Raging Waters: The Rivergod of Narnia
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Summary:
This sketch presents how the Rivergod in Narnia – Prince Caspian was brought to life by controlling Flowline Fluidsimulations with a classic polygonal character-rig. We’ll also show how the complete rivergod was finally rendered in one single pass with the implicit surface render engine of Flowline.

Sketch:
To bring the rivergod to life, we had to develop a system that allowed the artists to create directable fluidsimulations within Flowline. The rivergod was constantly sucking water in a vortex motion from the river, spiraling up inside the body and pouring down again as his arms and hair. This system had to be a closed system where no single drop of water would disappear or could be cheated away. Everything had to fall back into the river and be used again to build the character by spinning up the vortex. This complex system had to work also with complex character animations of the Rivergod.

For this, we developed a setup that based all simulation setups on a keyframe animatable polygon-character rig and extended Flowline with features to maintain a realistic Flow of the water with foam, splashes and bubbles while constantly following the keyframe motion of the character. This setup then had to interact with the bridge horses and soldiers. We used a similar technique to what we had done for the ship destruction in 300. The wood had to splinter and interact depending on the pressure in the fluid simulation. The horses and soldiers were keyframe animated or motioncaptured and then transitioned into a simulated ragdoll motion interacting with the surrounding water.

To get fast turn around cycles on the shots we used the unique technique in Flowline to distribute a single simulations to the renderfarm. In this way we were able to get results in a fraction of the time that would have been needed to calculate a shot on a single computer. Since we did not want to use any procedural textures, each detail in the rivergod down to each single foam bubble with subpixel size in a final image had to be simulated. This was possible since Flowline allows to create different LOD's within a simulation.

While the simulation was still going on a shot, another set of computers was able to pick up rendering. One of the core features of Flowline is to allow rendering of all its simulationdata in one beauty pass including water, spray, bubbles, foam, selfshadowing, Global illumination and caustics. In fact, the Rivergod as he appears in the final shots in the movie, was created with the beauty pass and just a couple of adjustment layers for the compositors, so that they could focus on finetuning the shot instead of rebuilding the shot from dozens of layers.