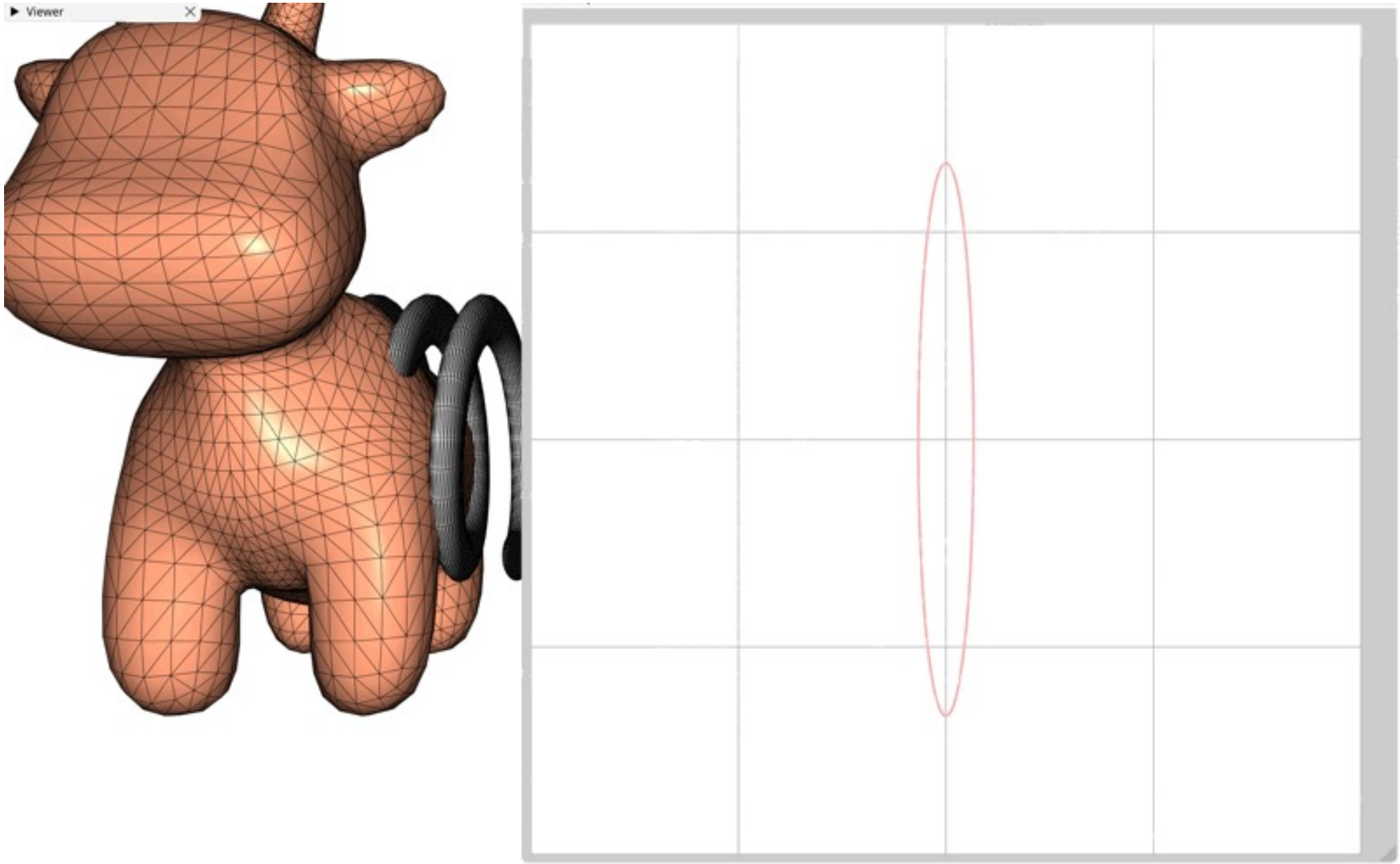
There will be a choice of algorithms/papers to implement

Your group will implement one, write a report and make a 5-minute video presentation about it

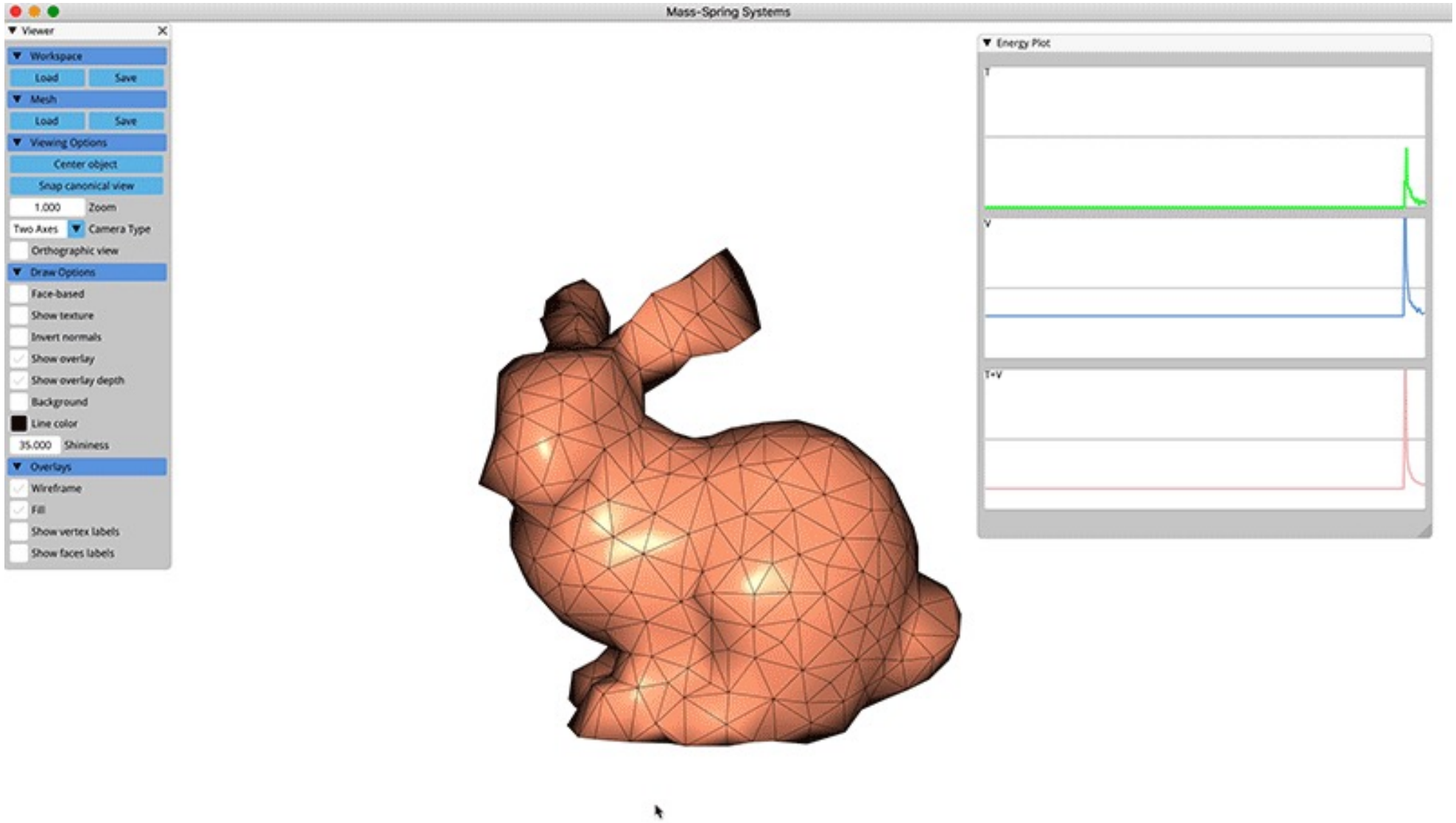
Due December 21st


Eulerian

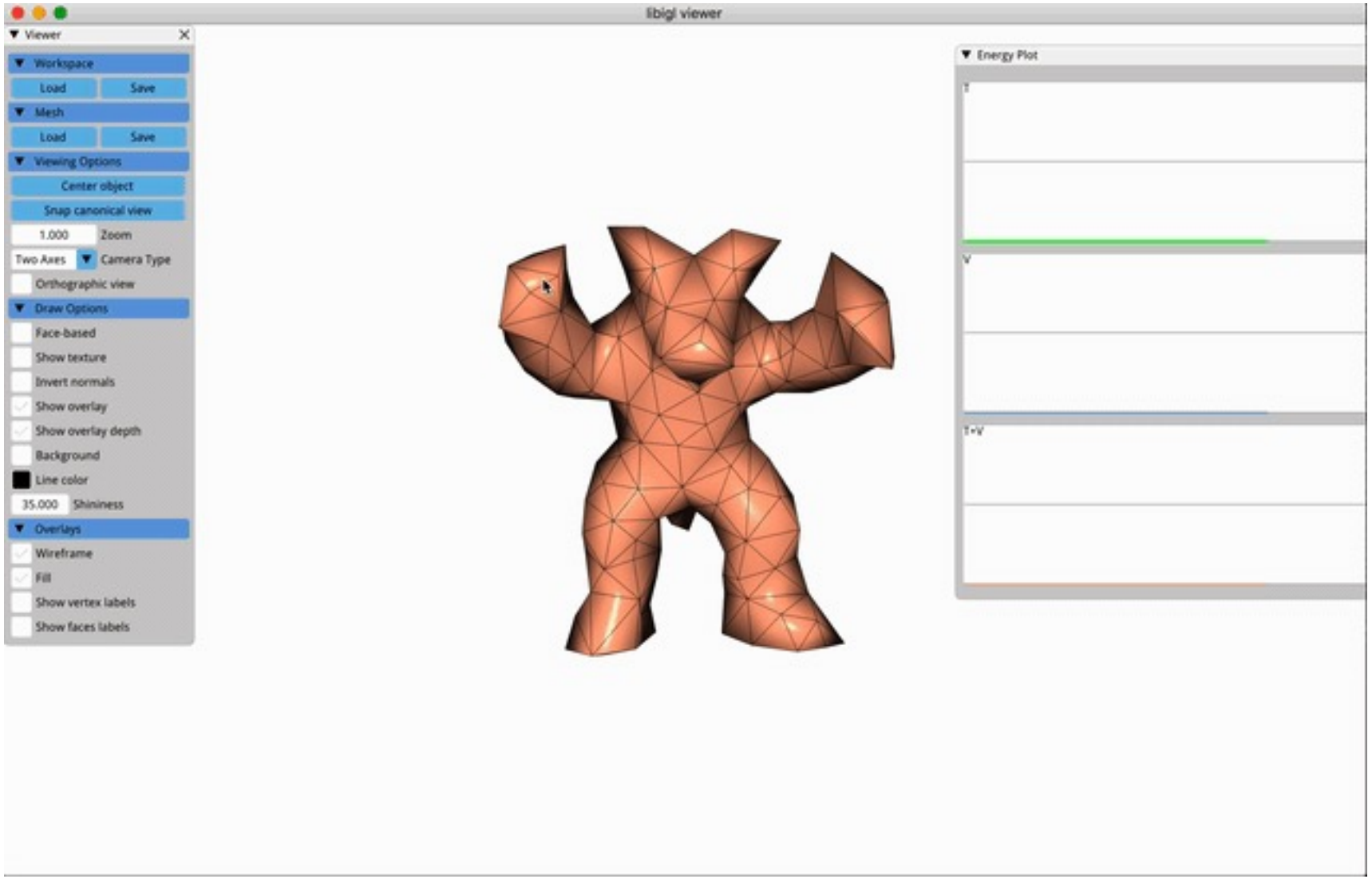
Assignment 1: Introduction to Ordinary Differential Equations



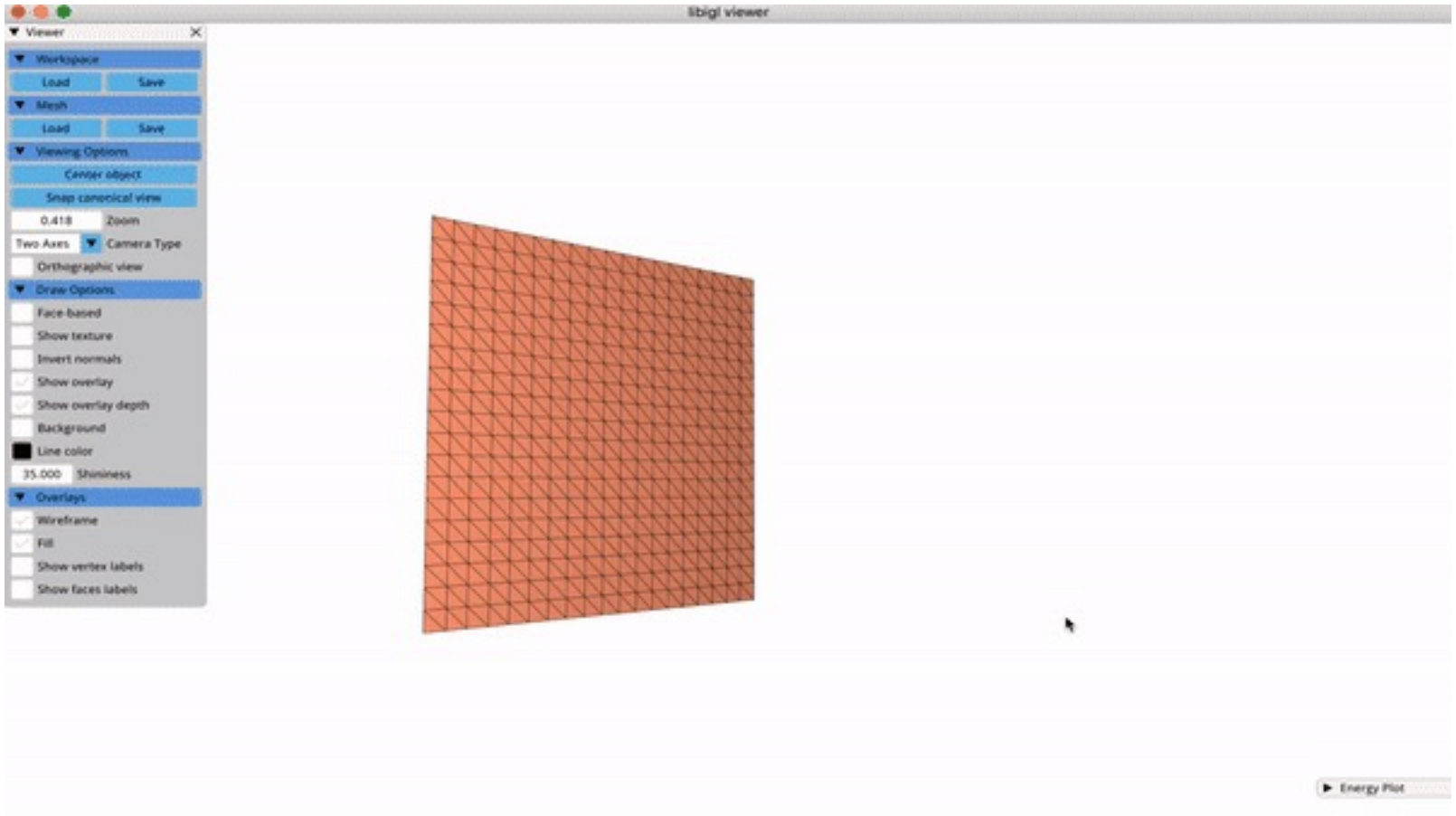
Assignment 2: 3D Mass-Spring Systems



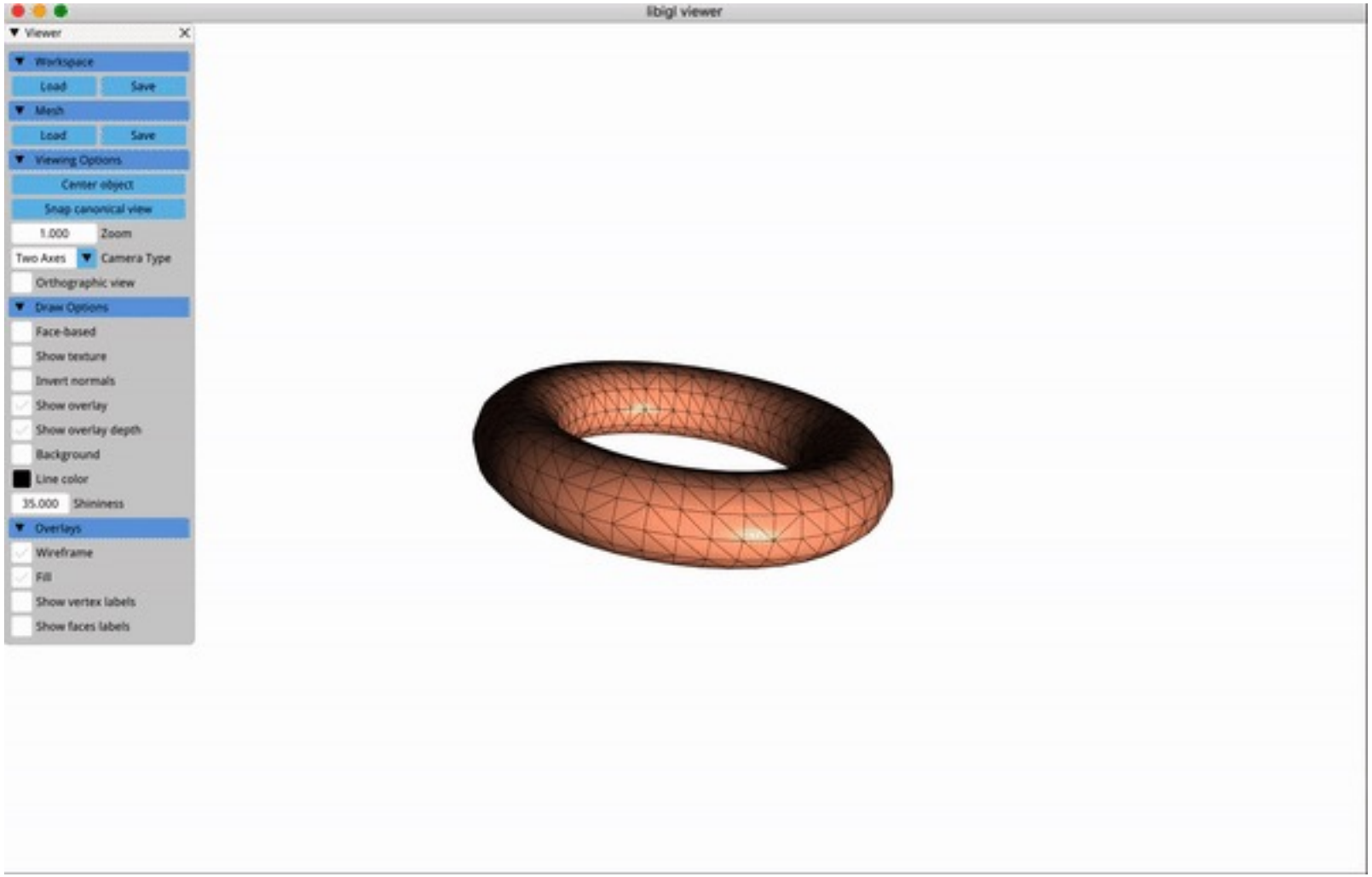
Assignment 3: Finite Element Methods for Elasticity



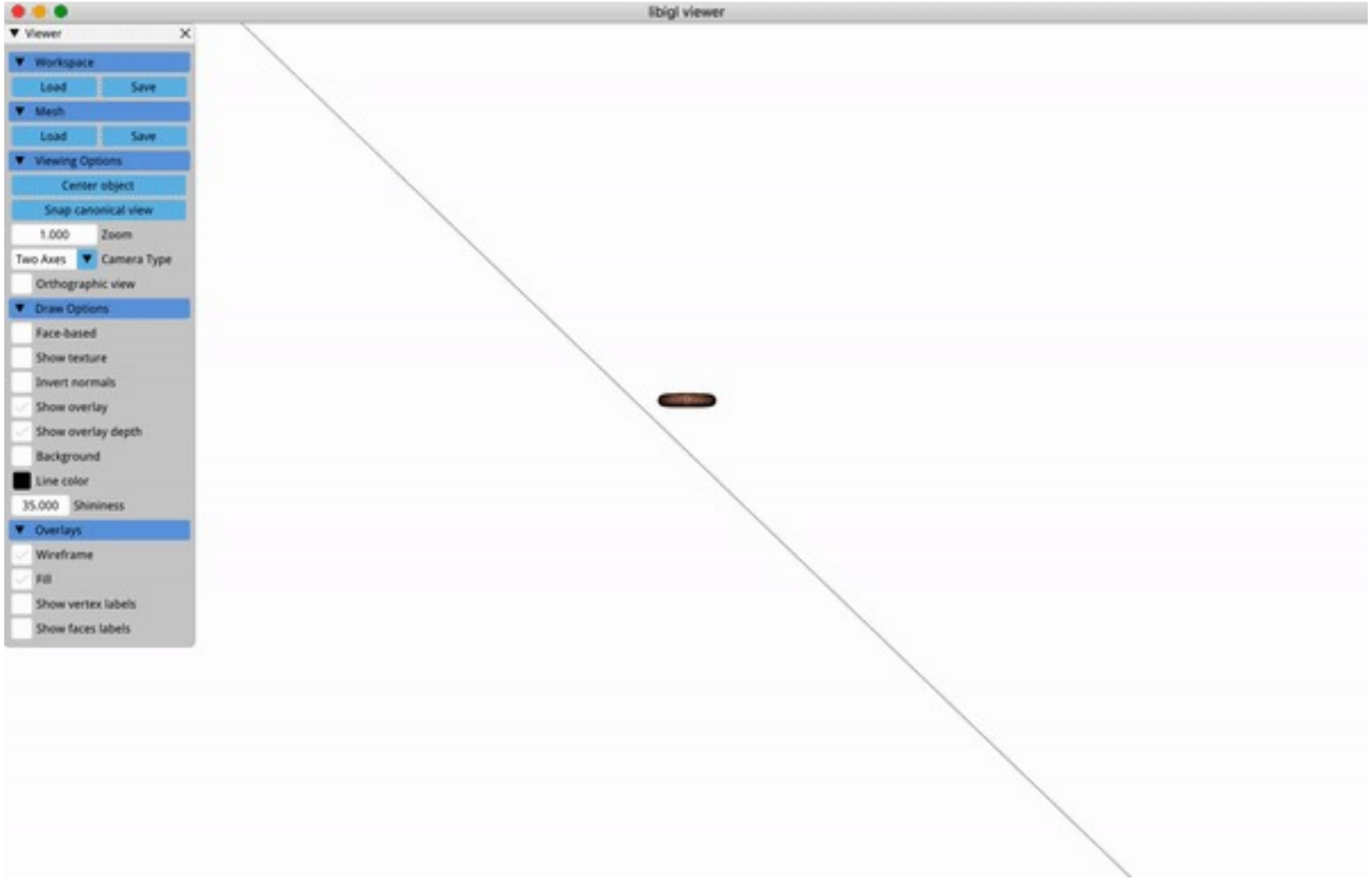
Assignment 4: Cloth Simulation



Assignment 5: Rigid Body Simulation



Assignment 6: Rigid Body Contact



What's Coming Up

Today

Office hours right after this, in the zoom

Assignment 1 on 1D Mass-Spring Systems is ready to go

Tuesday

Online tutorial (zoom link coming)

starring TA Jonathan Panuelos

Next Lecture

Bring your questions about lecture 1

(and other physics related things)

The End ☺

Questions ?