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Phong and Toon Shading

INTRODUCTION

In this assignment, our goal was to learn basics of shader functions and to apply them with phong and toon shading formulas. Also, we learnt the difference between programs with shaders and without shaders, comparing our first assignment to second. Additionally, we were tasked to implement Silhouette shading, making it border line of cartoon object.

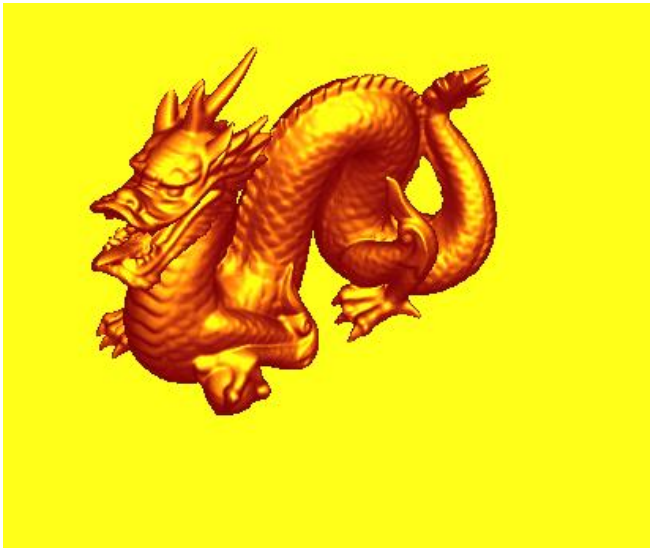
METHOD

While implementing this assignment, I struggled with translating formulas into the code. As a helper tool, Angel.h library helped me a lot in dealing with matrix computations. So, to make shading, we had to transfer all uniform variables into shaders and process them. Though transferring variables did challenge, it wasn't as difficult as building shading functions.

RESULT

As always, I did make a big bug in my code and couldn't find for a long time. Since it was really specific and detailed bug, I wasn't unable to deal with it for a while but I finally found it:

From this state, I went to this:



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CONCLUSION

It was really interesting and challenging experience for me, since it was more on coding part rather than theory. I learnt that all light computations, you can make on your own and it is not that difficult as it seems. And the most interesting thing for me, in this assignment, was to configuring light, thickness of border or range of color on your own with your keyboards and looking for beautiful and at the same time strange images.

REFERENCES

http://in2gpu.com/2014/06/23/toon-shading-effect-and-simple-contour-detection/

https://www.opengl.org/discussion_boards/showthread.php/162582-how-to-show-silhouette-using-GLSL

https://www.opengl.org/discussion_boards/showthread.php/180756-Gl_NormalMatrix-replacement-in-shaders