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CMPM 163 – Game Graphics

Professor Forbes

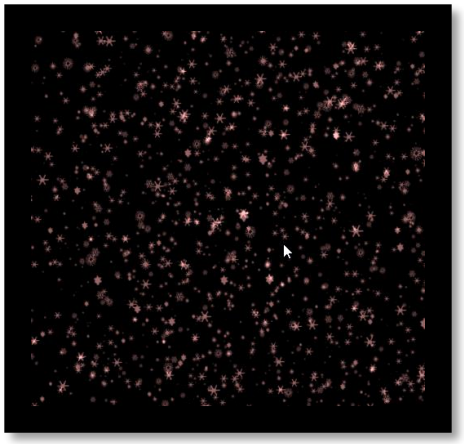
Homework 3 – Part C

My topic will be about implementing auroras. I consider myself a novice at computer graphics so, I can think of two options that may or may not be optimal if I had to implement it using THREE.js. However, I will try to hypothesize some ways that can be used to implement this natural phenomenon in computer graphics. One very easy and cheap way to implement it can be to just make it part of the skybox. This of course however, will look terrible since it is flat and static. On the other hand if one is really strapped for some memory, it is one way to implement this.

Another way one can create auroras is to just import an aurora object made in some kind of 3D modeling program. This certainly might be better looking than just the flat skybox, but again it is static and it might also be heavy on memory if you have many of these. One can probably use shaders to make the object slightly transparent and give it a glowing effect if they really wanted to implement auroras this way.

Finally, if I had to implement it, I would probably look at the particle system example given to us. It may not be an ideal way to implement it, but I think it is a step in the right

direction. Working from the example code, one can start by changing the overall shape of the



particles to a more natural stream shape like that of an aurora instead of a cube. Then, swap put the snowflake texture for something more appropriate for an aurora. I think a gradient texture with transparency around the edges will work. Finally, just change the color to a minty green and I think it might look like an aurora. There might have to be a few adjustments such as the number of particles and how close together they are, but this is my overall hypothesis on how creating an aurora will go. As always, there are probably many other ways to go about this and they are probably more optimal, but for now this is the limit of my knowledge and progress in computer graphics for now. I hope I can keep improving my techniques so that coming up with these kind of things is no problem at all.