



UBC MArch Portfolio Submission  
James Schmitt





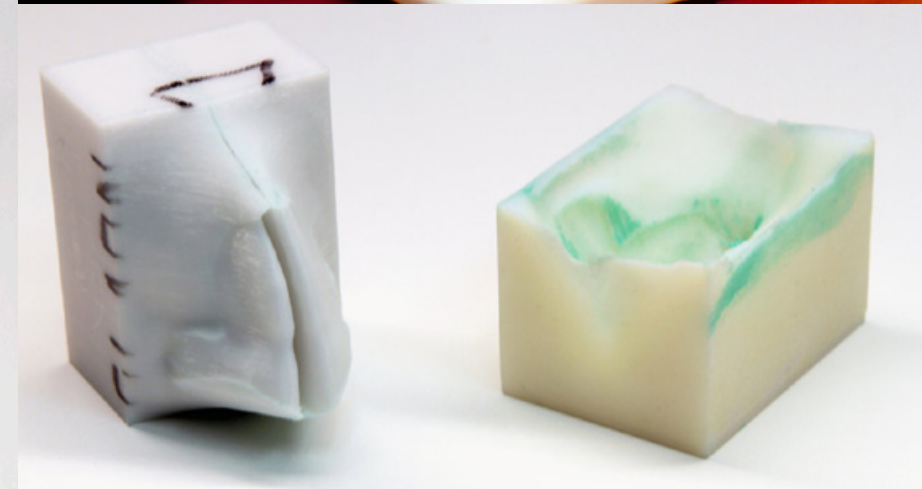


Studio: Pixomondo

I was the Asset / VFX Lead for the HBO miniseries Love and Death. I led a team of up to 10 people at a time in the creation of several sets for the production.

As the main artist for the creation of the church and the Dunfee hotel, I used procedural and parametric modelling tools in Houdini to allow for flexibility in the design and modification of the models. The church was originally built at 1:1 scale, though it appeared quite small in the frame of the establishing shot from across the parking lot. In response to client director requests, we scaled it up to an unrealistic scale of approximately 4:1 in order to match the desired framing for the shot.





I collaborated with the team at the Institute for Reconstructive Science and Medicine (iRSM) to create this second iteration of the Rhinoplasty Training Module. The goal was to simplify the production methodology from the original module created by Zabaneh et al. The Rhinoplasty Training Module facilitated the training of surgical residents in a low cost and repeatable fashion when compared with other training methods.

Digital models were created of the desired shapes for soft tissue, and skull bone pieces based on CT scan data. Artistic interpretation was utilized to produce elements like nasal cartilage which is not visible in the data. The skull and soft tissue pieces were also heavily modified to make them both castable and 3D printable.

Once shapes were finalized, molds were created for the soft tissue and nasal cartilage so that they could be additively manufactured. After casting the nasal cartilage in a high durometer silicone, it was inserted into a slot in the 3D printed skull piece and fastened with glue. The skull and nasal cartilage are then assembled and are placed in the soft tissue mold, which is then filled with a softer silicone approximating skin in its hardness.

After baking the silicone and allowing it to harden the module is removed from the soft tissue mold. Some minor post processing is required to clean up some flashing from the mold part lines.







Studio: Zoic Studios

I was responsible for the design, modelling, rigging, and animation of “the contraption” mechanism featured in the television series ‘A Series of Unfortunate Events’. The sequence pictured features “the contraption” as it pops out of the picnic basket, extends out across the lake, picks up the rock, and returns it to the picnic basket.

Working from an initial 2D concept image, I finalized the design of the metal “contraption” in three dimensions so it could convincingly retrieve the skipping rock that had been thrown into the lake by the characters in a previous shot.

After the modelling was approved by the client, I created the rigging stage using python scripting to set up animation controls for the large number of pieces in “the contraption”. The accordian style extension presented a technical challenge in the length of extension required before collapsing back to its starting position. Further complexity was added with the arms and grabbing hands positioned at the end of a dangling rope.

After the rigging was completed, I then was responsible for animating “the contraption”. Extra care was needed to ensure the camera was animated in synchronization with “the contraption” as it went through its sequence.

A Series of Unfortunate Events







Studio: Zoic Studios

This project was a commercial spot for the Rainbow 6 video game series.

I was tasked with rigging all of the characters in the commercial so that they could be easily posed by the layout team. Time was short for this project so efficiency was necessary. . All characters were bound to a common biped skeleton enabling me to quickly iterate through the list of 10 characters.

In addition to rigging the characters, I was also responsible for cleaning up and increasing the resolution of the character featured in the main panel from the game model and textures provided by the game developers. This involved cleaning up geometry and baking displacement maps, as well as applying procedural textures and materials for rendering.





Studio: Zoic Studios

I was responsible for creating the swarming cockroach behavior for the film The Perfection.

Animations of the cockroach run cycle were assembled together on top of a motion tracked geometry of the hand. The speed and scale of each individual cockroach was randomized to make them appear less uniform. Logic was applied to each cockroach agent so that it would avoid running into its neighbours. The hand geometry was treated as a deforming ground object allowing the cockroaches to traverse fully around the geometry when reaching the edges.

Due to the high speed and rapid movement of the arms at times it was necessary to find a way to immobilize the hand's world space transformations. I locked it at the origin of the world to solve for the cockroach swarming simulation, then reapplied the motion to the hand and cockroaches after.

In a separate simulation, a variety of spiders were set up similarly to the cockroaches, except their goal was to scatter away from the centre of the vomit puddle they were sitting in. Their run cycle was intermittent to give the appearance of them moving a little bit, sensing around, and then continuing on.





Featured here are a few of my Industrial Design projects.

### Glass Guitar

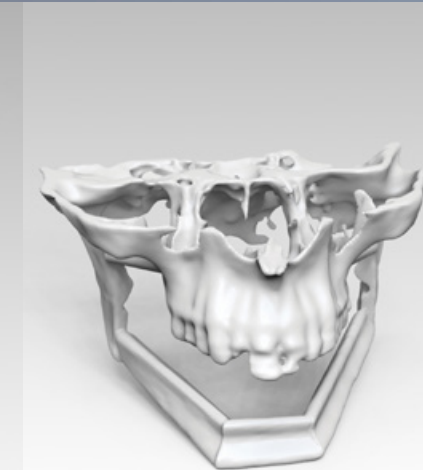
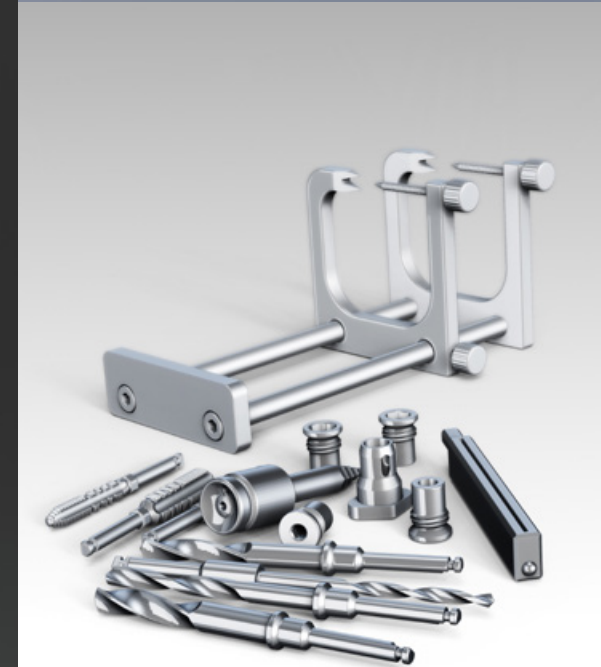
The Glass Guitar project was undertaken during my BDes degree. The objective of the project was to design something utilizing glass as the primary material. Before beginning my design, I disassembled an old electric guitar to understand its construction. This design was arrived at after ideation sketching and creating both digital and physical exploratory models. I purchased a premade through-body neck as well as electronic and hardware parts. The side wings were fabricated by CNC milling, and the neck was machined with a manual mill. The headstock holes were cut on a drill press. Finally the glass panels were cut by a water jet CNC and then all parts were assembled together.

### Wine Rack

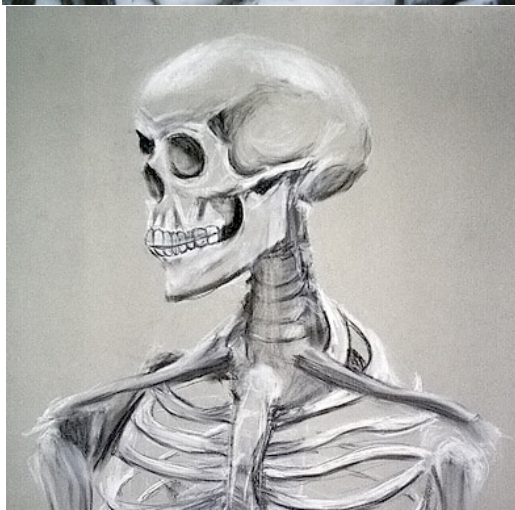
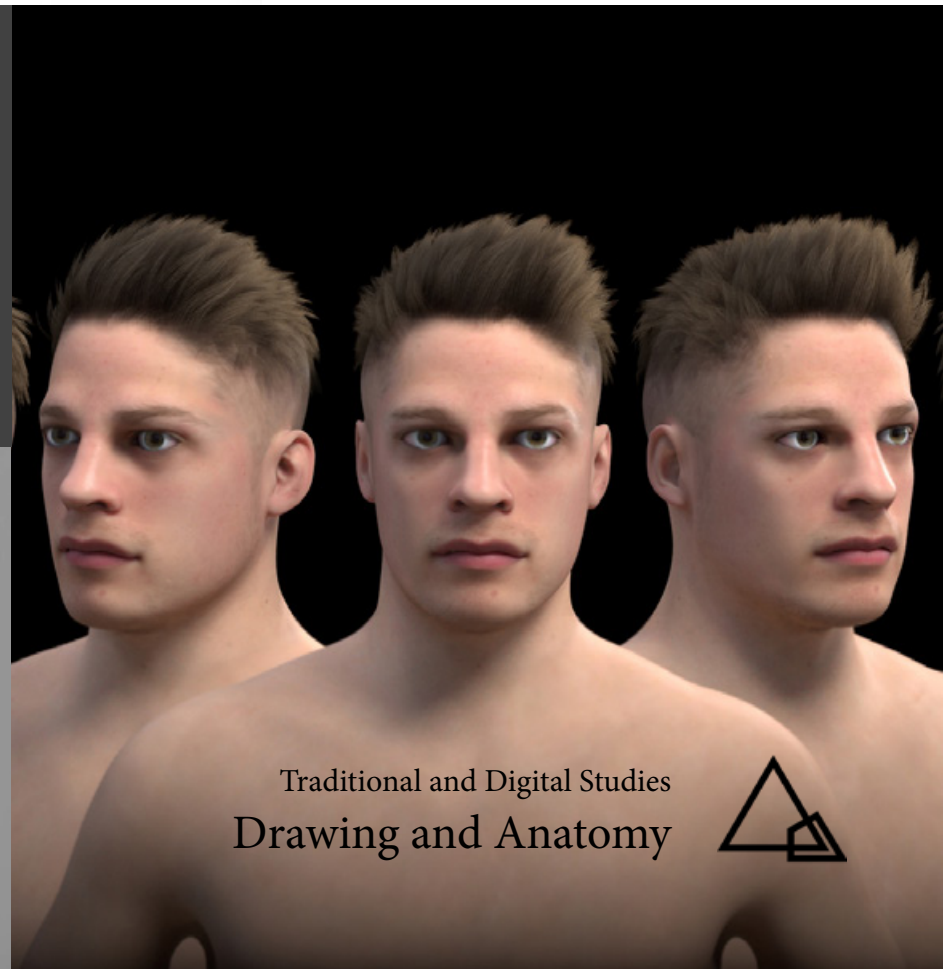
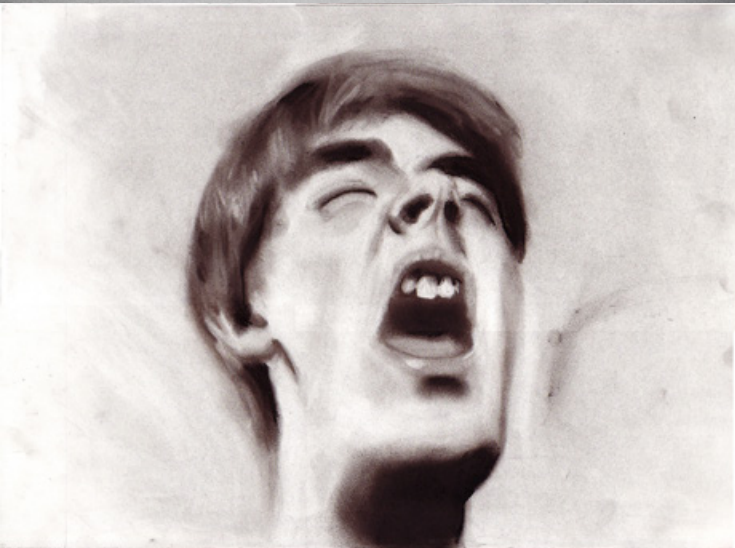
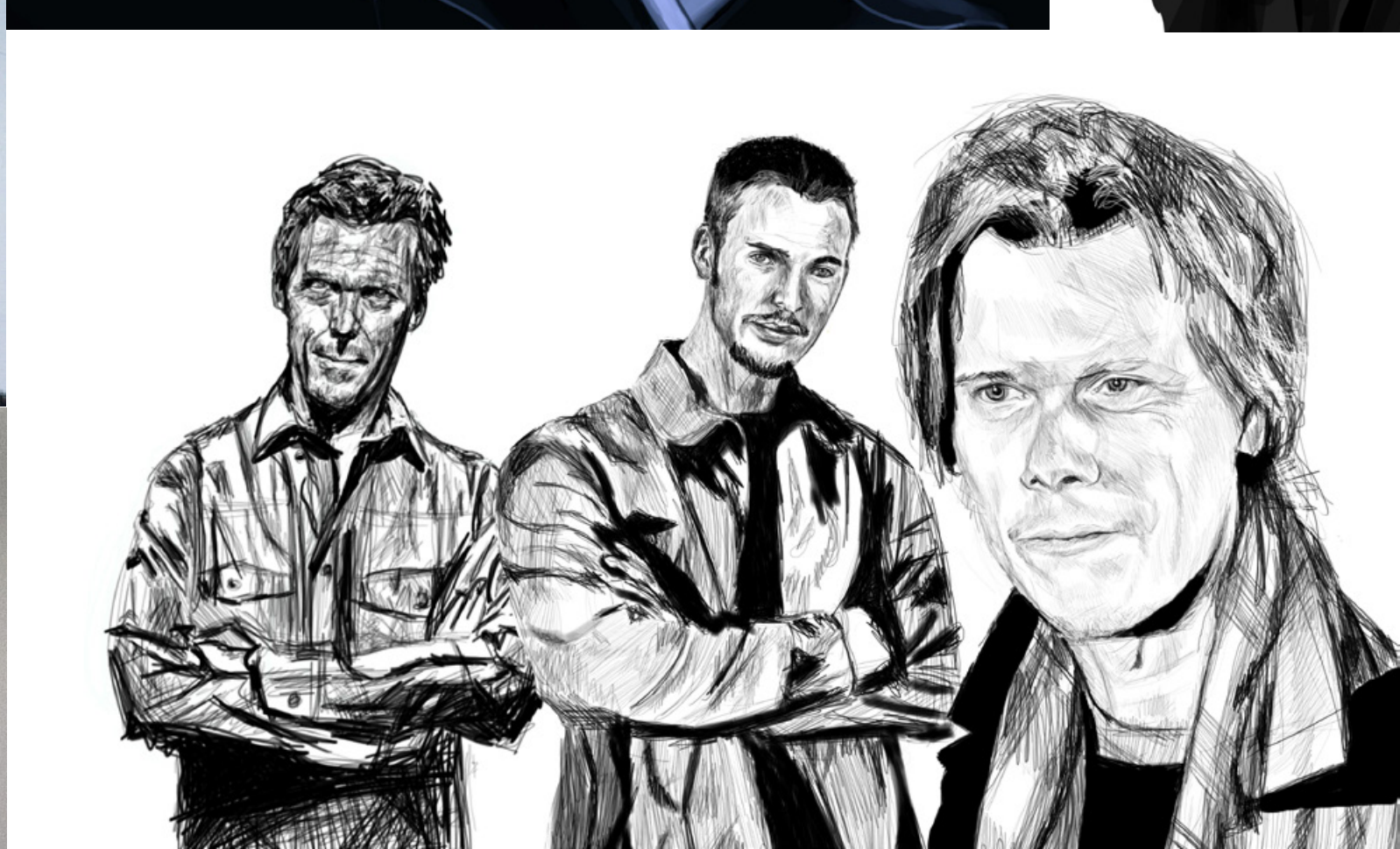
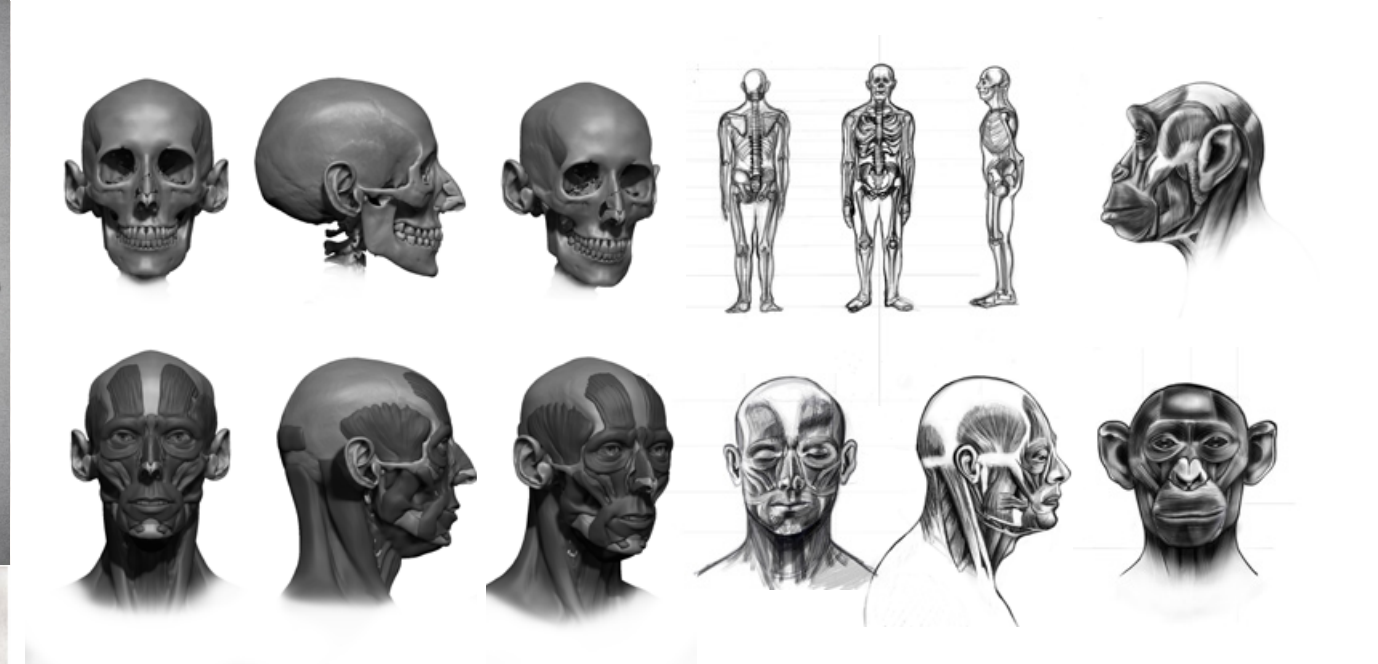
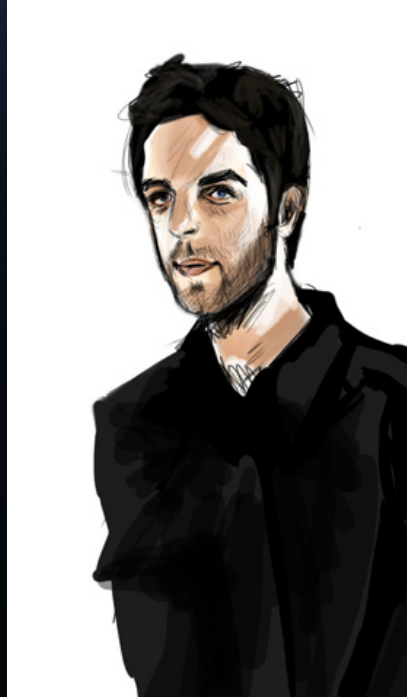
The Wine Rack project was designed for a class in my BDes degree. I wanted to explore creating a product out of metal. Square extrusions were cut and welded for the frame. I arrived at the angle of the bottles and shape of the rods by running gravity simulations on a digital representation of the design that produced the most stable bottle settling. The rods were fabricated by bending, and then welded to the frame, creating a solid structure.

### Fibula Holder

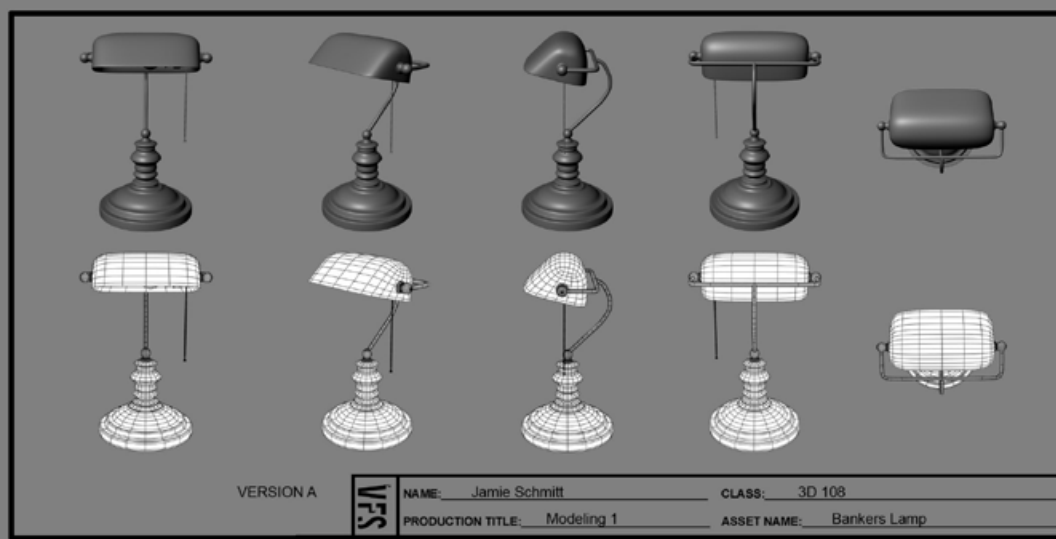
The Fibula Holder project was done during my time at the Institute for Reconstructive Science and Medicine. I worked with a team of Industrial Designers, Engineers, and Surgeons to design the fibula holder. The fibula holder was designed for surgeons to be able to clamp resected fibulas in place while making cuts to allow the fibula to be used in facial reconstruction of the jaw, or maxilla.





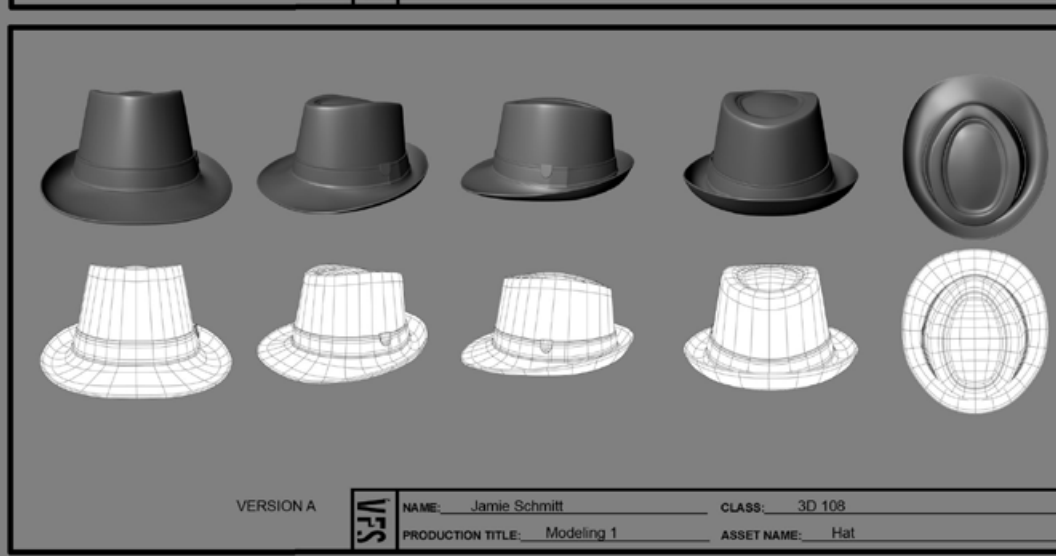
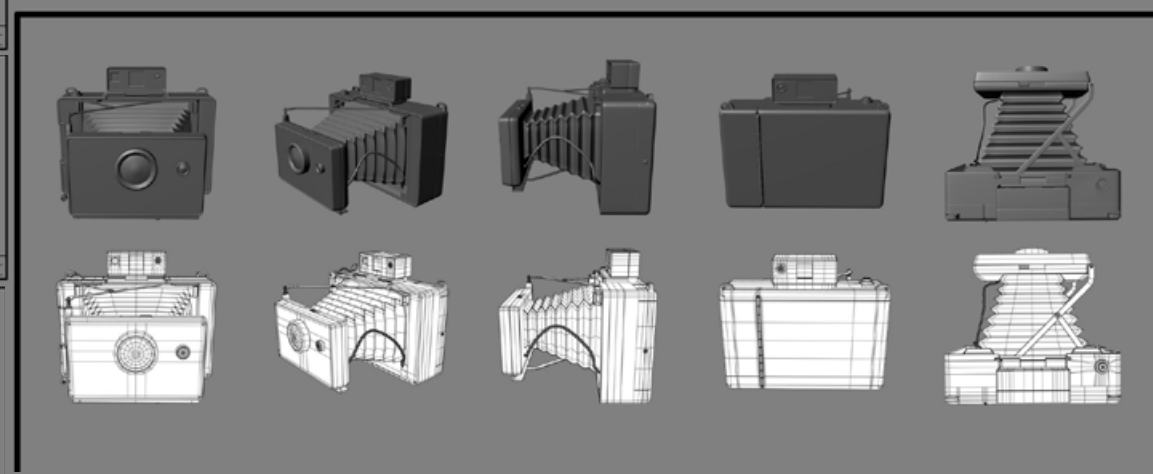
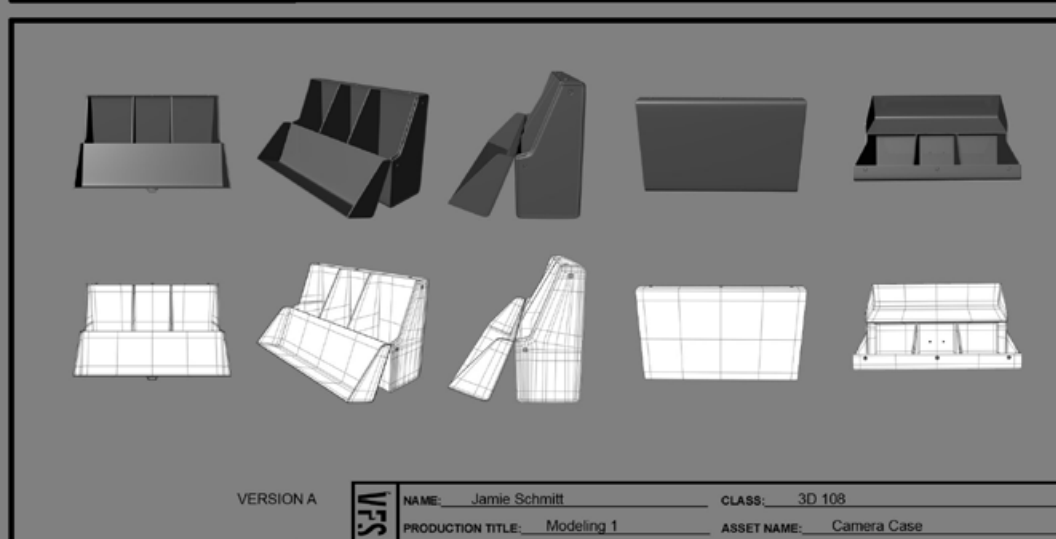






While I was a student at Vancouver Film School I worked on this Still Life project which involved documenting all of the items that went into it.

Models, texturing, and surfacing of the individual items were done from photographs, as well as observation. The items were then assembled together into a scene where camera layout and lighting were applied. Finally, the final image was composited together with 2D effects for smoke.







Studio: Zoic Studios

I handled a large portion of the crowd simulation at the studio. Many of the crowd systems at the studio were not yet in place so I was responsible for both developing the systems and executing on the shots that required crowds.

The Husky Stadium scene needed to be filled with 70,000 fans for the “Fly Over Washington” sequence. To start, the individual sections were modeled based on scan data of the stadium. A point was created for each available seat that was then used to instance on individual crowd agents. Cheering, sitting, and standing animation cycles were created for the agents. Many attributes for the crowd agents were randomized including the animation cycle, size, and colour. Due to the size of the crowd, and technical constraints, each section needed to be rendered out separately and composited together after the fact.

On the television show “Chilling Adventures of Sabrina” I worked on a swarm of rats that attacked the main character. This required complex crowd behaviour and collision avoidance on the rats as the crowd ebbed and flowed around obstacles. In collaboration with my team, we also overcame difficult technical challenges and rendered fur on all of the rat agents.

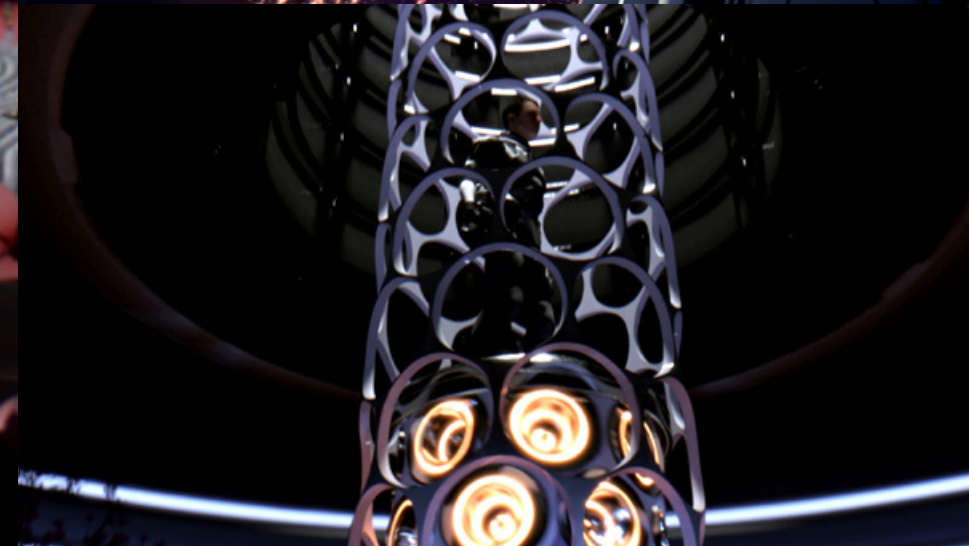
For the Season 3 finale of the television show “Zoo”, I simulated a crowd of 30,000 wolves running on undulating terrain and avoiding obstacles and collisions between other wolves.

On the television series “Future Man”, another stadium crowd was needed. I produced this crowd using a highly optimized setup with proxies that allowed technically for a much higher number of agents to be rendered without relying on first splitting the crowd into sections. This style of crowd creation produces similar results, but uses computing resources much more efficiently.

Crowd Simulation







“Ascent” was my final project / short film that I created while attending Vancouver Film School.

The film is centered around a ‘bionic-human’ protagonist who swaps his arms for cybernetic parts. The short film takes place while the protagonist is travelling from the Earth’s surface to the upper atmosphere via a space elevator, and ends with him doing a space dive from the space elevator back to Earth.

I designed and created all visual elements for this project.