The most magical part of the film Puss in Boots is when the characters discover a world made of clouds. The scene is light hearted and fun. Humpty Dumpty surprises Puss by scooping up the clouds like shaving cream and making himself a beard. I had the exciting task of of creating his cloud beard.

I thought about filming shaving cream, but there are already plenty of useful and strange videos on YouTube. From this and other videos I noticed that shaving cream is fairly opaque.

I started with geometry, but it did not look enough like clouds, so I turned to our volume based cloud pipeline.

The cloud pipeline is easily able to generate detailed volumetric noise patterns, but I ran into trouble when I tried to use it on small moving objects. It was designed with world space noise, which works well enough for big slow moving clouds, but if the clouds move, the noise does not move, so the object swims through the noise pattern.

In order to have full control of the noise sampling I wrote my own version of the Houdini plug-in. It samples the noise based on the uv texture coordinates of the polygonal model and the distance from the surface. This approach handles transformations and deformations and maintains a nice fluffy texture.

It was important to render the volumetric models the right way so that they would look like clouds. I first rendered a lighting pass with 3 different colored lights so I could control the shading of the clouds. Then, to approximate the light transmitting through the clouds, I rendered a layer with a bright core and darker edges. Finally I brought the layers together in the composite so I could match the colors of the cloud beard to the clouds in the environment.