



Camera Ray Visibility & Scene Optimization

1:24 - 1:34 | Software: Houdini

- Developed a shot-aware, camera ray-based system that identifies objects contributing to primary, overscan, reflection, transmission, and shadow rays.
- Automatically collects contributing objects and culls non-contributing geometry and characters to reduce scene complexity, RAM/VRAM usage, and render times.

Roles: Tool Development



Character Animation

1:34 - 1:40 | Software: Blender, DaVinci Resolve

- Created hand-keyed character animation and lip sync to match dialogue.
- Created dramatic lighting to enhance the emotional intensity of the scene.

Roles: Animation, Lighting, Camera Animation, Color



Mesh Snapping

1:40 - 1:44 | Software: Houdini

- Developed a mesh-snapping algorithm to maintain precise surface contact with a controllable distance offset.

Roles: Tool Development



Mesh Tension & Compression Visualizer

1:44 - 1:49 | Software: Houdini

- Developed a procedural system to measure increases (tension) and decreases (compression) in mesh surface area and visualize the results as a heat map.

Roles: Tool Development



Echoes of the Wild | VFX Short Film

1:49 - 1:55 | Software: Reality Capture, DaVinci Resolve

- Planned and executed the cinematography for each VFX shot in coordination with the director and producer.
- Captured photogrammetry scans of each environment to provide spatially accurate scene geometry for VFX scale and alignment.

Roles: Photogrammetry, Cinematography, Color



Echoes of the Wild | VFX Short Film

1:55 - 2:02 | Software: Houdini, DaVinci Resolve

- Collaborated with the director to develop and execute the flying creatures' behavior.
- Developed a procedural system with parameterized controls for art-directing the creatures' flight behavior.
- Used amplitude of whispered dialogue to drive simulation parameters, creating audio-synchronized animation.

Roles: Tool Development, FX, Cinematography, Color



Collision Deformer

2:02 - 2:10 | Software: Houdini

- Developed an art-directable collision deformation algorithm that uses compression to drive outward deformation and preserve volume.
- Designed for real-time evaluation on moderate-resolution geometry.
- Provides a fast and lightweight alternative to Vellum-based soft-body collision simulations.

Roles: Tool Development, CFX, Lighting, Lookdev, Compositing, Color