Project 2: Complex Scene
Title: Candy Jars
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Date: February 18th 2019
Houdini Version: 17.0.352

Important statistics:

Average render time: 1:51h (720HD, 4x4, 6/12 rays)
Number of lights in scene: 3
Complexity of geometry (approximate):
   - Jar (big): 13,540 polys
   - Jar (small): 11,620 polys
   - Candy (big jar): 9,292 polys
   - Candy (small jar): 2,400 polys
   - Shelf and window: 400 polys

About the project:
The project consists in using RGB dynamics to create a scene with candy in jars with variation in candy and color. For a more interesting composition I used to references for the project, one for the candy and another one for lighting inspiration:


How the file is organized:
In the top level we can find different colored networks. The networks in green are the ones that contain geometry related to the scene. The ones in blue are the lights and the cameras. The ones in orange and yellow are the RBD simulations, the orange ones are the simulations for the big jar candies and the yellow ones for the small one.

Problems encountered and solutions:

- RBD simulation:
  - While doing the models of the candies for the simulation I tried to make them as realistic as possible in terms of scale, which resulted in very small candy. Real world scale is usually necessary for dynamics, but while running the simulations I realized that errors occurred in them due to the small size. For that reason, the simulations are done at a large scale and scaled down when imported back in a file node.
  - For the simulations I used the bullet solver. This solver is fast, but a problem I encountered often was that it sometimes didn't use the same shape a the geometry for the guide geometry in the simulation. The solution for this was choosing the geometry representation that best represented the original geometry.
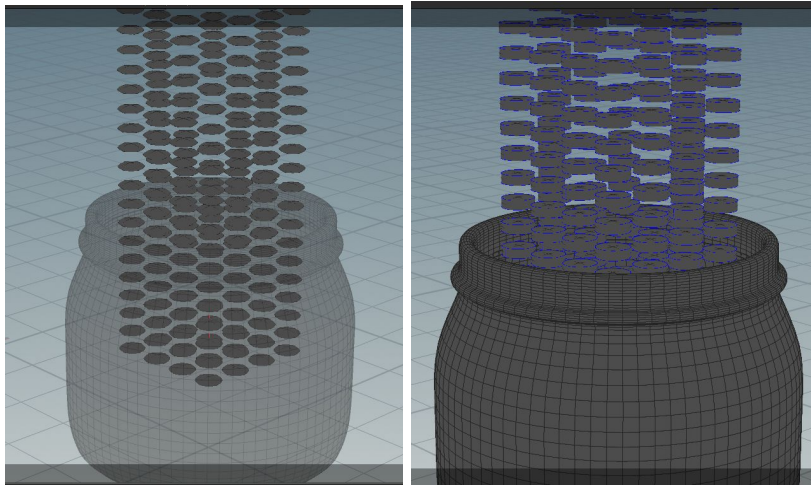
  - To instance the candy I used a cube with points. While experimenting with dynamics I realized that if the candy are intersecting before the simulation has started to run, the candies will also intersect during in the simulation. The cube with points allows me to instance candy and to control how far apart they are from each other so they don't intersect.

- Packing:
  - Due to the large amount of polygons in my geometry, I tried to use packing. However, when I tried to use it some of my textures disappeared in the render. I tried changing settings in the render node and to add the packing node after my materials, but it didn't work.

- Shading and rendering:
    - Candy requires subsurface and sometimes transparency, and I tried to achieve that using the mantra render. Because my scene has a lot of glass and subsurface in it I had trouble rendering and whenever I tried using the renderfarm my frame got killed for going over the two hour max. For that reason I decided to render locally.