AS6 Report - CS 411

Written Problems

Please find written problems in docs/WrittenProblemsAS6.pdf

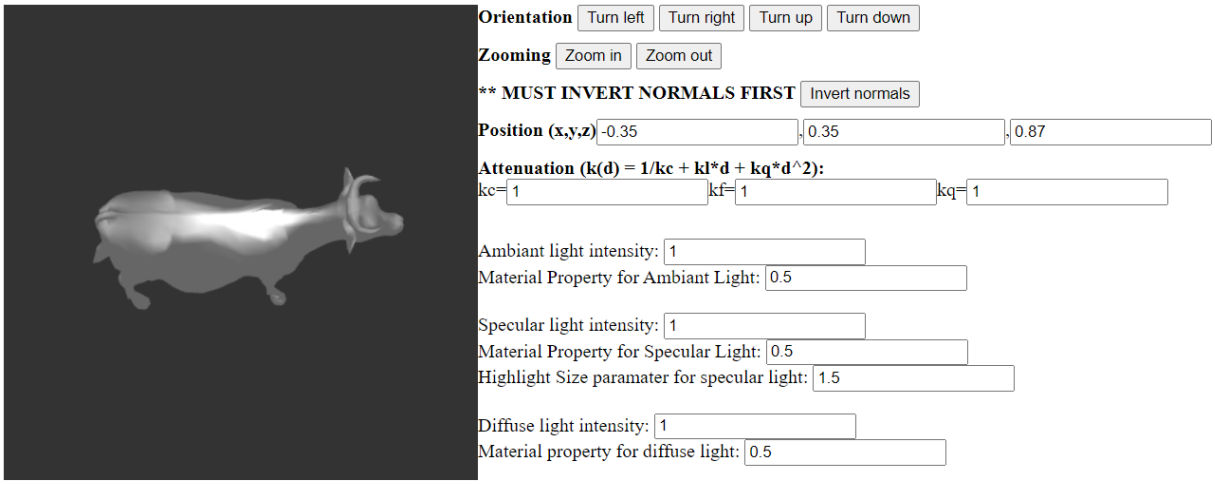
Reflection

The vast majority of my changes are either in generating listeners for my numeric inputs, or in the vertex shader. The vertex shader is heavily commented, and the computations that are completed are reflective of what was presented in class slides. Very few liberties were taken, and nearly all of my equations and variables were pulled directly from class notes.

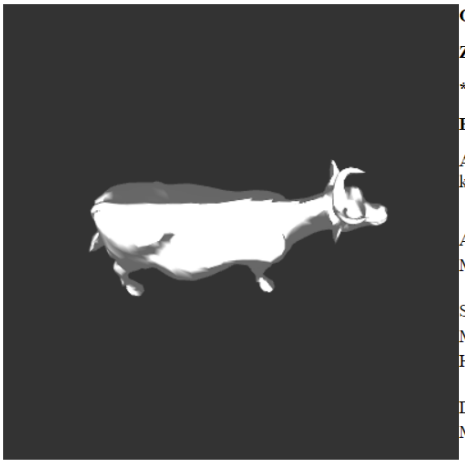
Demo

Tested in Google Chrome Version 93.0.4577.82.
For every screenshot, I have **inverted normals** and zoomed in 2 clicks into the cow object scene.
Please note it is important to press the “invert normals” button to get the accurate scene.

Default:



Demonstration of light position changing. XYZ all simultaneously change.



Orientation Turn left | Turn right | Turn up | Turn down

Zooming Zoom in | Zoom out

**** MUST INVERT NORMALS FIRST** Invert normals

Position (x,y,z) -3.85 , -3.65 , 10.37

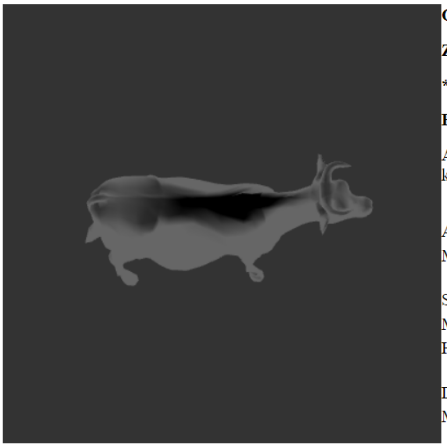
Attenuation (k(d) = 1/kc + kl*d + kq*d^2):
kc= 1 kf= 1 kq= 1

Ambiant light intensity: 1
Material Property for Ambiant Light: 0.5

Specular light intensity: 1
Material Property for Specular Light: 0.5
Highlight Size paramater for specular light: 1.5

Diffuse light intensity: 1
Material property for diffuse light: 0.5

Demonstration of Attenuation Constants simultaneously:



Orientation Turn left | Turn right | Turn up | Turn down

Zooming Zoom in | Zoom out

**** MUST INVERT NORMALS FIRST** Invert normals

Position (x,y,z) -0.35 , 0.35 , 0.87

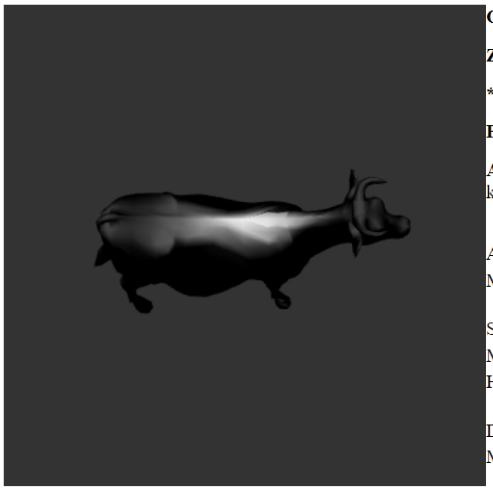
Attenuation (k(d) = 1/kc + kl*d + kq*d^2):
kc= 30 kf= -10 kq= -1

Ambiant light intensity: 1
Material Property for Ambiant Light: 0.5

Specular light intensity: 1
Material Property for Specular Light: 0.5
Highlight Size paramater for specular light: 1.5

Diffuse light intensity: 1
Material property for diffuse light: 0.5

Demonstration of Changing Ambient Light properties simultaneously:



Orientation Turn left | Turn right | Turn up | Turn down

Zooming Zoom in | Zoom out

**** MUST INVERT NORMALS FIRST** Invert normals

Position (x,y,z) -0.35 , 0.35 , 0.87

Attenuation (k(d) = 1/kc + kl*d + kq*d^2):
kc= 1 kf= 1 kq= 1

Ambiant light intensity: 1.7
Material Property for Ambiant Light: 0

Specular light intensity: 1
Material Property for Specular Light: 0.5
Highlight Size paramater for specular light: 1.5

Diffuse light intensity: 1
Material property for diffuse light: 0.5

Demonstration of Changing Specular Light properties simultaneously:

Orientation Turn left | Turn right | Turn up | Turn down

Zooming Zoom in | Zoom out

**** MUST INVERT NORMALS FIRST** Invert normals

Position (x,y,z) -0.35 , 0.35 , 0.87

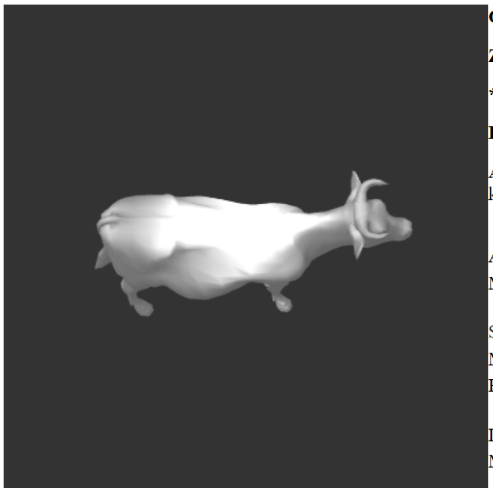
Attenuation (k(d) = 1/kc + kl*d + kq*d^2):
kc= 1 kf= 1 kq= 1

Ambiant light intensity: 1
Material Property for Ambiant Light: 0.5

Specular light intensity: 3
Material Property for Specular Light: 6
Highlight Size paramater for specular light: -1

Diffuse light intensity: 1
Material property for diffuse light: 0.5

Demonstration of Changing Diffuse Light properties simultaneously:



Orientation Turn left | Turn right | Turn up | Turn down

Zooming Zoom in | Zoom out

**** MUST INVERT NORMALS FIRST** Invert normals

Position (x,y,z) -0.35 , 0.35 , 0.87

Attenuation (k(d) = 1/kc + kl*d + kq*d^2):
kc= 1 kf= 1 kq= 1

Ambiant light intensity: 1
Material Property for Ambiant Light: 0.5

Specular light intensity: 1
Material Property for Specular Light: 0.5
Highlight Size paramater for specular light: 1.5

Diffuse light intensity: 50
Material property for diffuse light: 4