Project 3

Points: 75 (+ 25 BONUS)

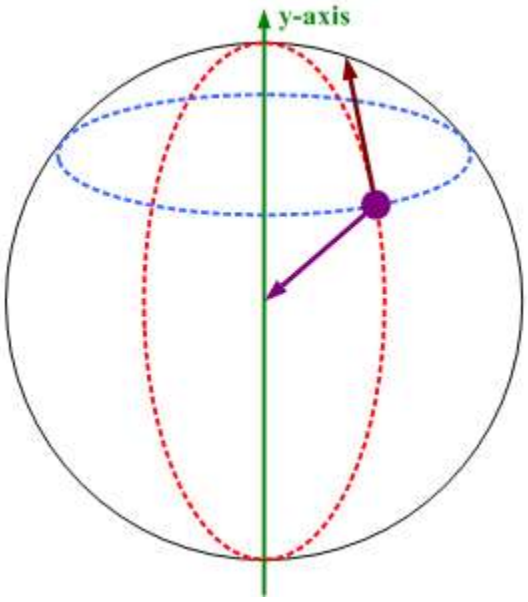
Resources

- Texturing tutorial
- 3D modelers/viewers/editors Blender or MeshLab or meshconv
- Image editors, for example GIMP to convert formats.
- your Project 2 (code base)

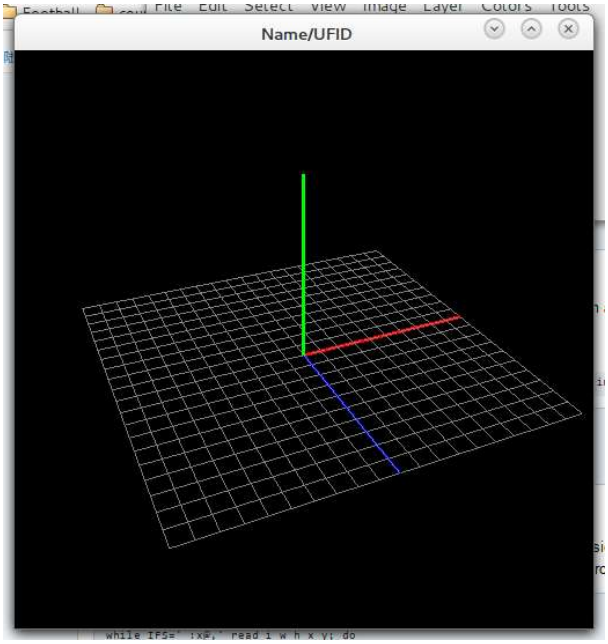
Set up

Points: 10

- Draw a 600x600 window and set the title to "Yourname".

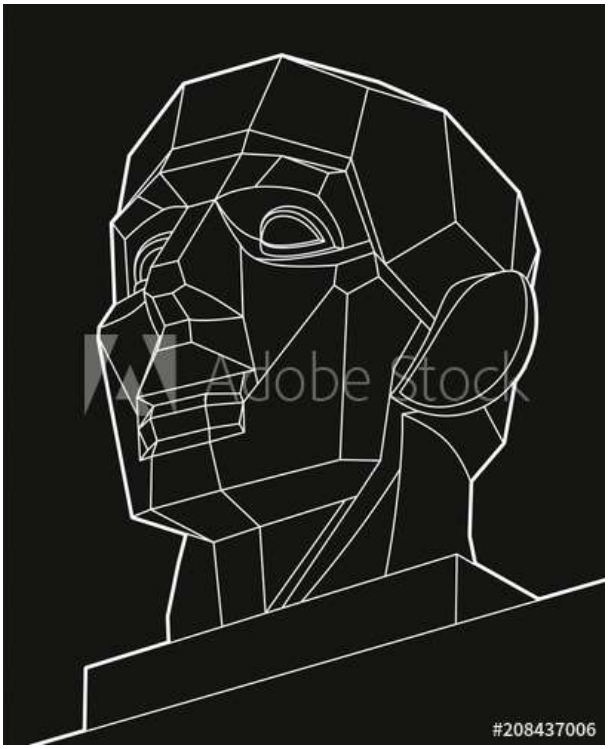


- Use **Perspective** projection, set the field of view angle to be 45 degree, near plane to be 0.1 and far plane to be 100.
- **Camera movements from Project 2**: Use ← and → keys move the camera along the blue circle parallel to the equator. ↑ and ↓ keys rotate the camera along the red circle orthogonal to the equator. Point the camera always to the origin. Choose a good "up" direction.
- The r key resets the program to its startup state (displays x-y plane, clear rotations, etc.).

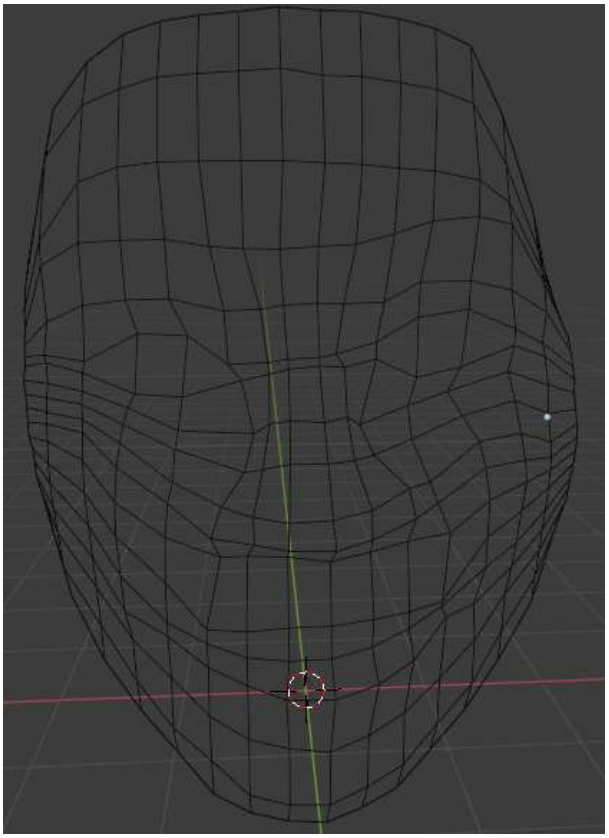


Task 1: Display face geometry as a(n irregular) quad mesh

Points:
12+3



- Create or find a low poly human head consisting of 3- and 4-sided facets and import it into your openGL program.
- The f key toggles show/hide of the *wireframe* of the model (show no facets yet!)



Task 2: Add a texture

Points: 0+12+3

- Take a photo of your face
- Map the photo onto the quad facets of the mesh
- The F key toggles show/hide of the facetted (Frankenstein) head with texture

Task 3: Render a smooth surface

Points: 17+3 + 12+3

- Apply PN triangles and PN quads to the mesh
- The P key toggles

show/hide of the smoothly rendered head (= with sufficiently high sample level)
- uv-map your face texture onto the front of the curved surface PN quad head model.
- The u key toggles show/hide of the texture.

BONUS:

Points: 10+5+10

- enable picking of the vertices (nodes) of the coarse input mesh.
- Animate the front of your face: to show a smile (explain picking usage in Readme.txt)
- Use the tessellation engine for Task 3.

WHAT TO SUBMIT

as for previous projects

- Filepaths to load models must be relative to the source directory (no absolute paths specific to your computer). Use a "models" folder within the top-most level of the source repo ("ogl-master"). If you need to deviate specify the location in the readme file.