no weight

a cg short film by
Joshua Matthews

shot 1
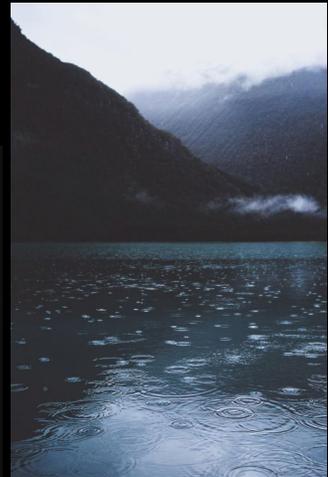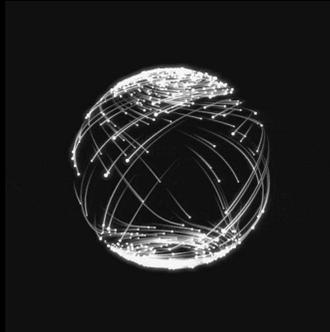
reference

This shot was done using a number of features that were new as of houdini 16. The lake was created with an ocean spectrum that uses point instancing to mask areas of the lake to make waves appear only in certain areas. I simply used a scatter node to generate 10 or so points on the surface and used them to drive the new feature.

The trees were created using a layered hair system which takes an initial curve and surfaces it with a polywire. Then it generates more branches simply with a hairgen node and surfaces those with the poly wire as well. This process was repeated a few times until I had a dense pine tree. The tree was then instanced onto the shore geometry. The trick to this setup was that the geometry needed to be packed and viewed as bounding boxes or Houdini would crash immediately. Each tree weighs about 800,000 polys, so having around 1000 of them was a lot to load in the viewport.

The mountains and clouds behind the trees are matte painted and brought in as image planes so that I could get the reflections to show up nicely on the lake geometry. The hdr I was using matched closely, but wasn't right for the perspective. The only other light I used for this scene was a directional light.

Conceptually, the sphere in the center of the composition went through many iterations before it looked like what you see today. The workflow however, never changed much. I simply took the top and bottom points of a high poly sphere and used the find shortest path node to generate random lines from the bottom to the top. I then used a carve sop to emulate growth along the curve path. The twisting feature was added later with a simple twist deformer.
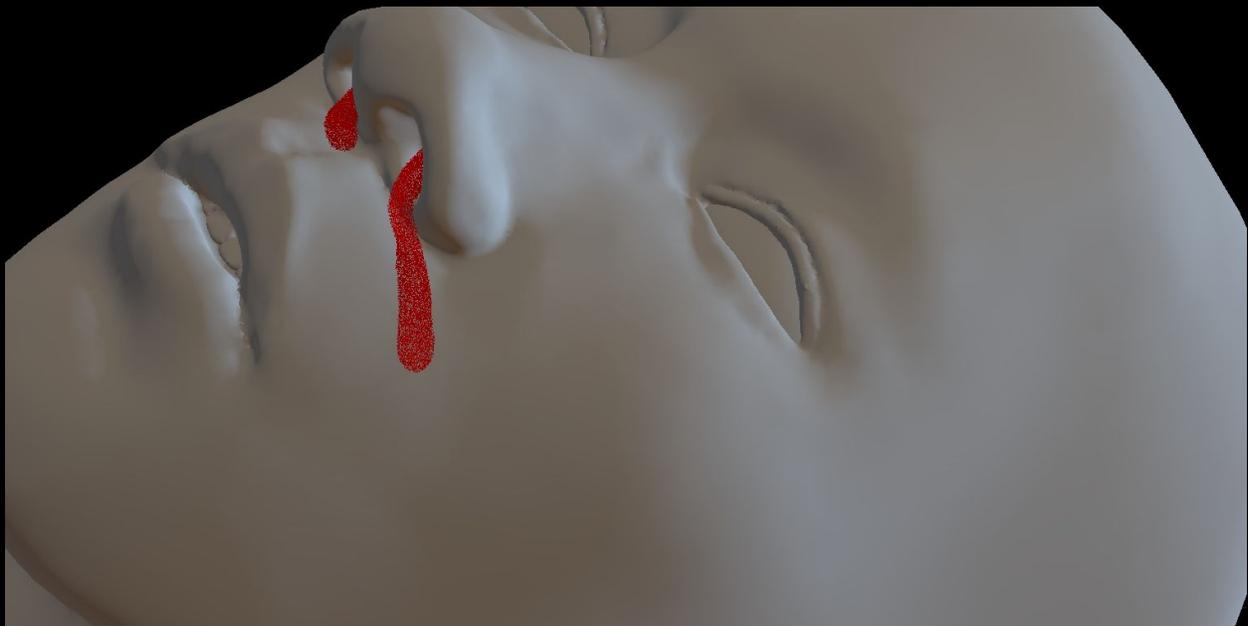
shot 2

reference

Pan's Labyrinth played a huge role in this shot' conception. The shot is relatively simple and the only technical aspect was the blood sim. I'm used a particle fluid emitter from tiny spheres inside of the character's nose. The trick to getting the consistency came from using surface tension, a small amount of viscosity, and tweaking the friction. Also when surfacing the fluid, I added some erosion to the vdb filtering and changed the smoothing method to gaussian.

shot 3

reference

This shot was heavily inspired by a number of shots in The Revenant. I used the tree asset that I created for shot 1 again here and simply scattered and instanced them on a grid. To create the sky, I took some video on my iphone while in the car during the move back to SCAD. The snow was created using a simple particle system. I then painted a sprite for snow in Photoshop and instanced planes on the particles so that I could render simple sprites.