

CS 5410

Intro to Particle Effects



Particle Effects

- Rendering of objects like smoke, fire, sparks, rain, clouds, steam, debris, etc.
- Components
 - Possibly large number of relatively small visual elements.
 - Usually camera facing; also known as billboarding
 - Materials usually semi-transparent
 - Each particle typically animated in various ways
 - Some lifetime defined for the effect and/or particle

What is a Particle

- Lifetime (how long it lives)
- Velocity
- Direction
- (maybe) Acceleration
- Size or model
- Rotation state and Spin
- Color
- Texture



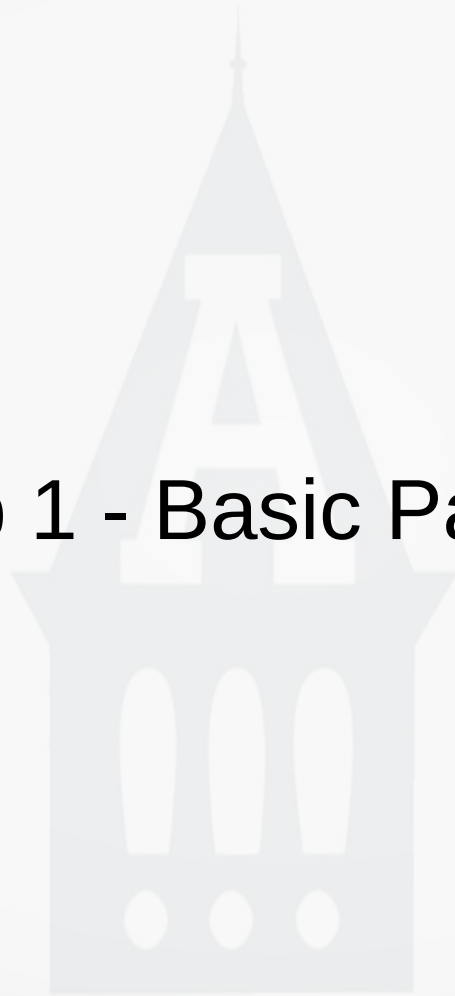
What is a Particle System

- **Container** : hold/manage the particles
- **Emitter** : generate new particles (parameterized)
- **Updater** : update system state
- Combine multiple systems to create an **effect**
 - Smoke emitter
 - Fire emitter



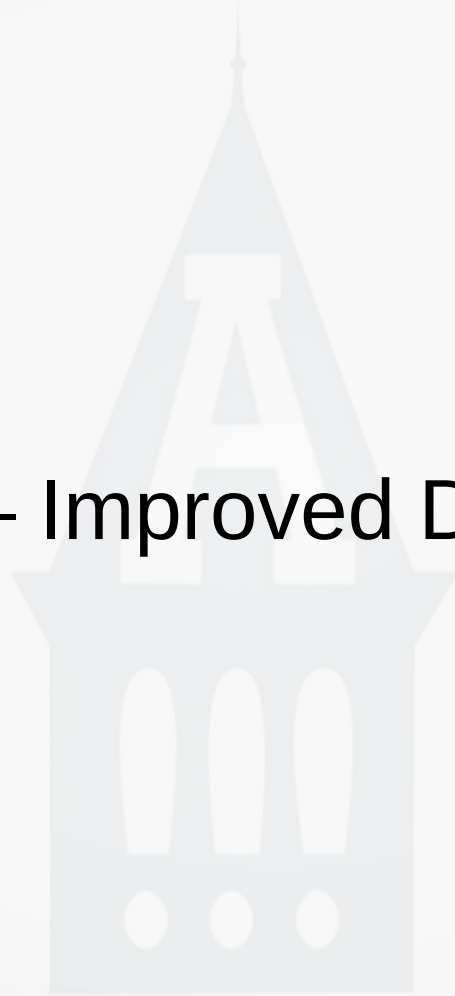
Demonstration

Step 1 - Basic Particles



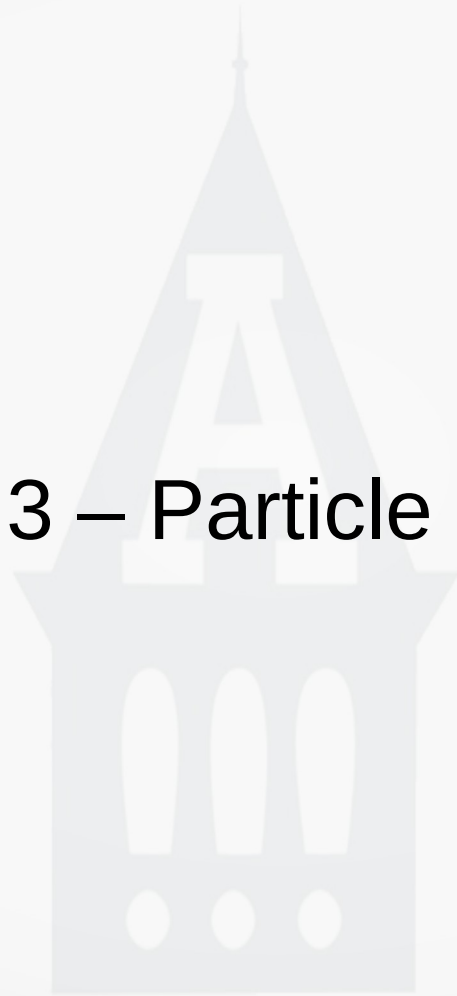
Demonstration

Step 2 – Improved Distribution



Demonstration

Step 3 – Particle System



Demonstration

Step 4 – Textured Particles

