

## Demo Reel Breakdown

**”Real Time Hair Simulation Import Pipeline.”** Fall 2009. A hairstyle is created in Maya and used in an external physical simulation that I programmed in C++. The simulation data is used to set key-frames on hair guides. Hair parameters are defined with Shave and a Haircut. The simulation is an implementation of Yizhou Yu’s paper, *A Practical Model for Hair Mutual Interactions*, as well as the real-time hair simulation described in *GPU Gems 2*.

**”Chaotic Particle System.”** Fall 2009. A chaotic dynamical system was modeled and rendered in real-time. The choreography is defined by pure mathematics rather than physics.

**”American Bison.”** Spring 2009. Bison polygon model created with Maya and Zbrush. Shave and a Haircut used for fur. The rig was fully scripted using Python. I animated the run cycle.

**“Group Project: Knight Rig.”** (Work in progress). Scripted character rigging of the Knight using Maya. Character is a biped with expressive leg and foot control.

**“Scripted Sea Anemone.”** Spring 2009. Procedural generation of geometry, rig, and cyclic animation. Python and Mel were used to extrude the arms, create the rig, bind the mesh, and set expressions on all the arms. Textures were painted in Zbrush, and shaders created with renderman.

**“Procedural Terrain.”** Fall 2009. Texture-based fractal terrain generator. Using Slim, a fractal texture was created for use as a height map. Extracting per pixel height data was performed by opening a pipe in Mel, and executing a C program that iterates over the texture, sending the height data back to Maya for mesh generation. Path sculpting and painting were performed using ZBrush. Renderman was used for occlusion and light passes. Maya was used for the depth pass. Photoshop was used for compositing.

**“Group Project: Rigging.”** Summer 2009. Character rigging of the Cute Dog, and the Robot Dog using Maya. The Cute Dog has dynamical ears, while the Robot Dog has two sets of knees. These were assets from our summer industry course with Disney, where I was our team’s rigging, lighting, rendering, and pipeline lead.