Physically-Based Simulation
Final Presentation: Off-Road Madness

Group 3

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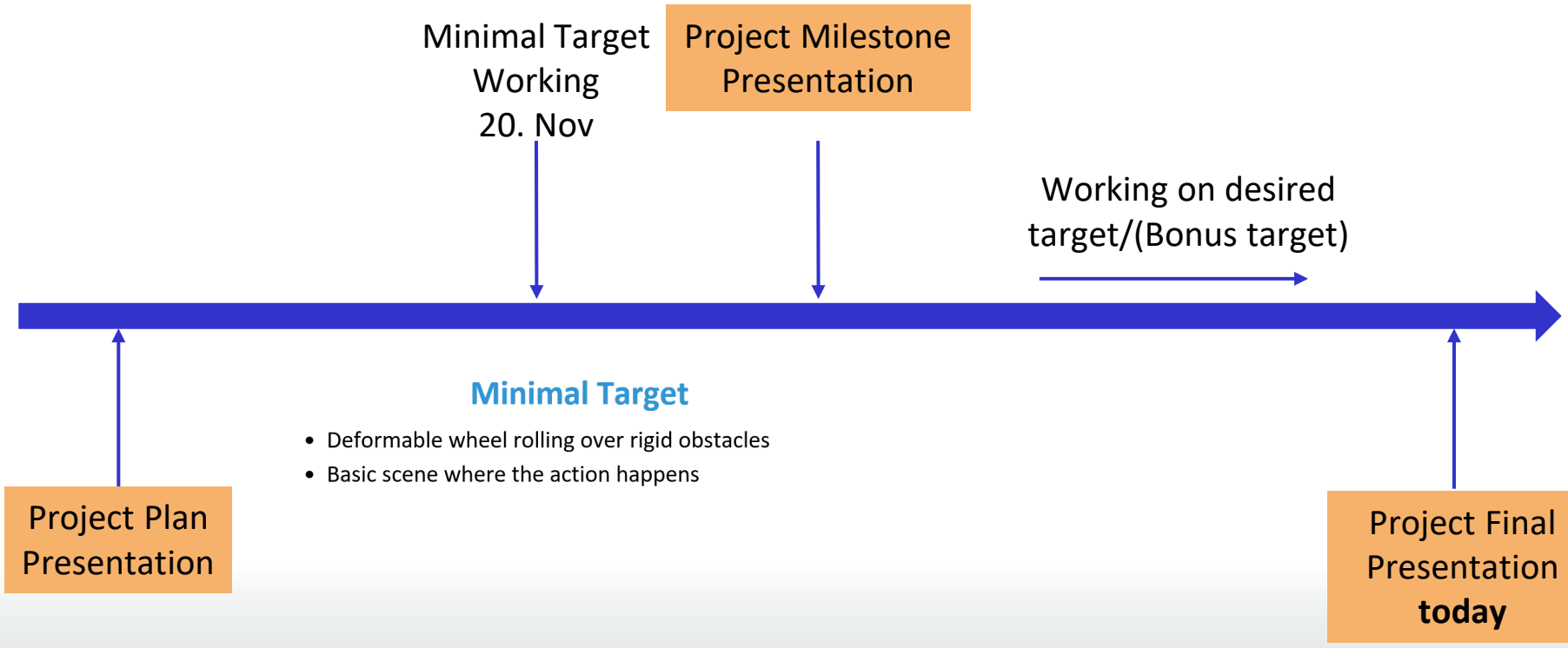
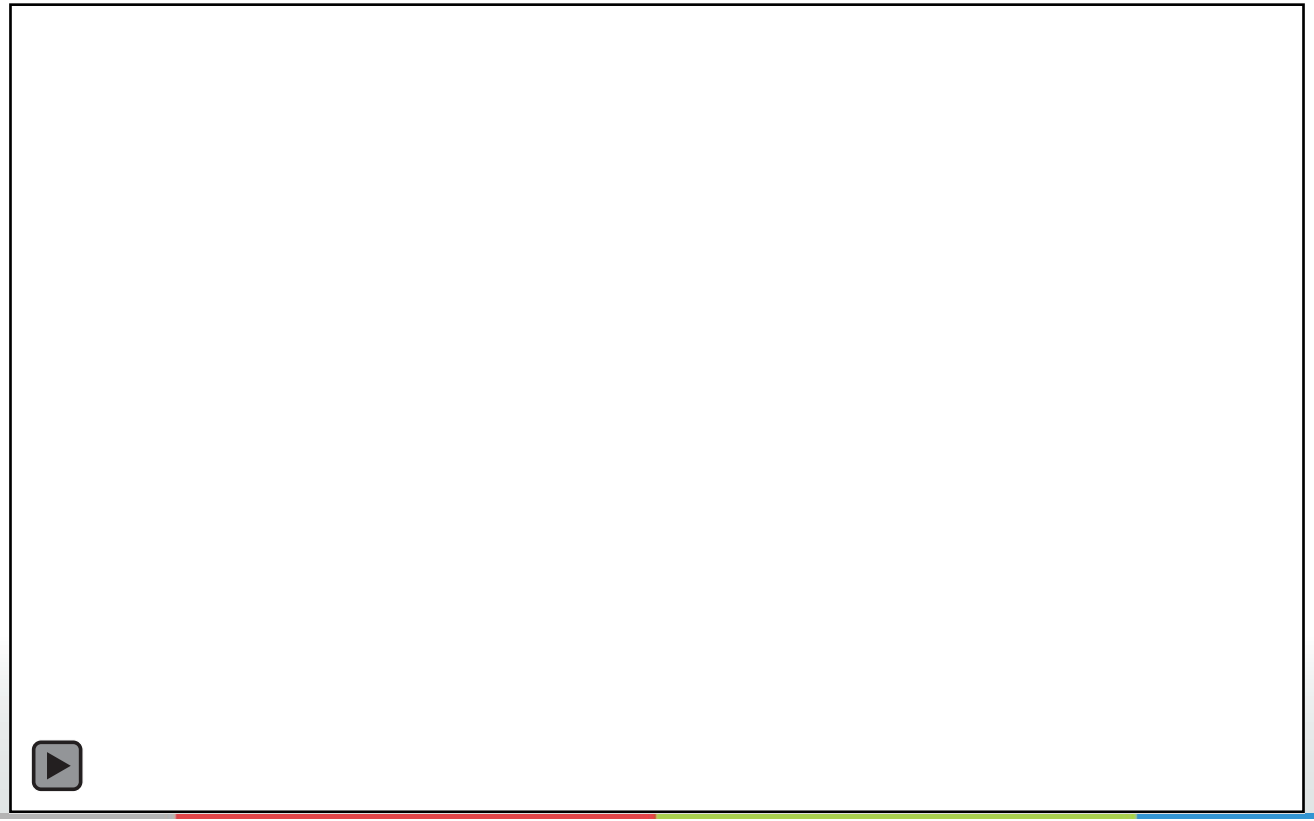
What was this about again?

- Different degrees of hardness of the wheel on different types of surfaces
- Motivation: Challenge of modeling friction, motion and collision detection in an automotive setting

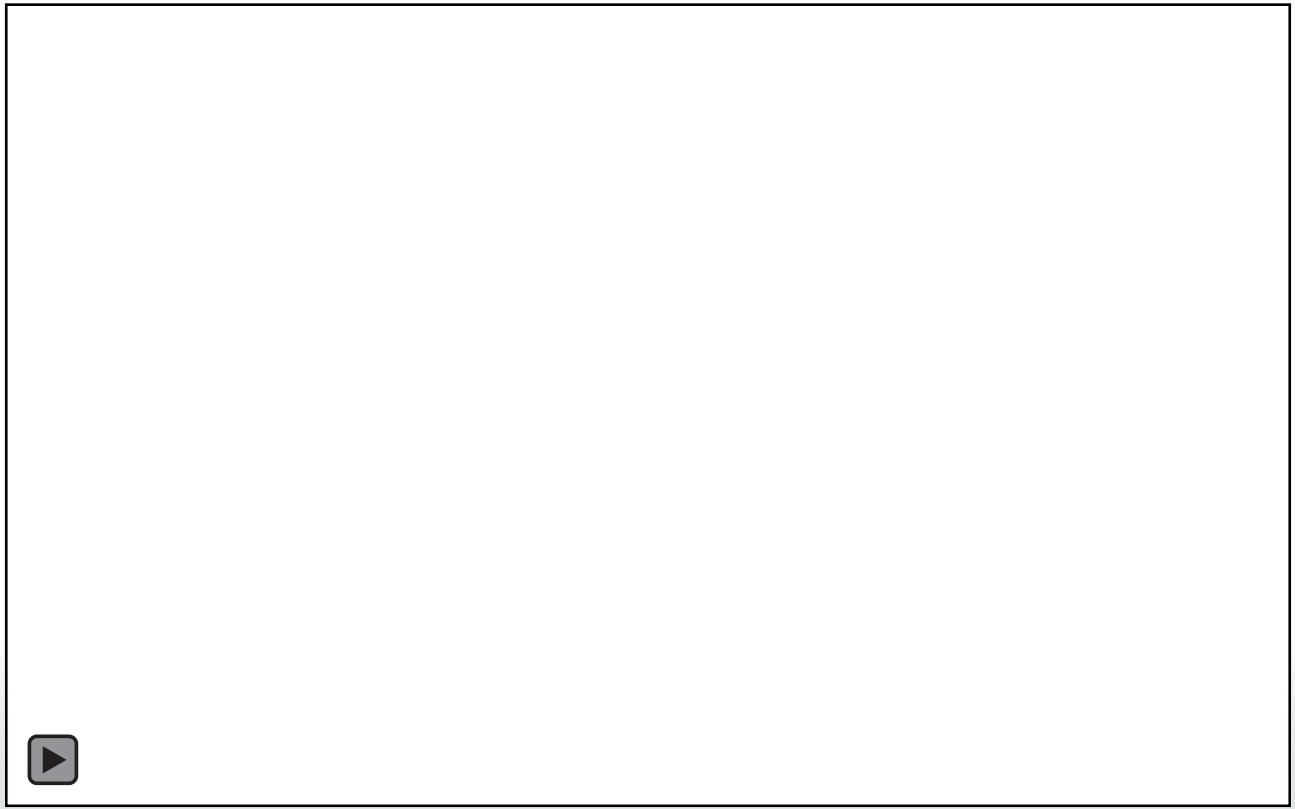
Timeline


Minimal Target
Working
20. Nov
Project Milestone
Presentation
Working on desired
target/(Bonus target)
Minimal Target
• Deformable wheel rolling over rigid obstacles
• Basic scene where the action happens
Project Plan
Presentation
Project Final
Presentation
today

Testing



Testing



Testing

Testing

Testing

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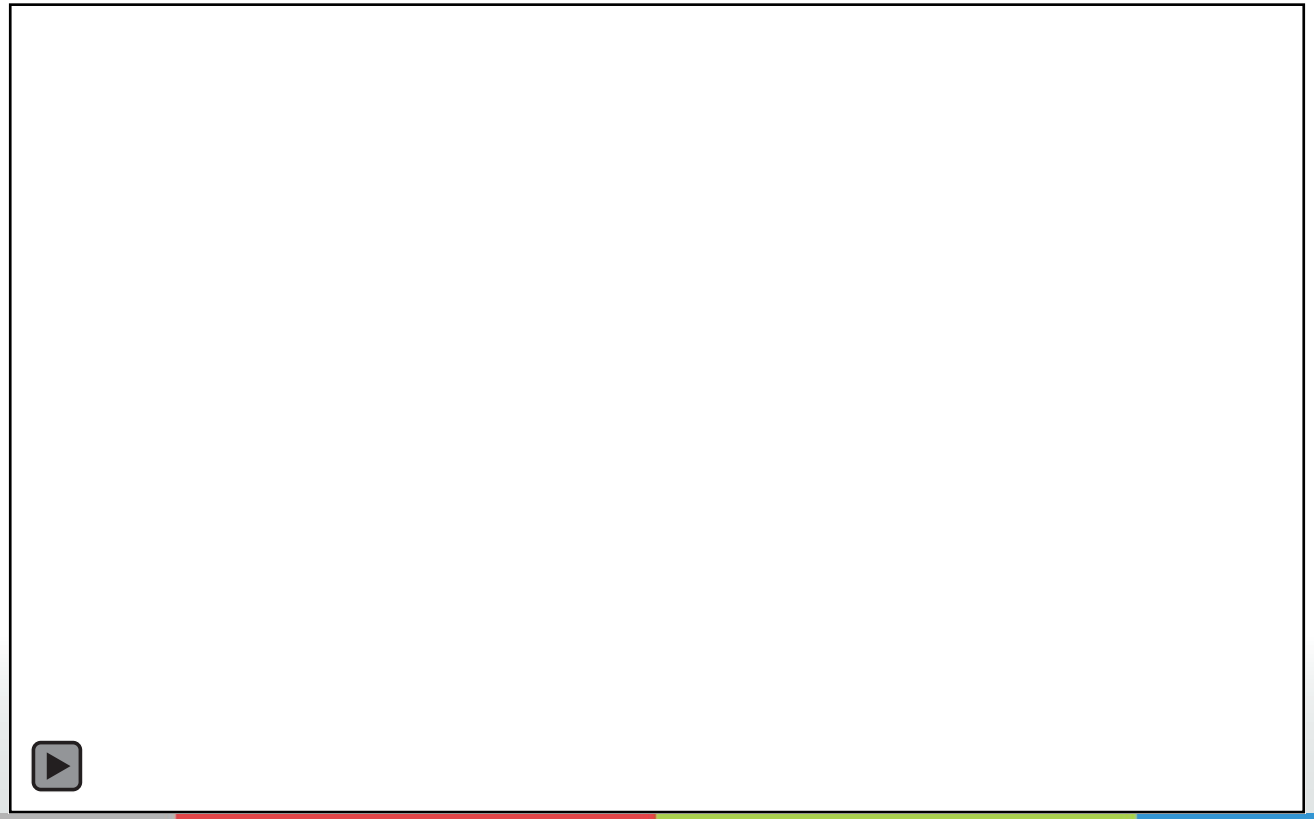
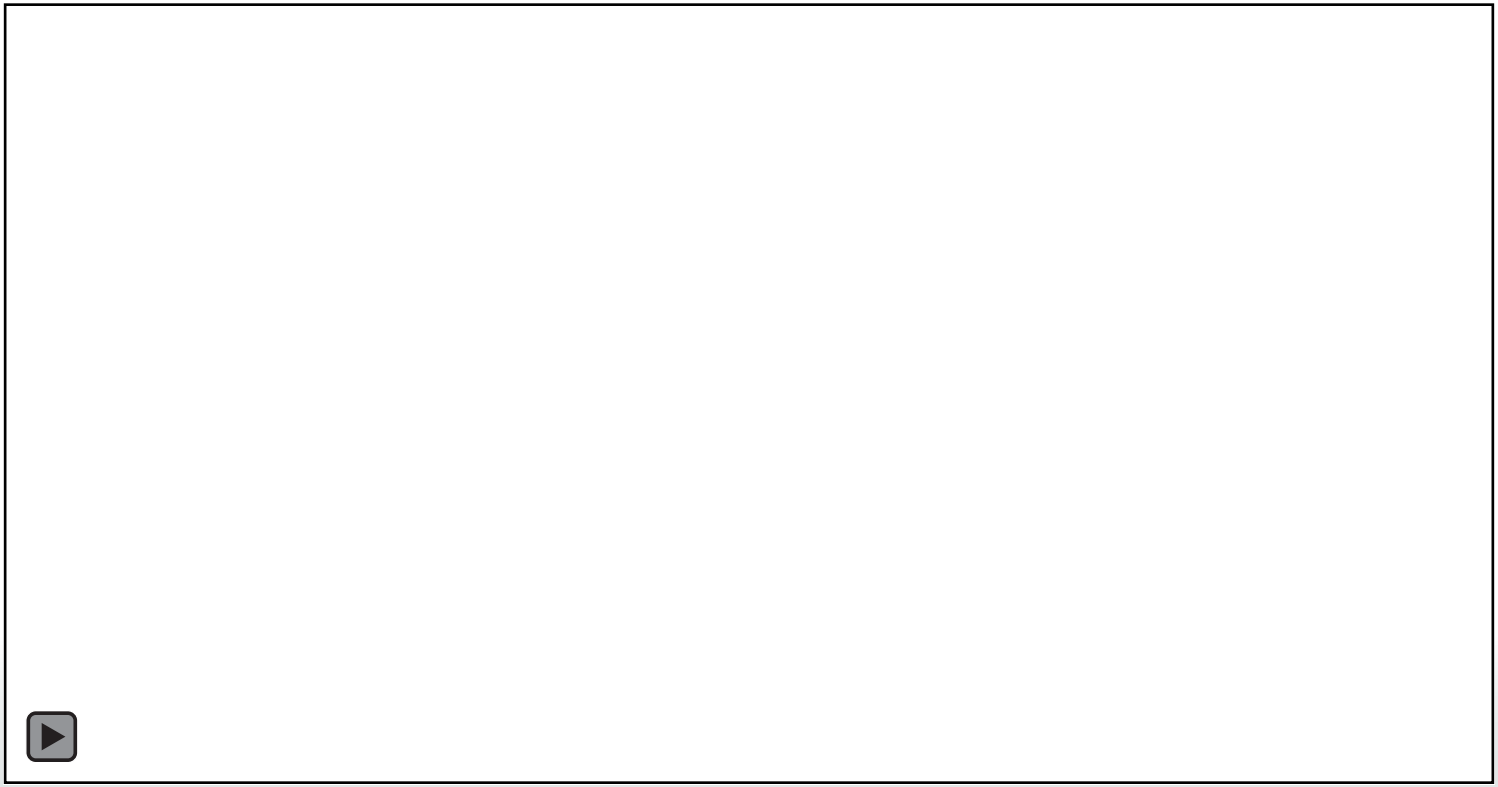
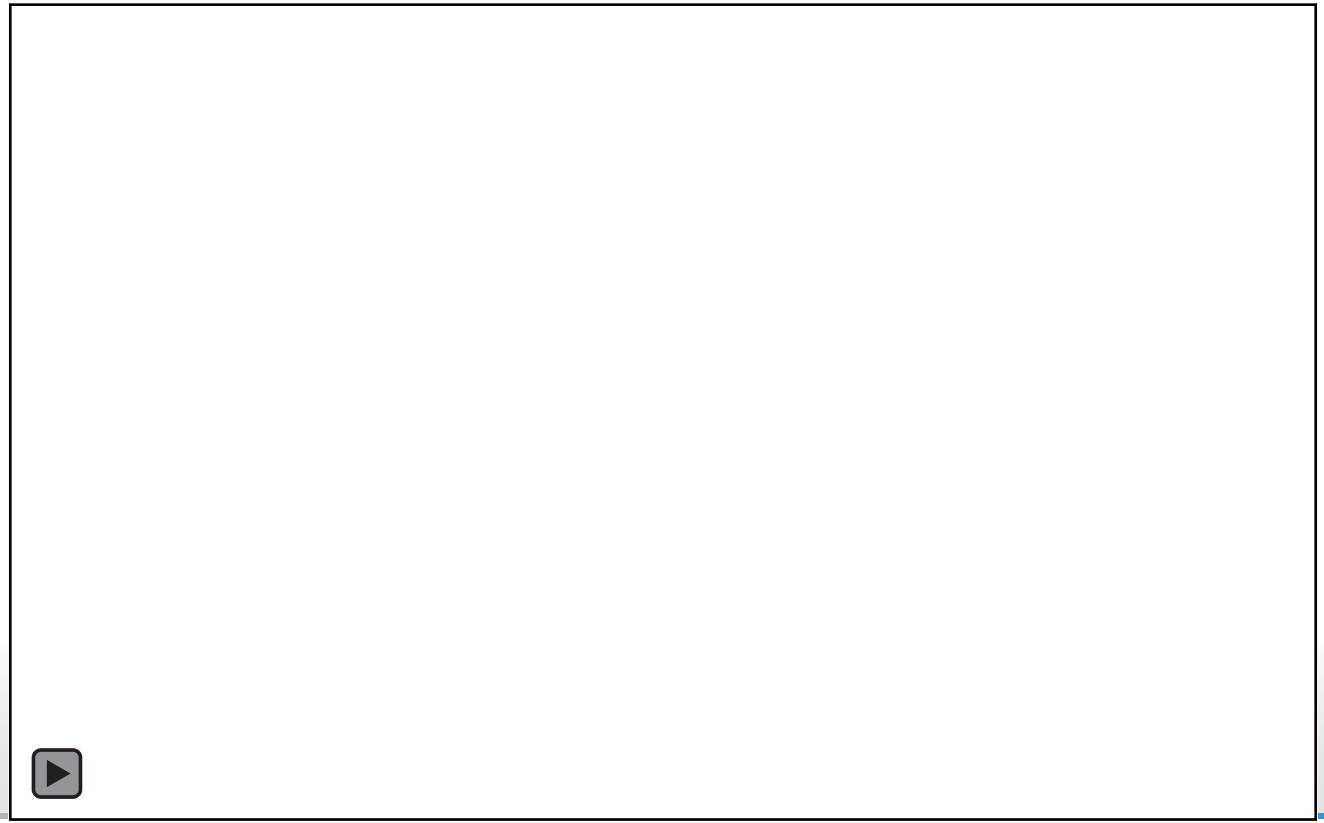
Testing



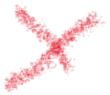
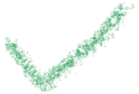
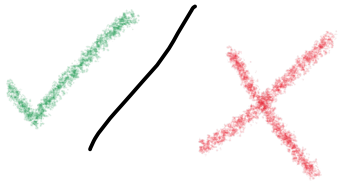
Testing



Let’s talk about soft body collision detection



Desired Target

- Material interaction looks realistic 
- Properly modeled Scene 
- Realistic rolling over soft objects 

Bonus Target

- real-time ✓
- parallel computation ✓
- move car with keyboard ✓
- 4-wheeled car-like vehicle instead of only one wheel ✗

Performance

- real-time
- parallel computation (OpenMP)
- Fast (100ns per iteration. If narrowphase: ~3ms)
- Optimized (at least in an –O3 sense)

QnA