

During the “Dance Fight” sequence in Puss in Boots, Kitty kicks a bowl of milk towards Puss, where it flies and spins in the air before dropping and causing a dramatic milk splash, all in super slow motion.

We started out shooting reference videos of milk splash in slo-mo. We realized that milk feels more viscous than water, and has the tendency of thinning out into translucent “sheets” before breaking apart into tendrils and droplets.

I first began my effects by running a real-time fluid sim in RealFlow. Then, the fluid particles were re-timed so they start out really fast but quickly decelerates into a halt. However, since I can't get enough milk to splash out with the simulation alone, I developed ways to add more particles such as sculpting a morphing “base” and also making systems to “grow” particle tendrils along the curves that I can draw anywhere.

But, when meshing these particles, I realized there were strange erosions within the geometry caused by high particle densities. Randomly deleting points in these dense areas would cause the mesh to pop and flicker with holes. Finally, I tried to shrink the size of these particles in proportion to their proximity to neighboring points, and this results in a much cleaner mesh without erosions or popping.

Finally, a droplets pass is added on top of the main fluid mesh. They are jiggling geometries instanced on a particle sim. Because these are rather complicated shots, Effects also had to collaborate closely with Lighting and Layout on the stereo rig, the multi-pane shots, and the translucent shading.