

# Physically-Based Simulation

## Final Presentation: Flying Spaghetti Monster

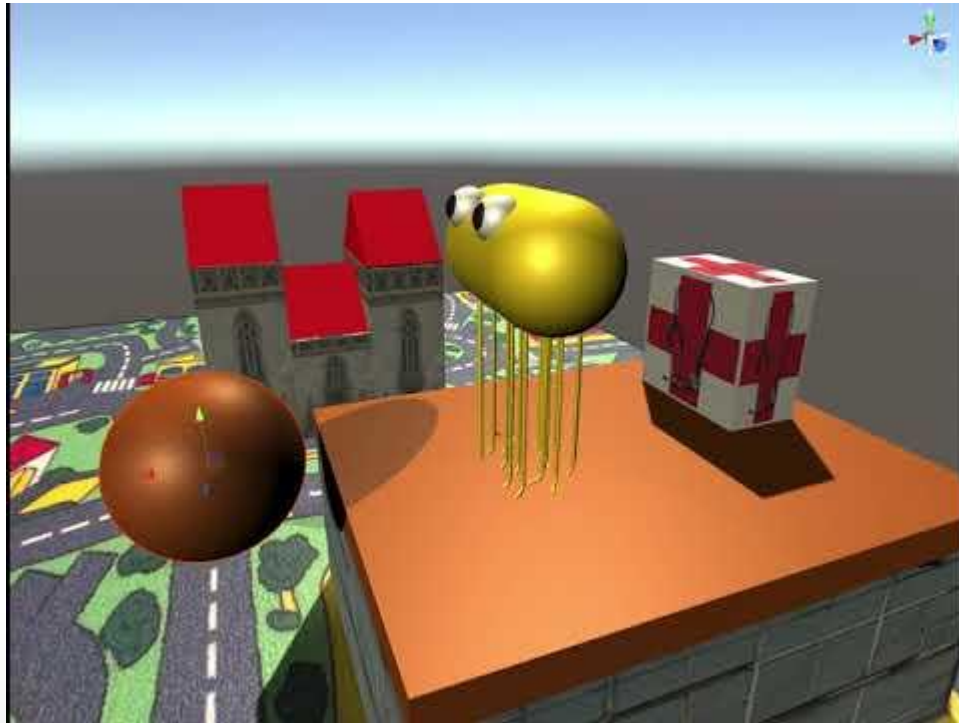
Group 22

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# Status

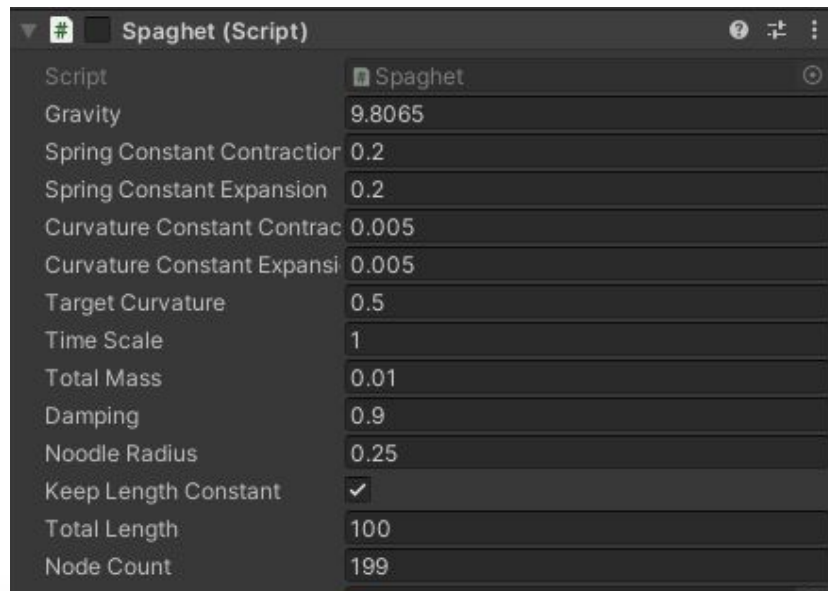
- We're done!
- Unity for rendering, but all physics & models were made by us
- Mass spring systems
- Collision with meatball (sphere) and a city (boxes)

# Pasta in Action



# Noodle Physics

- Mass spring systems
- Noodle curvature
- Customizable for each noodle




A screenshot of a software interface for a script named 'Spaghet'. The interface displays a list of parameters and their values. The parameters are: Gravity (9.8065), Spring Constant Contraction (0.2), Spring Constant Expansion (0.2), Curvature Constant Contraction (0.005), Curvature Constant Expansion (0.005), Target Curvature (0.5), Time Scale (1), Total Mass (0.01), Damping (0.9), Noodle Radius (0.25), Keep Length Constant (checked), Total Length (100), and Node Count (199).

Parameter	Value
Script	Spaghet
Gravity	9.8065
Spring Constant Contraction	0.2
Spring Constant Expansion	0.2
Curvature Constant Contraction	0.005
Curvature Constant Expansion	0.005
Target Curvature	0.5
Time Scale	1
Total Mass	0.01
Damping	0.9
Noodle Radius	0.25
Keep Length Constant	<input checked="" type="checkbox"/>
Total Length	100
Node Count	199

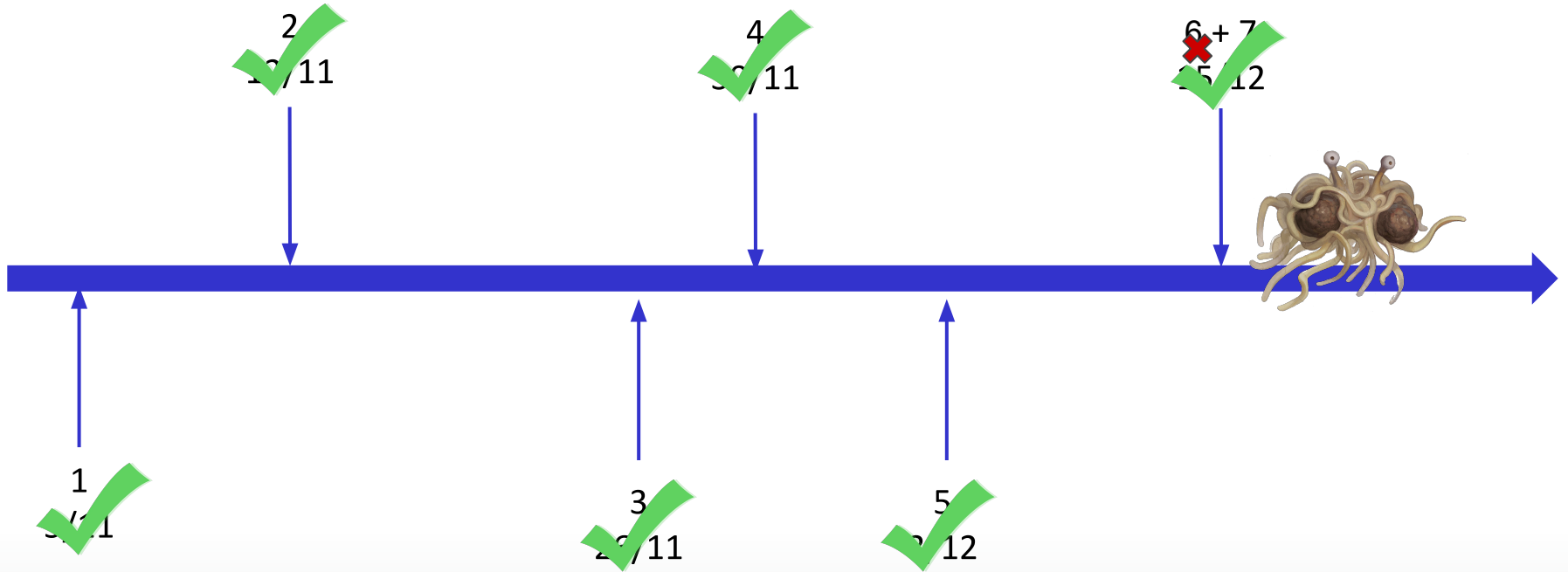
# Collision

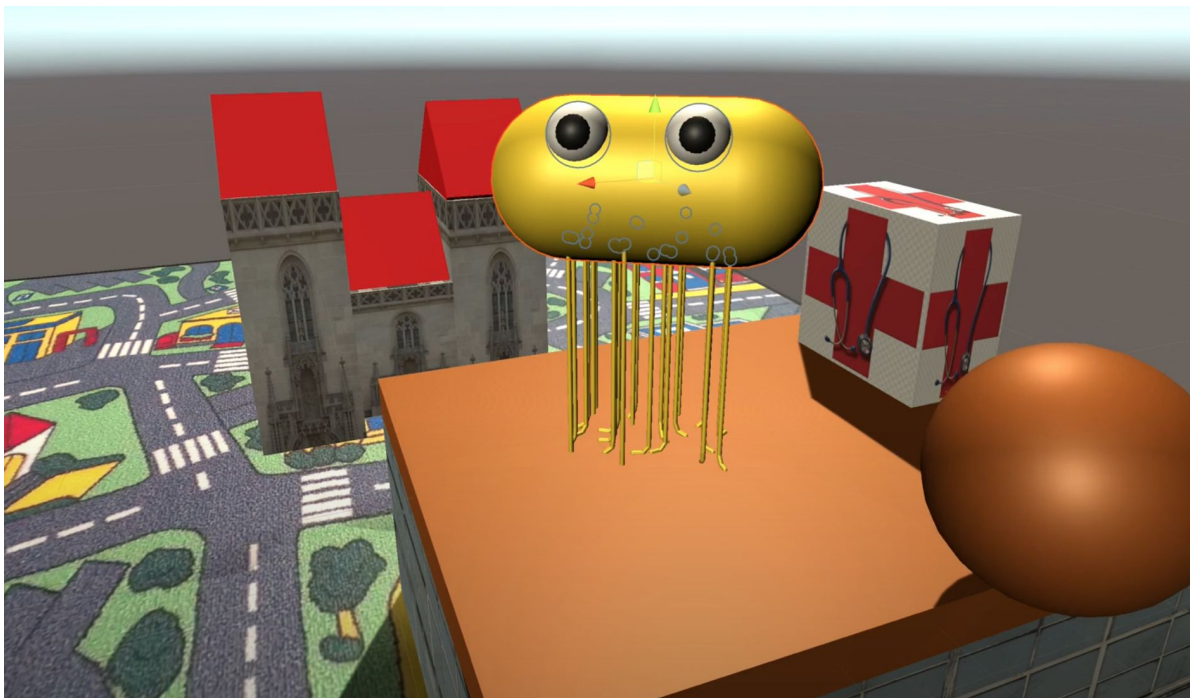
- Between sphere-sphere and sphere-box
- Broad phase and narrow phase
- Inelastic and elastic collision response

# Milestones

- ~~1. model spaghetti as deformable objects~~
- ~~2. add basic gravitational force~~
- ~~3. collide with rigid body meatball~~
- ~~4. inertia & acceleration~~
- ~~5. model FSM~~
6. spaghetti noodles colliding with each other 
- ~~7. add city + polish code~~

# Timeline





# R'Amen

Any questions?