

# Procedural Animation

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# Render Stats

Average Render Time: Mantra- 3 min/frame  
(1280x720)

Number of lights in scene: 2  
( 1 environment light with an Hdri and 1 point light)

All Complexity of geometry (approximate):

Points: 10,400

Vertices: 33,764

Polygons: 6,886



Final picture

# About this Project

This project uses the dot product examples from Professor Fowler's website, point wrangles, sin, regular rotation, and add nodes for the different objects.

I used the dot product examples with the point wrangles, and sin to help produce the leg mechanics of the rabbit running. The turtle uses regular rotation values of  $\pi$  and point placement to put the turtle geometry at the top of the slab.

I used object merges to bring in the turning objects into the other geometry node.

I used trace nodes to get the main animal geometry in this project.

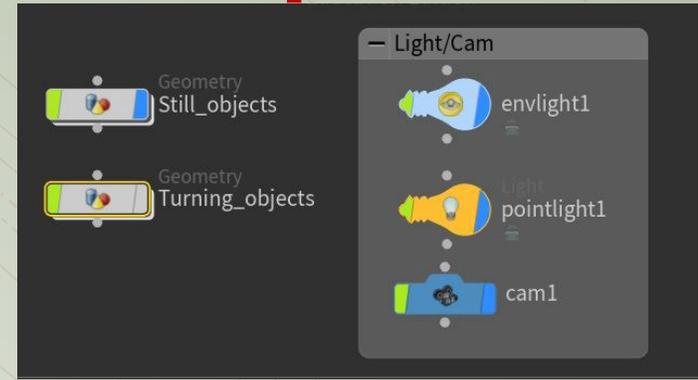
# File Organization

In the top level, are the two different main networks and the lights/camera.

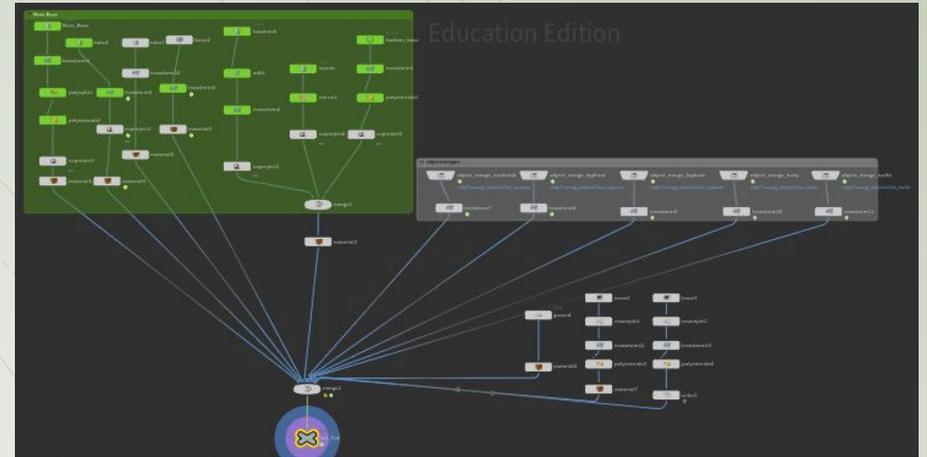
The Still objects are the geometry that is not moving, which is placed in the green network box. I added object merges to bring in the geometry that is moving from the Turning objects geometry nodes.

Within the Turning objects, the blue network box is the body, the pink is the turtle, the brown is the main turning knob, and the two big multi-colored boxes contain the rabbit legs.

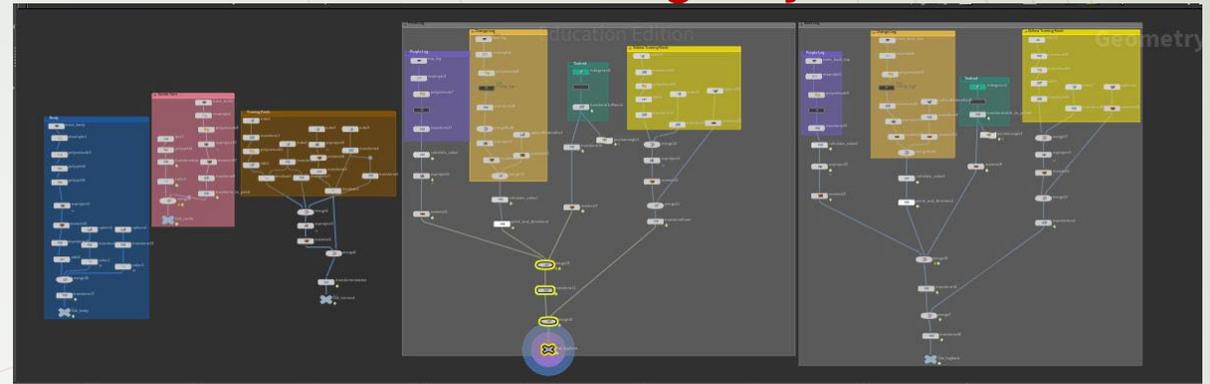
Top Level



Still Objects



Turning Objects



# Textures

For the textures, I used free wood textures that I found online.

The green background for the main circular base, I painted it in Photoshop and placed it using UV project and a material node in Houdini.

I used trace nodes for making the sign, rabbit, and turtle.

The turtle's color was easier to use a picture from the reference image and UV project onto the trace node.



Wood picture painted half green



Regular darker wood



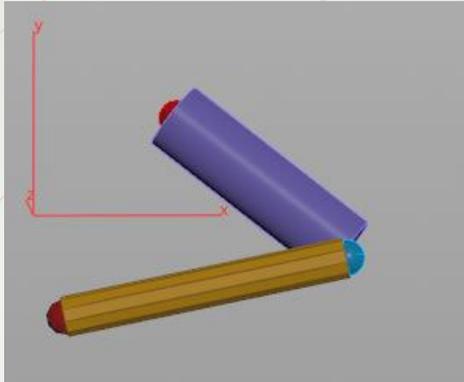
Trace node picture



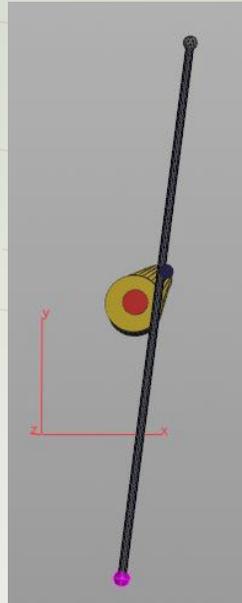
Turtle picture

# Challenge

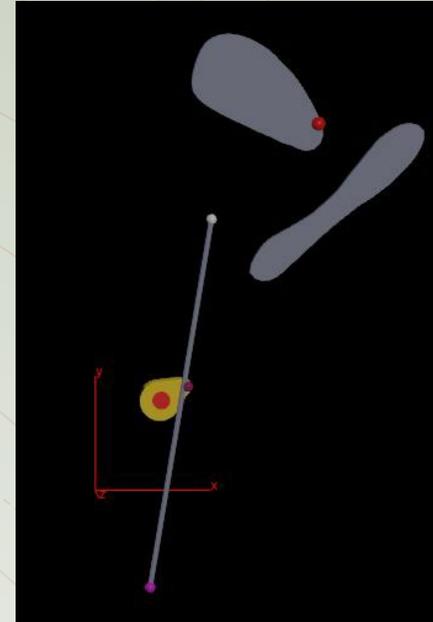
Working Leg



Working Pole



Together Result Problem



Final Result



The main challenge of this project was to get the rabbit leg mechanics to work properly. I followed Professor Fowler's two dot product examples to get the legs and the bottom pole of the mechanics to work, but when to combine the result, it was very difficult for me to figure out.

For my final result, I used the main leg mechanics as the result instead of the bottom pole, since it seems more important to show as legs running instead of the pole.

Examples provided by Professor Fowler

Source: <https://www.deborahrfowler.com/MathForVSFX/DotProduct.html>

<https://www.deborahrfowler.com/MathForVSFX/DotProductFollow.html>