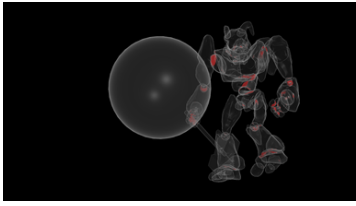


The Amazing Adam | 3D Animated Short Film

0:40 - 0:49 | Software: Houdini

- Built a procedural modeling system that generates all box components with correct spatial relationships and fully parameterized user controls.
- Mathematically rigged the box hinge system using trigonometric relationships to enforce hierarchical, relative rotational behavior.

Roles: Tool Development, Procedural Modeling, Rigging, Virtual Camera Operation

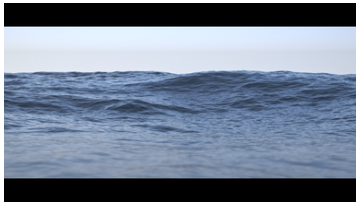


Intersection Detection Visualizer

0:49 - 0:53 | Software: Houdini

- Developed point-based VEX algorithms to detect self-intersections and intersections with external geometry.
- Used raycasting and surface-orientation tests to classify intersections and visualize affected regions on the character.

Roles: Tool Development

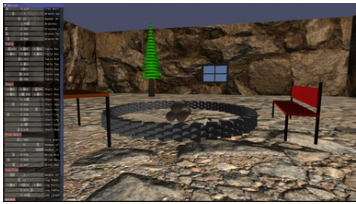


Ocean

0:53 - 0:55 | Software: Houdini, DaVinci Resolve

- Created and art-directed a geometry-based procedural ocean wave simulation.

Roles: FX, Layout, Lighting, Lookdev, Color

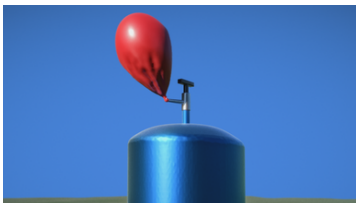


Campfire | Parametric Modeling System

0:55 - 1:07 | Programming: C++, OpenGL, GLSL

- Geometry Processing | Created primitive geometric shapes from scratch; sphere, cube, cylinder, torus.
- Developed a parametric modeling system driven by user input, running in real time
- Shader Development | Implemented Blinn-Phong, Oren-Nayar and Cook-Torrance shader code using GLSL

Roles: Tool Development, Parametric Modeling, Shader Development



Balloon

1:07 - 1:13 | Software: Houdini, DaVinci Resolve

- Procedurally modeled the helium tank and balloon.
- Created a triggerable Vellum inflation setup with a user-defined start frame.

Roles: Procedural Modeling, Layout, FX, Lighting, Lookdev, Color



Rats

1:13 - 1:16 | Software: Houdini, Fusion, DaVinci Resolve

- Wrote and directed a performance-capture scene featuring rats in a toothpick sword duel over cheese.
- Procedurally modeled, rigged, and groomed the rat characters.
- Manually corrected foot placement with keyframe animation to maintain ground contact.

Roles: Cinematography, Character Modeling, Fur Grooming, Rigging, Layout, Motion Editing, Lighting, Lookdev, Compositing, Color



Fur Culling

1:16 - 1:24 | Software: Houdini, DaVinci Resolve

- Developed a procedural fur-culling system with independent controls for front-facing and back-facing hairs.
- Designed to reduce fur memory usage in RAM/VRAM and improve render performance in memory-intensive scenes.

Roles: Tool Development, Fur Grooming, CFX, Lighting, Lookdev, Color