Title: Project 4—Cube Mapping Reflective and Refractive Bump-mapped Surfaces

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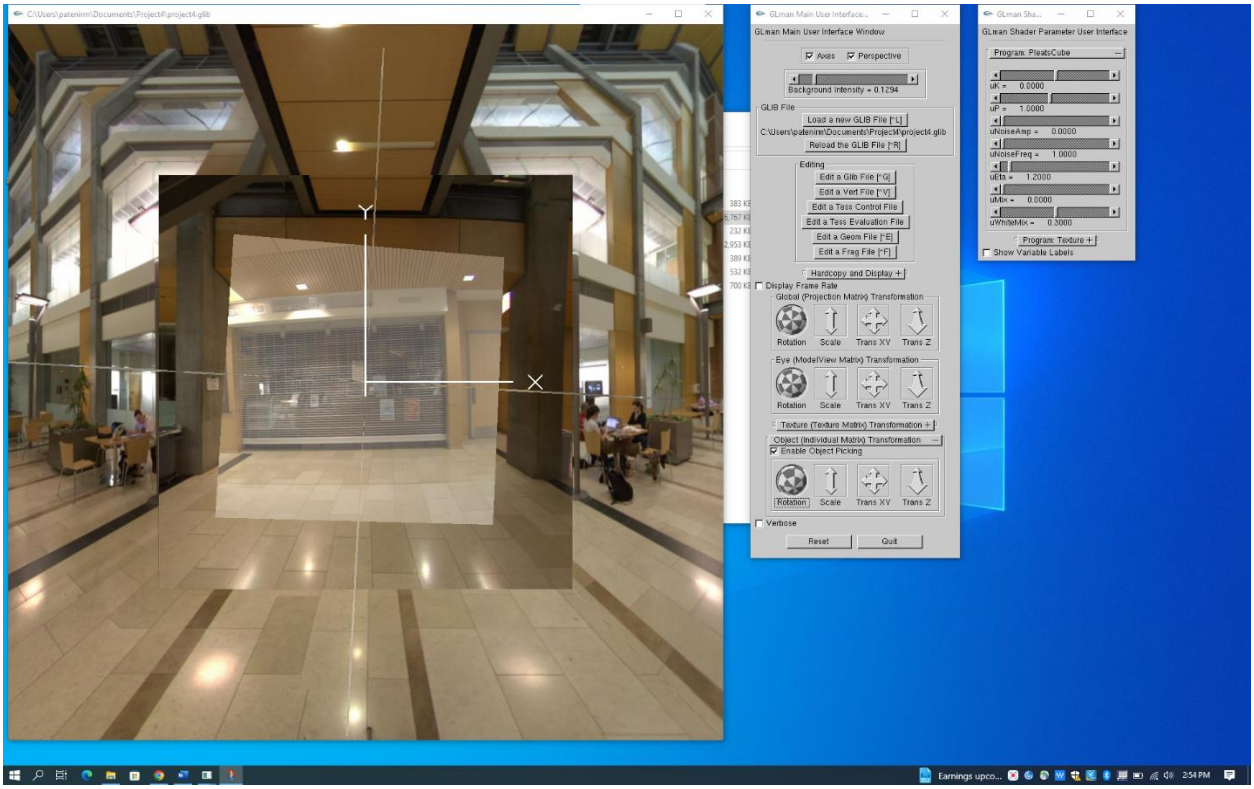
Video Link:

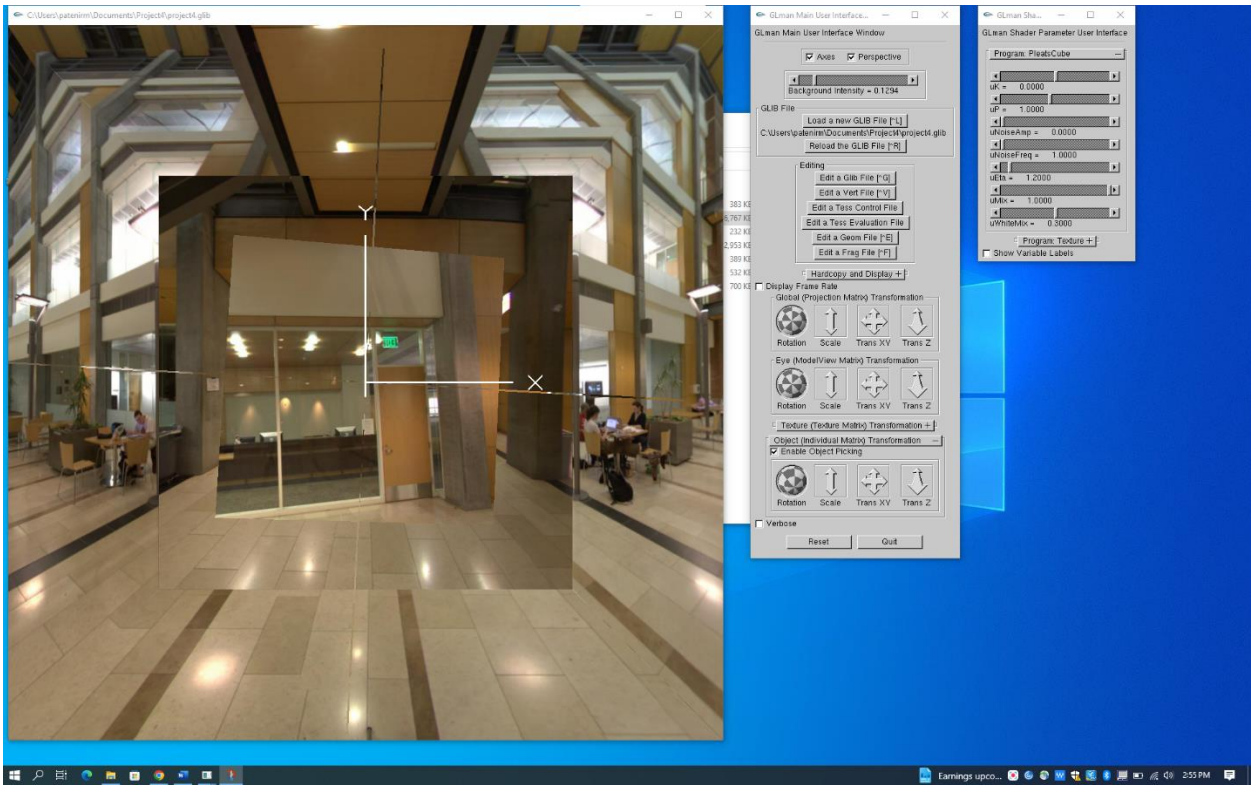
https://media.oregonstate.edu/media/t/1_3vrlu8g9

About project:

For this project, I utilized cube-mapping to create a reflective and refractive display of a bump-mapped math function. The same math function used in Project #3 was utilized and the parameters for the math function (uK, uP) were put on sliders. To blend the reflective and refractive versions of the scene, a uMix slider variable was used. The index of refraction, uEta, was also put on a slider. I used the Kelley cube map to provide the output for the cube map. By utilizing cube-mapping and adjusting the various parameters with sliders, I was able to create a visually appealing display that accurately reflected and refracted the math function.

Screenshots:




GLman Main User Interface Window
Axes
Perspective
Background Intensity = 0.1294
GLIB File
Load a new GLIB File [^L]
Reload the GLIB File [^R]
Editing
Edit a Glib File [^G]
Edit a Vert File [^V]
Edit a Tess Control File
Edit a Tess Evaluation File
Edit a Geom File [^E]
Edit a Frag File [^F]
Hardcopy and Display
Display Frame Rate
Global (Projection Matrix) Transformation
Rotation
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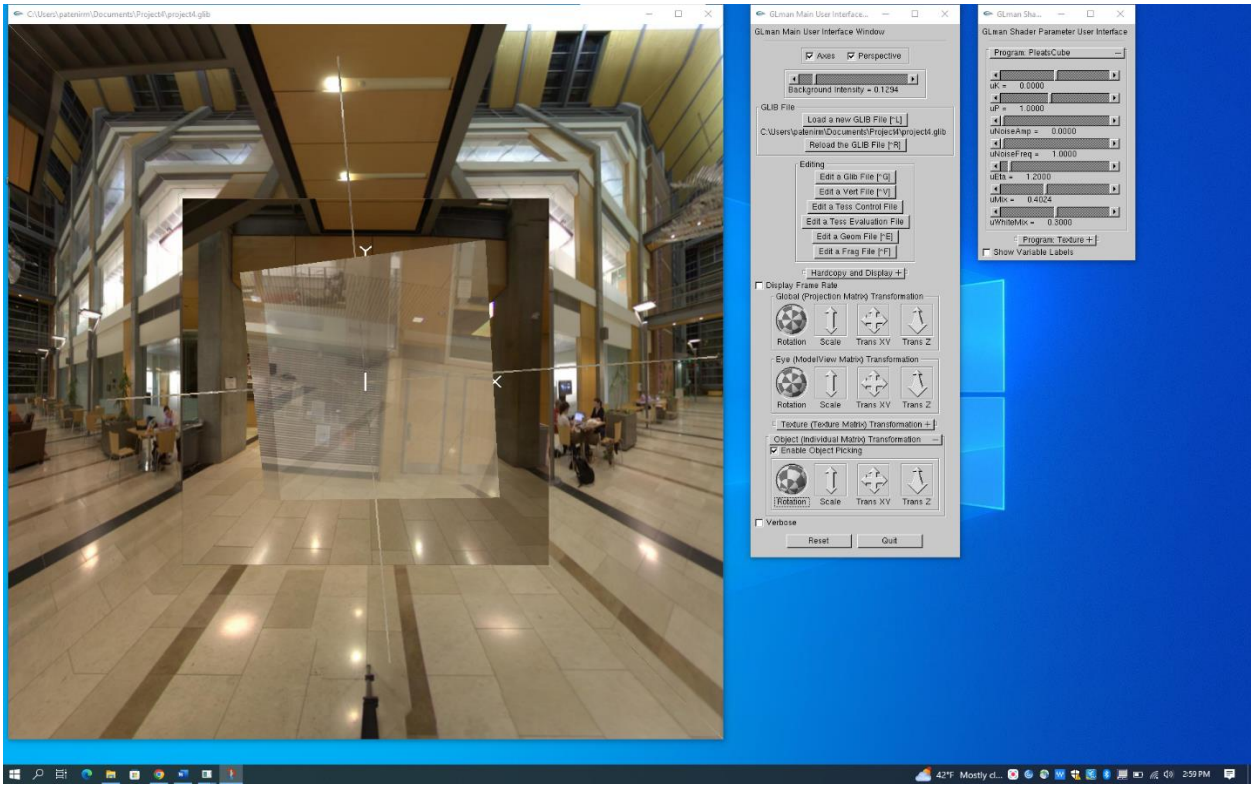
Trans XY
Trans Z
Eye (ModelView Matrix) Transformation
Texture (Texture Matrix) Transformation
Object (Individual Matrix) Transformation
Enable Object Picking
Verbose
Reset
Quit
GLman Shader Parameter User Interface
Program: PleatsCube
uK = 0.0000
uP = 1.0000
uNoiseAmp = 0.0000
uNoiseFreq = 1.0000
uEta = 1.2000
uMix = 1.0000
uWhiteMix = 0.3000
Program: Texture
Show Variable Labels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GLman Shader Parameter User Interface
Program: PleatsCube
uK = 0.0000
uP = 1.0000
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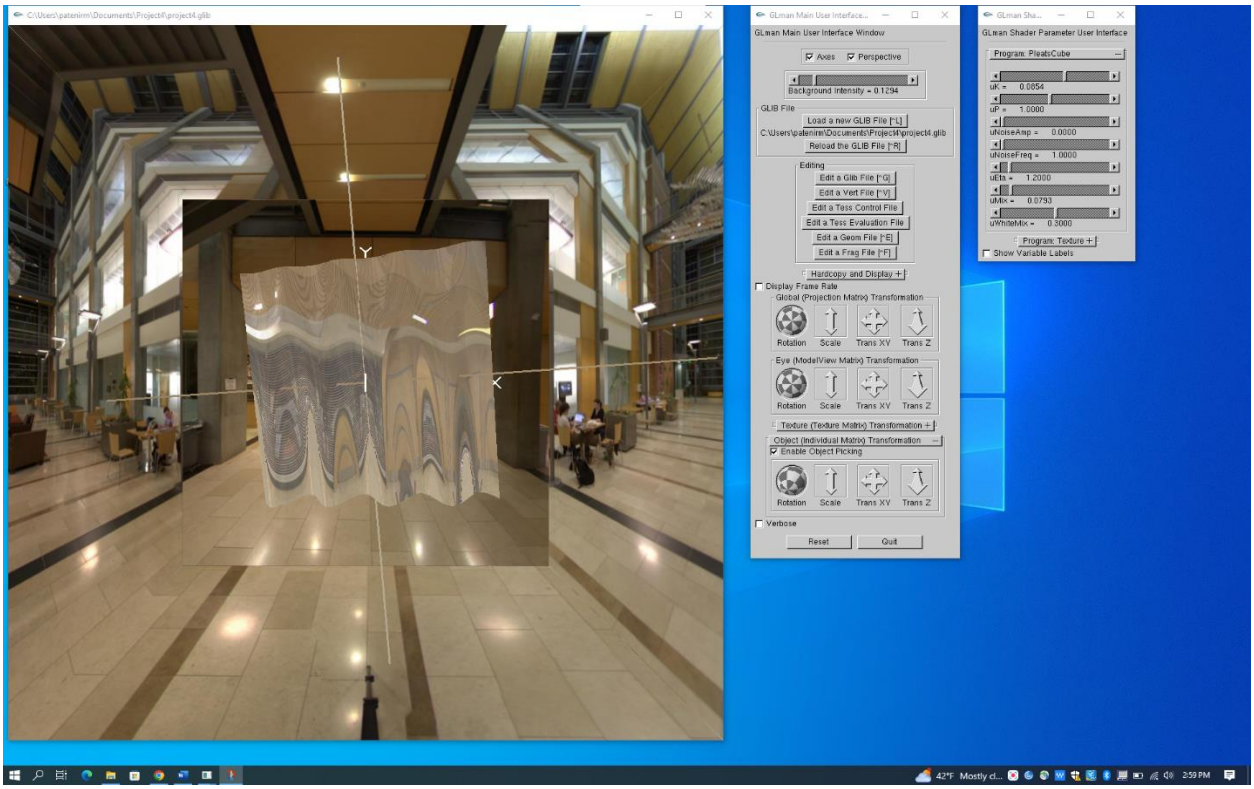
Show Variable Labels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GLman Shader Parameter User Interface
Program: PleatsCube
uK = 0.0654
uP = 1.0000
uNoiseAmp = 0.0000
uNoiseFreq = 1.0000
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uWhiteMix = 0.3000
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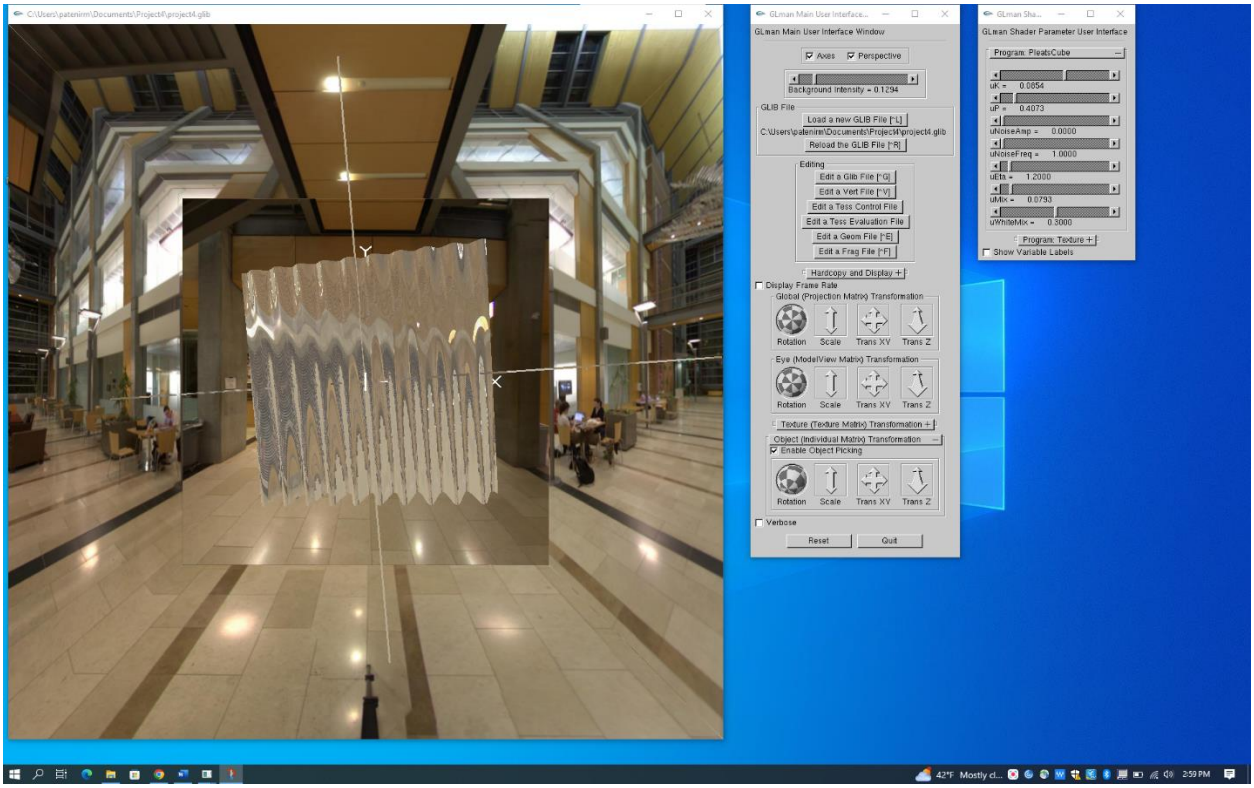
Show Variable Labels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Verbose
Reset
Quit
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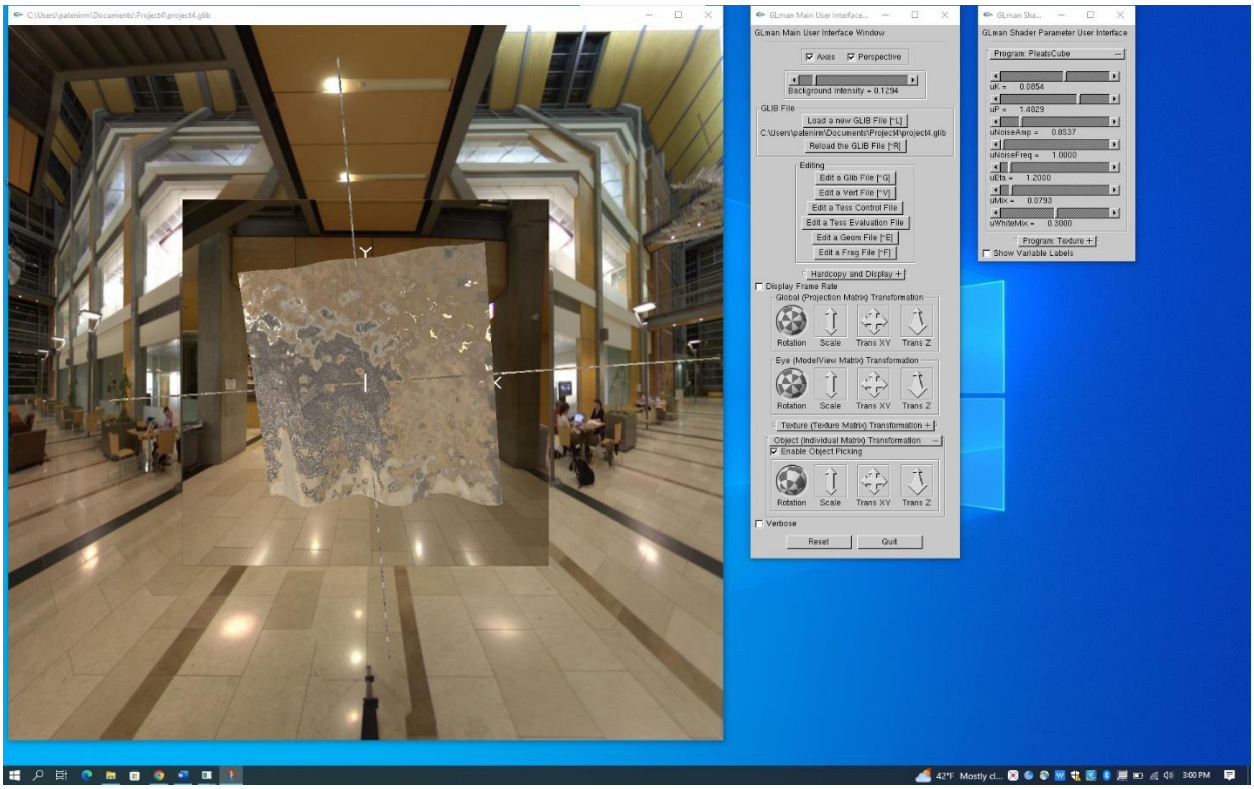
Show Variable Labels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Quit
GLman Shader Parameter User Interface
Program: PleatsCube
uK = 0.0654
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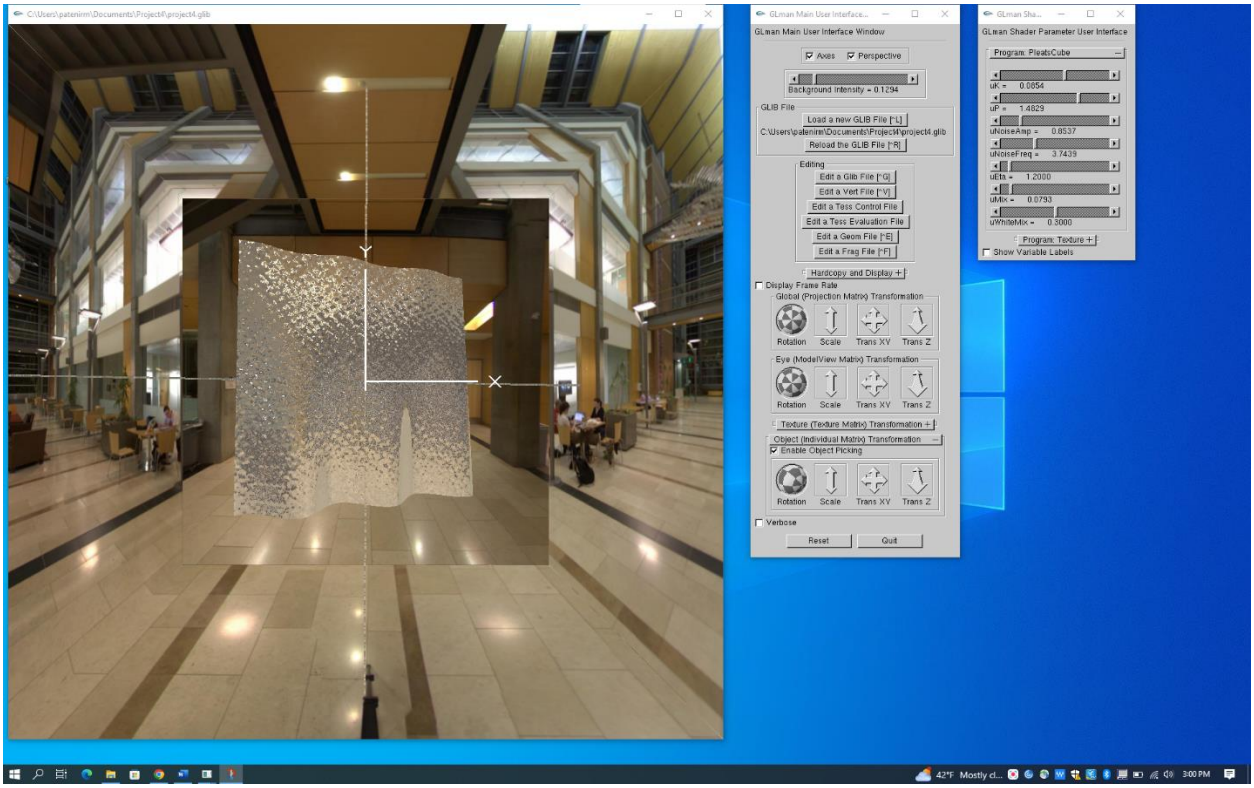
Show Variable Labels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GLman Shader Parameter User Interface
Program: PleatsCube
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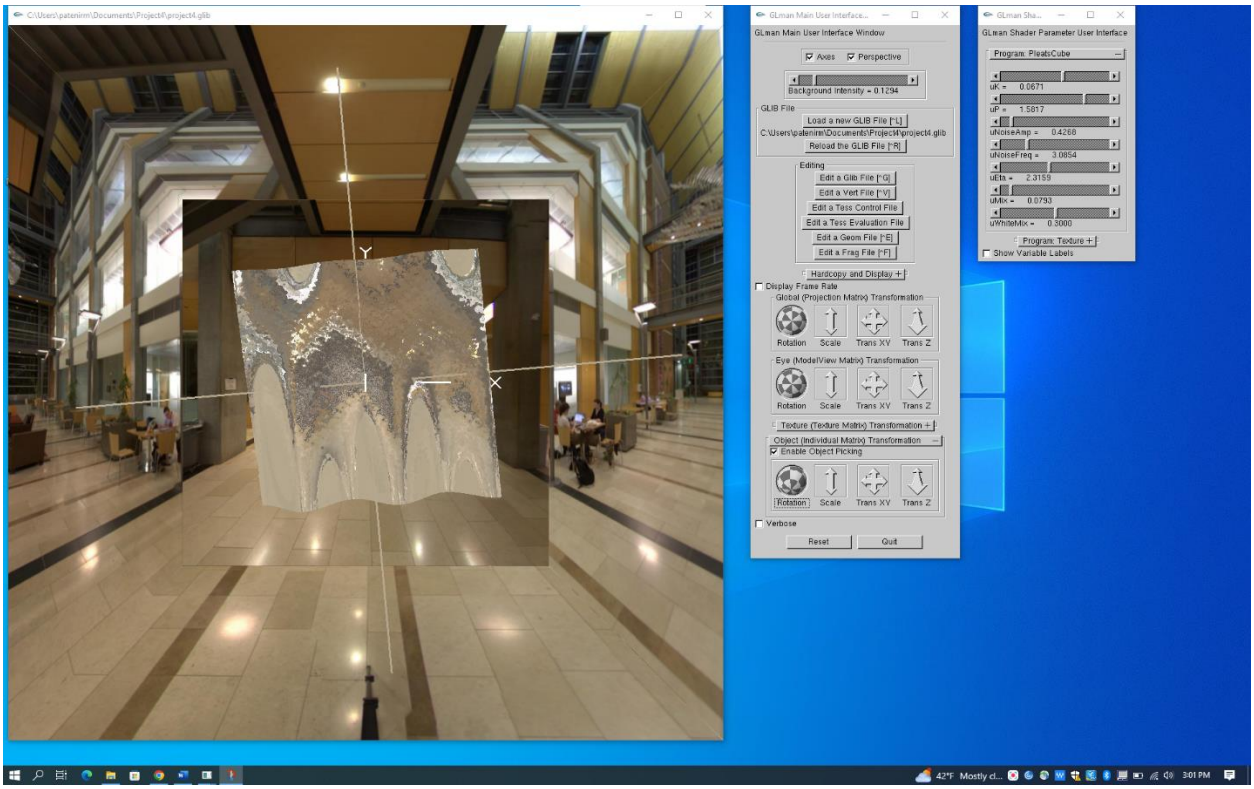
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Verbose
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Quit
GLman Shader Parameter User Interface
Program: PleatsCube
uK = 0.0671
uP = 1.5817
uNoiseAmp = 0.4268
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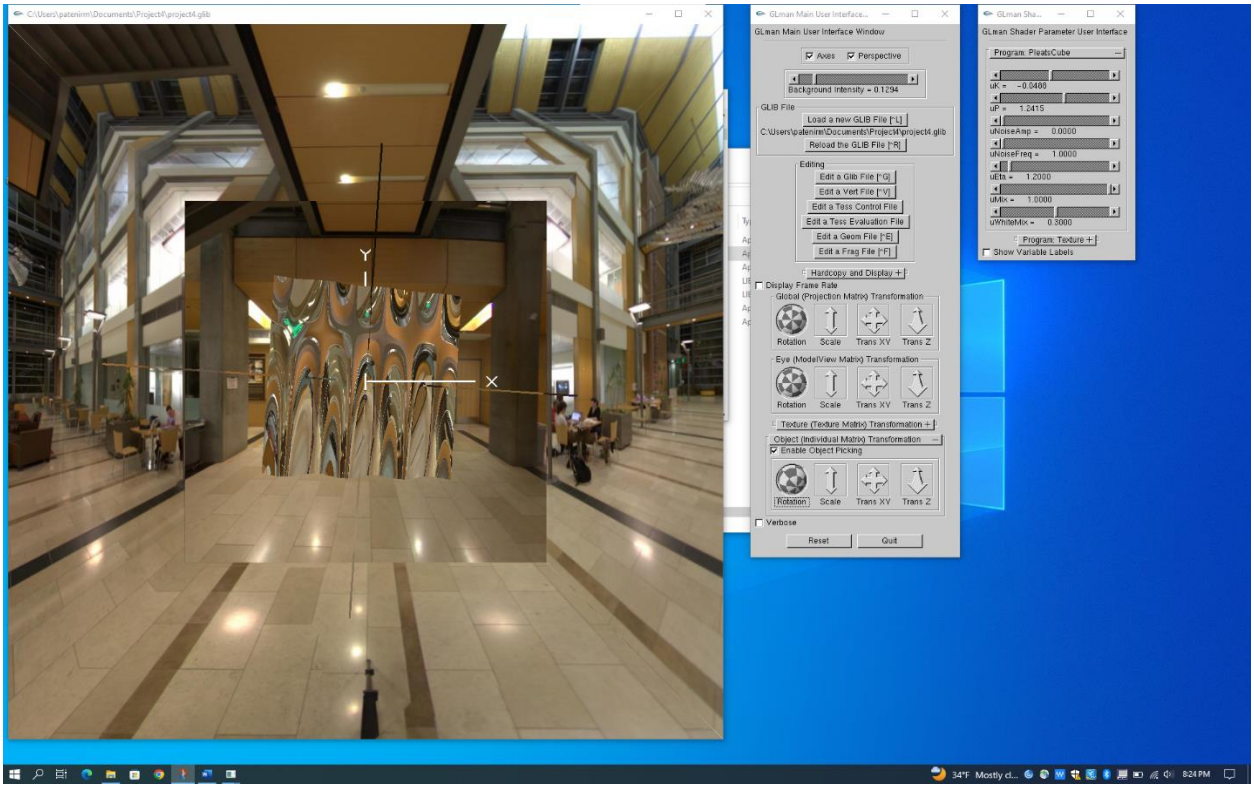
uWhiteMix = 0.3000
Program: Texture
Show Variable Labels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GLman Shader Parameter User Interface
Program: PleatsCube
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uP = 1.2415
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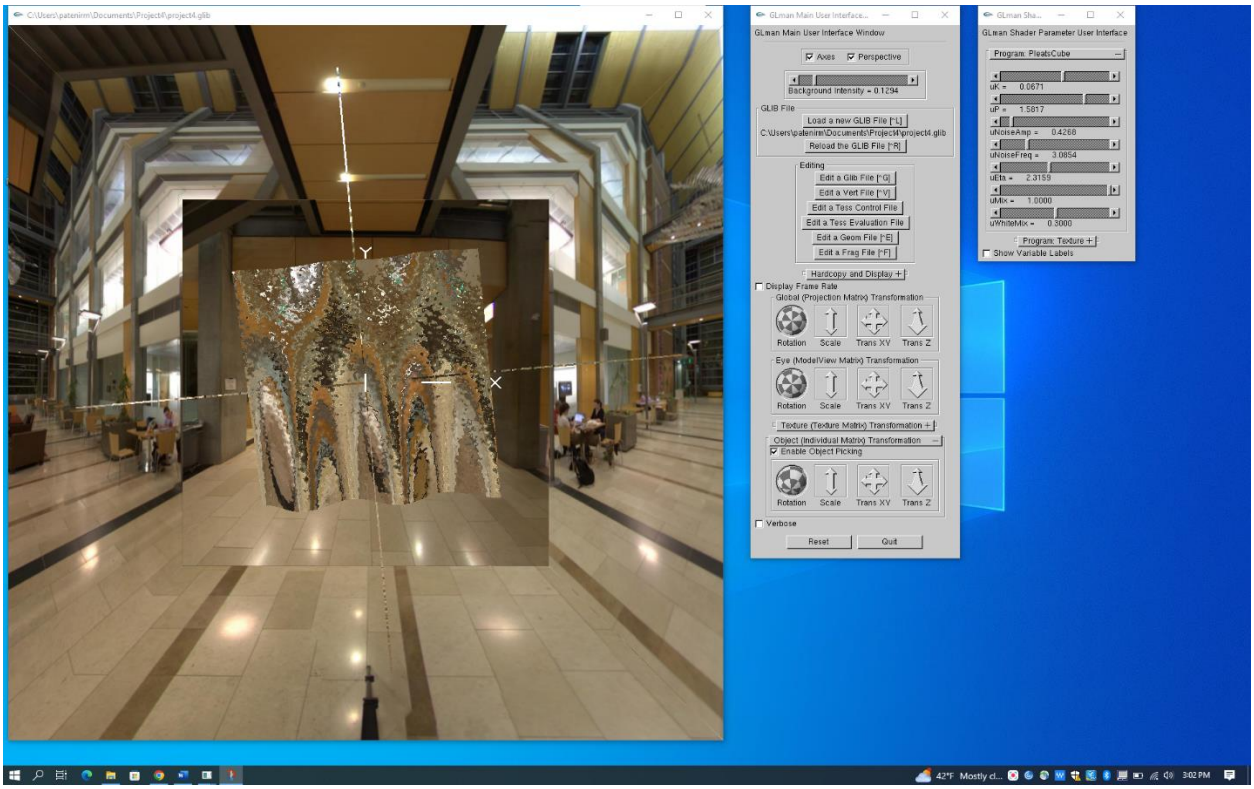
Show Variable Labels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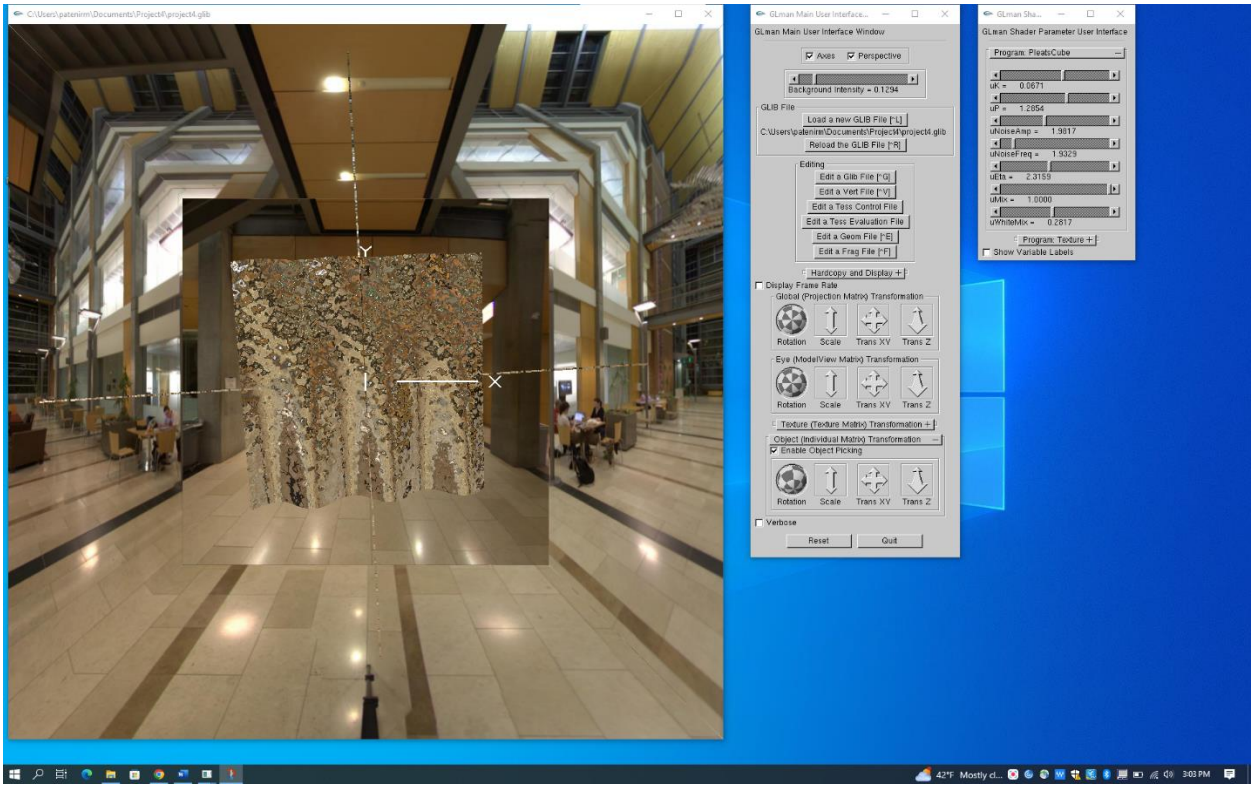
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Quit
GLman Shader Parameter User Interface
Program: PleatsCube
uK = 0.0671
uP = 1.2854
uNoiseAmp = 1.9817
uNoiseFreq = 1.9329
uEta = 2.3159
uMix = 1.0000
uWhiteMix = 0.2817
Program: Texture
Show Variable Labels