5. **Djinn mesh manipulation** (difficulty: |||)

For this project you will simulate a djinn coming out of the lamp. You will accomplish this by thinning and gradually thickening a mesh coming out of the lamp, following a fixed trajectory. Next you will implement a “wish” involving particle effects.

keywords: mesh manipulation, shadow mapping, particle effects

Part A:

- Load a lamp model (or a teapot). Locate the tip of its neck and place it strategically on the origin (0,0,0). Create a plane/floor/ground for the lamp to stand on.
- Apply lighting and shadowing algorithms of your choosing.
- Define a polynomial (or other) curve coming out of the teapot and going upwards. Create a particle generator at the tip. Make the particles float upwards following the curve, with increasing variance until they disappear.

Part B:

- Load a djinn mesh (or any other mesh). Apply proper transformations to thin it out and make it emerge from the tip of the lamp. Make the lamp vibrate until this process is finished.
- Make the mesh thicker as it follows the curve, until it reaches its original proportions. When this happens the lamp should stop vibrating.
- By the press of a key, the user wishes for a rain of gold coins.

Resources:
Example teapot: https://free3d.com/3d-model/teapot-15884.html