

Computer Graphics Shaders – CS 557

Project-3

Displacement Mapping, Bump Mapping, and Lighting

Name: Akhil Sai Chintala

ONID: chintala@oregonstate.edu

- **What you did and explaining why it worked this way**

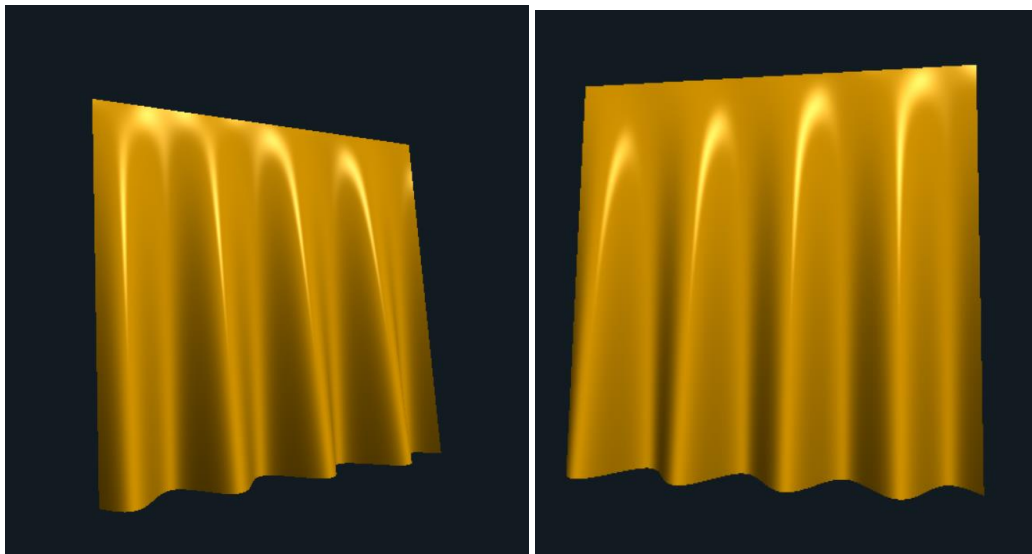
I have followed the instructions given in the resources page and written a code for per-fragment lighting with bump-mapping which calculates the lighting for each fragment in the scene by adding specular, ambient, and diffuse light. I have added certain inputs like Vec3 Eye, Norm, Light for the vectors from current fragment to the eye, surface normal and vector from the current fragment to the light source. I have also created various uniform variables in the vert file which is used for transforming the vertices of the given object to create a wave shape by modifying its co-ordinates. The same way I have also implemented shininess as the shininess parameter of the surface material.

This worked as expected because I have used the same equation for pleating where z value is going to change for all the vertices using the sin function. We have also calculated the normal using the tangent vectors and by calculating the cross product of it. Code for bump mapping was also already written using the noise frequency which was already mentioned in the previous project.

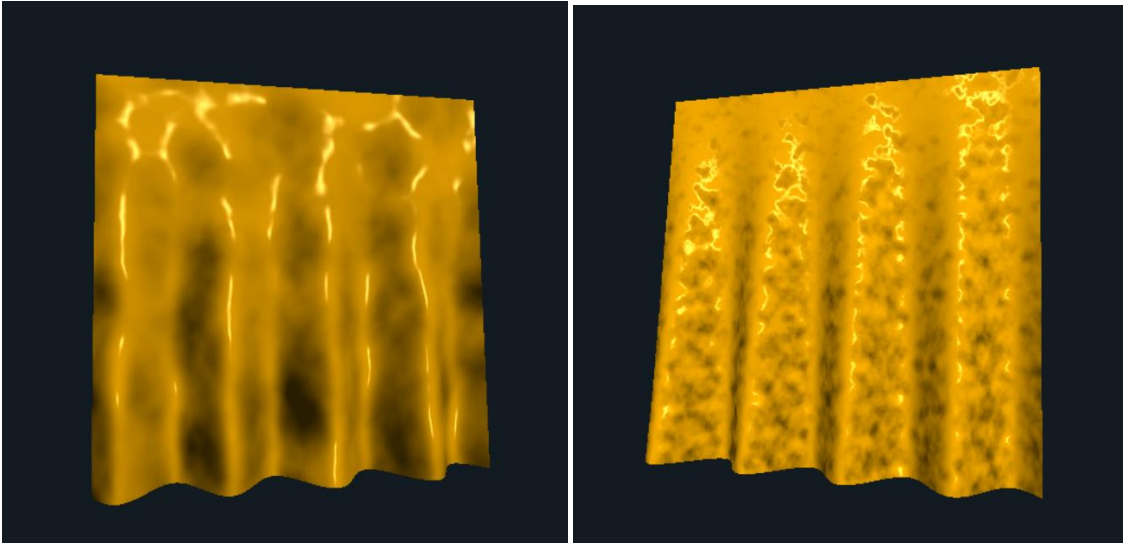
- Side-by-side images showing different values for the input parameters.



- Per-fragment lighted image(s) showing that your normal computation is correct.



- Per-fragment lighted image(s) showing that your bump-mapping is correct.



Video Link:

https://oregonstate.zoom.us/rec/share/BwXMFO91v9Nv5M08L6Z9YWq29uTUuZ4VoQF33v7_ER-lzm5CQ6vKOKhYY8IEldkp.3Pz9UoYpzaLnOIMk?startTime=1675750221000