Physically-Based Simulation
Project Plan: Bouncing Balls

Group 1

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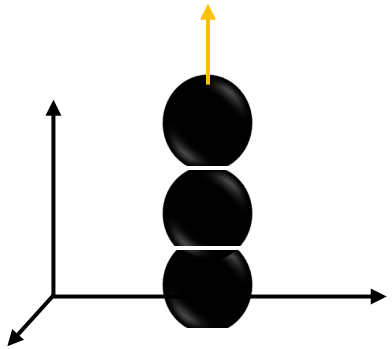
We significantly improved our understanding of soft body simulations, but we did not reach the desired target

Desired target



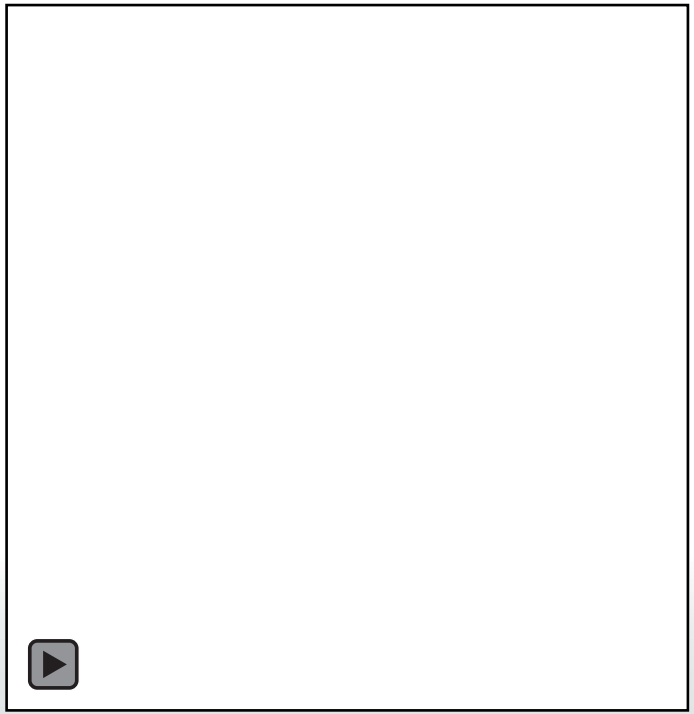
- Three colliding soft balls in **3D**

Achievements

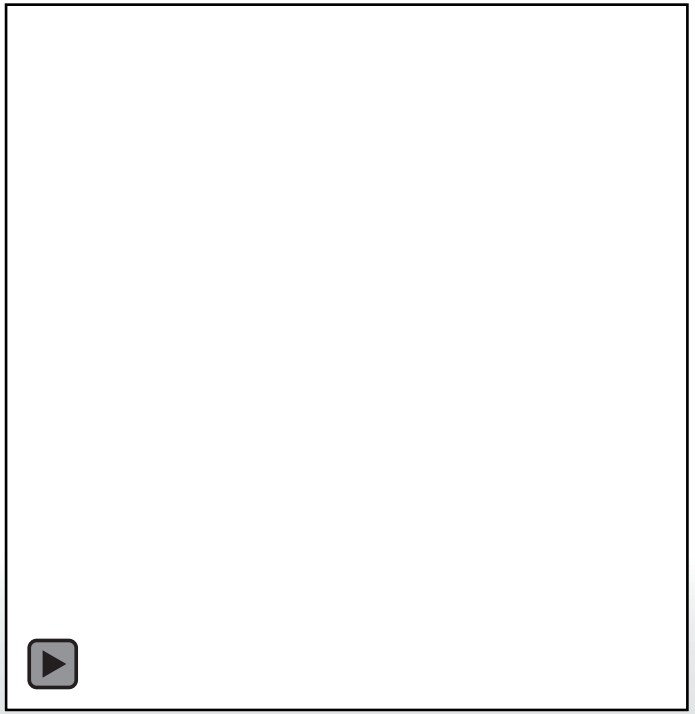
- ✓ MSS simulation of soft body with Implicit Euler and Conjugate Gradients
- ✓ Validation through different shapes
- ✗ Collision handling

MSS with Implicit Euler and Conjugate Gradient

Explicit Euler

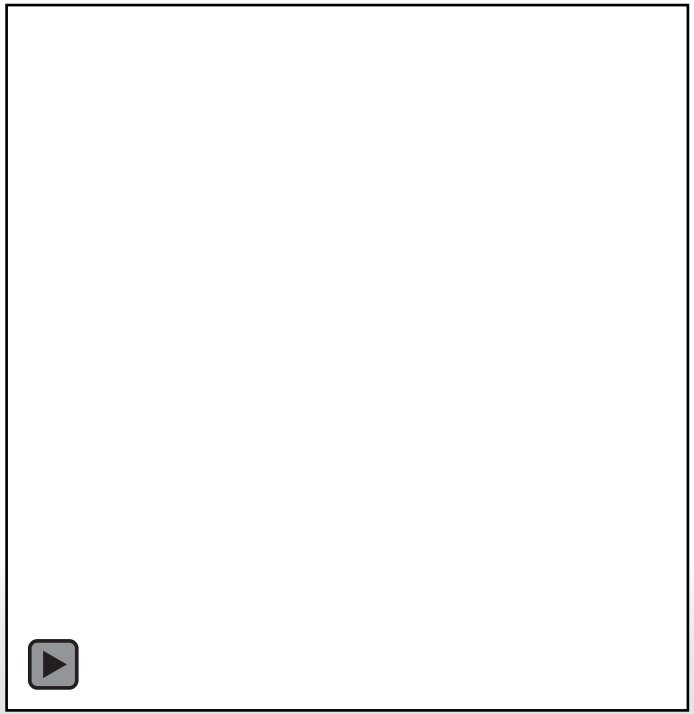


Implicit Euler with Conjugate Gradient

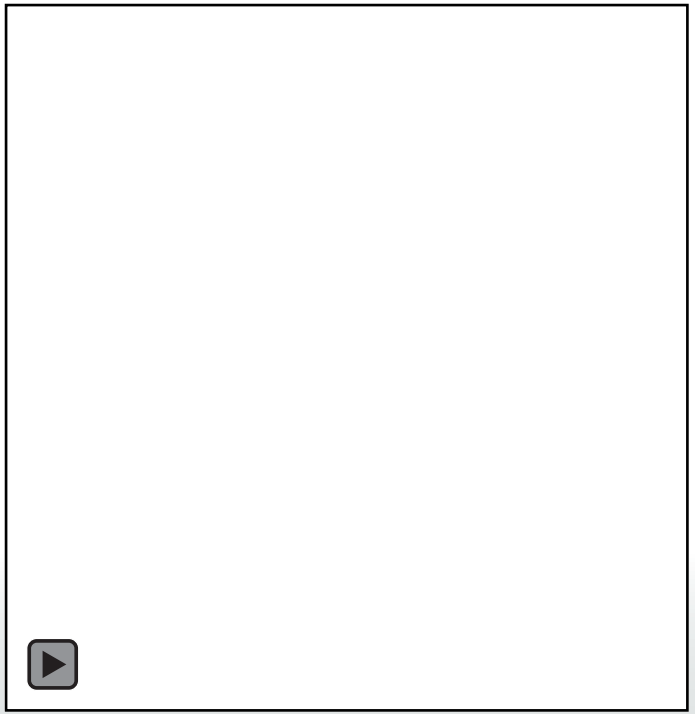


Validation with different shapes: Octahedron

Explicit Euler

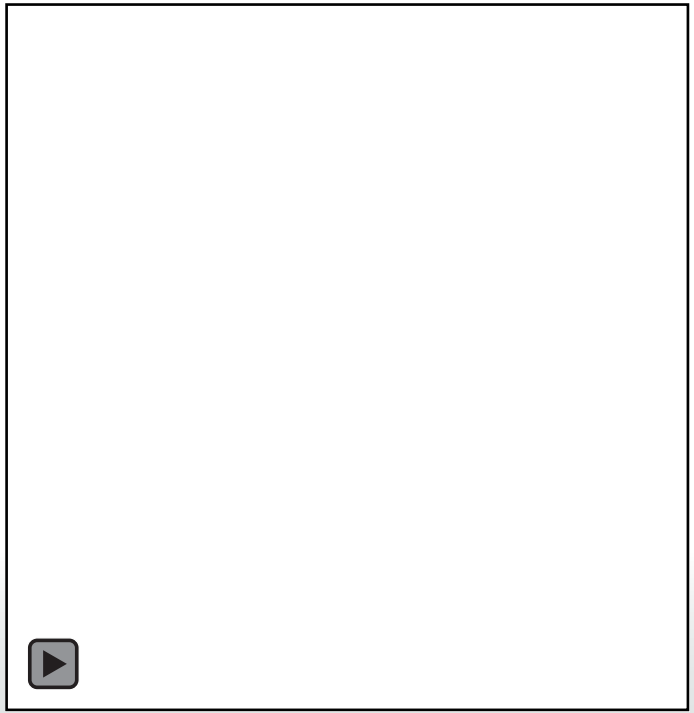


Implicit Euler with Conjugate Gradient

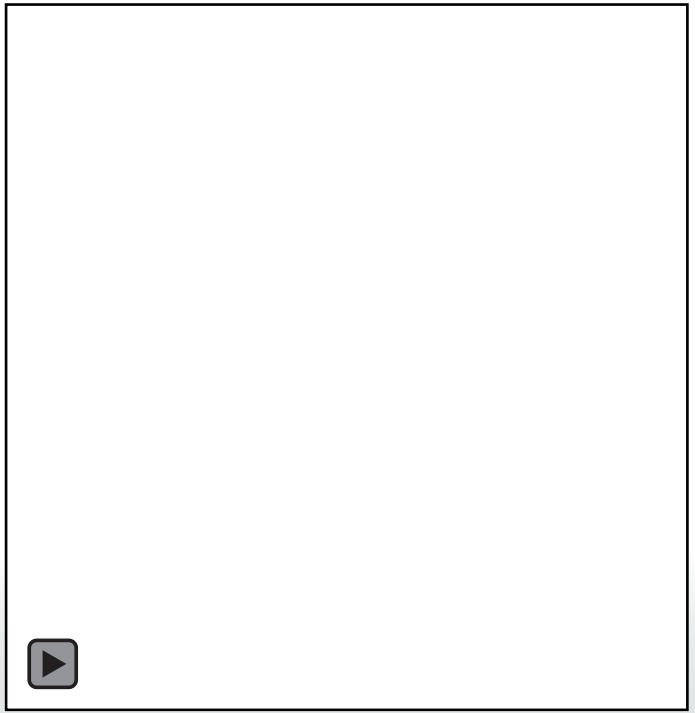


Validation with different shapes: Sphere (surface mesh)

Explicit Euler

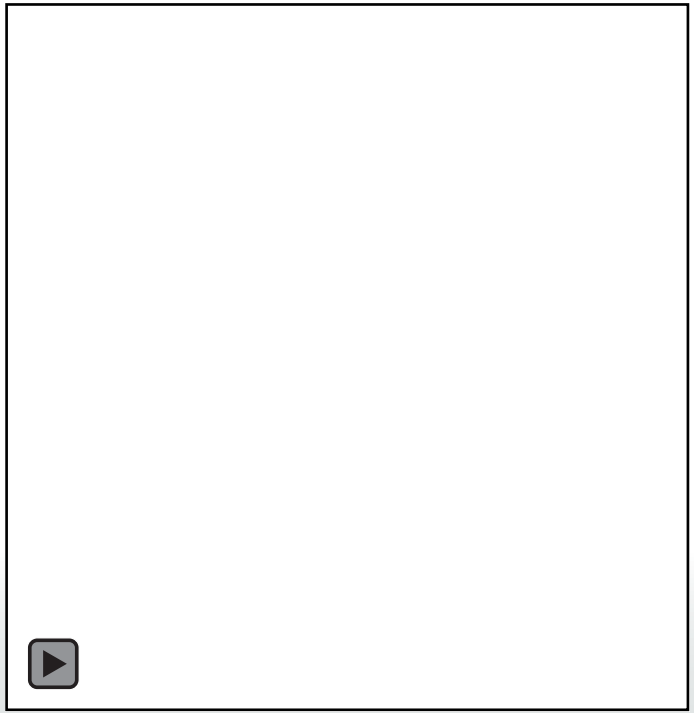


Implicit Euler with Conjugate Gradient

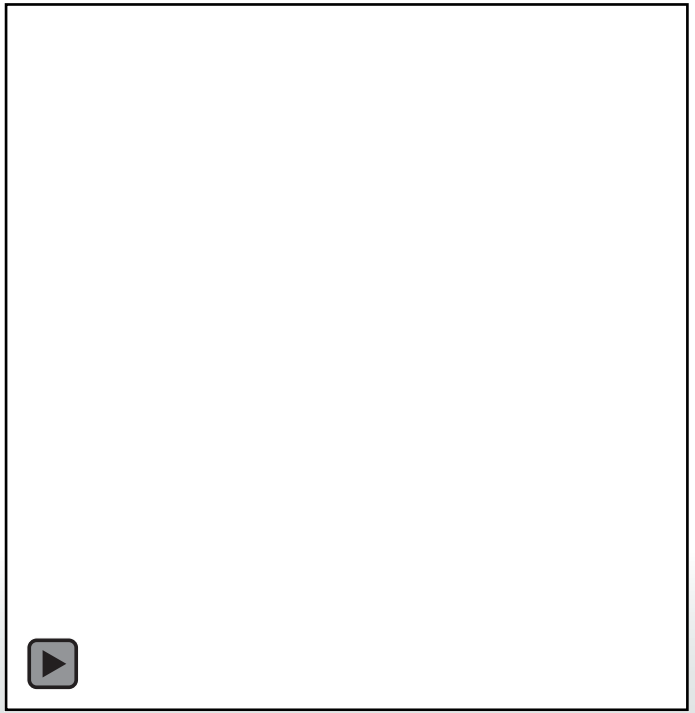


Validation with different shapes: Sphere (tet-mesh)

Explicit Euler



Implicit Euler with Conjugate Gradient



Problems

- Bugs during Merging
- Tetmesh generation

Questions?