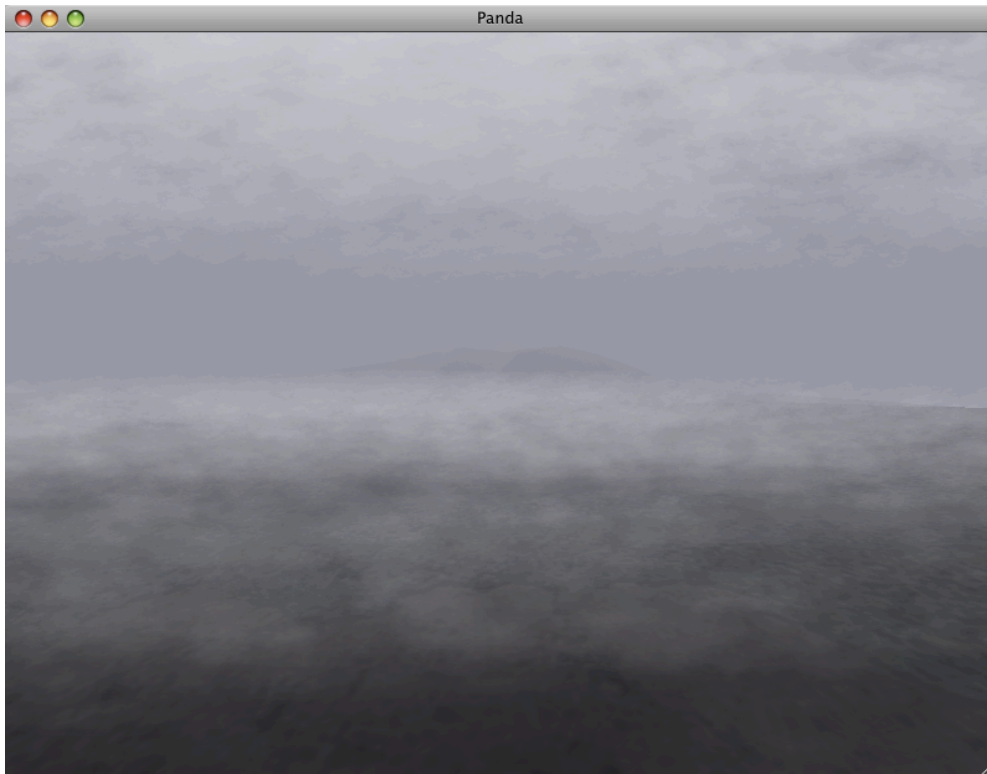


Final project report: Scary World

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Abstract

Hell is an atmospheric customizable world which includes effects like clouds, fog, miasma (fog made out of particles), earth, sky and ambient noises.

Hell allows the user change the environment settings in runtime. For example to turn on and off all these effects, modify color settings for all effects, change the height for both particle systems (Clouds/ Miasma) and modify the fogs density.

Motivation

When I started this project I had 3 main goals which I wanted to accomplish:

- To make a good looking environment
- Try to make it a spooky/scary atmosphere
- Make atmospheric effects which I could use in later projects

The original idea was to create one type disgusting, ugly, spooky, scary, eerie kind of world, hence the name 'Scary World'.

This idea quickly changed when the work started because I started to want to be able to change all the attributes for the effects in the environment.

So my goals for the project transformed into these:

- To make a good looking atmospheric environment
- Make the environment customizable in runtime so the user can see how the effects make the world and how things like color and fog density can create a totally different experience
- Try to make it a spooky/scary atmosphere
- Make atmospheric effects which I could use in later projects

Related work

When looking for projects try to achieve similar goals as this one must look at the game industry and how games seem to have progressed in almost exponential rate in terms of atmospheric environments and realism although gameplay may be debateable.

The games I took the time to look at were:

- Silent Hill series
- God of war series
- Half life 2: Episode Two
- FIFA 2009

I also thought about specific scenes in movies where I found the environments played a huge part and it wouldn't be the same without it. The first that came to mind was the final scene in Kill Bill Vol 1 where the bride faces O-Ren Ishii. The combination between colors, snow and music created a great looking and memorable scene.

And finally I got help from demo tutorials available on the Panda3d site. Specifically from "Normal-Mapping" and "Particles" tutorials where I got the mouse movement feature and an introduction to the particle systems.

Approach

This project has a similar class structure as my solution to the project assignment 2 although a little bit simpler since my focus was primarily on the particle system. I ended up with 12 classes each with a specific task in the environment.

The class diagram is shown in figure 1.

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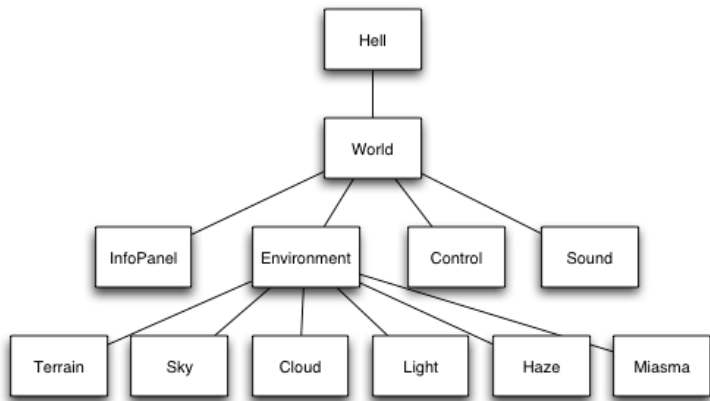


Figure 1: Class Diagram

Class descriptions

Hell is the main class which creates the world and starts the game.

World creates all the components used in the game and holds the task which orders the components to update itself every frame.

InfoPanel is the class which shows the user the status of all variables and help text so the user knows the input keys.

Sound class provides the ambient sound for the game.

The **Control** class purpose is to create all the input keys and keep track of all changes the user decides to make to the environment and the camera. It returns to the world the status of all variables which the environment and sound classes use to update itself accordingly.

The **Environment** class creates all the effects used in the game and

Terrain class purpose is to create the ground for the environment.

Sky creates a large skybox around the terrain

The **Cloud** class creates clouds using the Particle system. It uses a single white texture and a blurred opacity map for each particle.

The **Miasma** class is very similar to the Cloud except for a few variable changes. The reason why I didn't make one Particle class instead of these two was because I can see myself later on changing these classes entirely and found it more appropriate to keep them separate.

Haze provides the game with the fog between the cloud and Miasma.

The **Light** class was created to bring some subtle lighting to the terrain to add realism (or fake it ;)

Results

I was able to create a fairly good environment with fog, clouds and miasma.

What I was not able to do was create shaders or rain which I want I wanted to have in the project.

To make it easier for people to see how the different effects can be made with simple variations of color, density and height settings-, I created 5 presets (F5-F10) with surroundings I thought were quite nice.

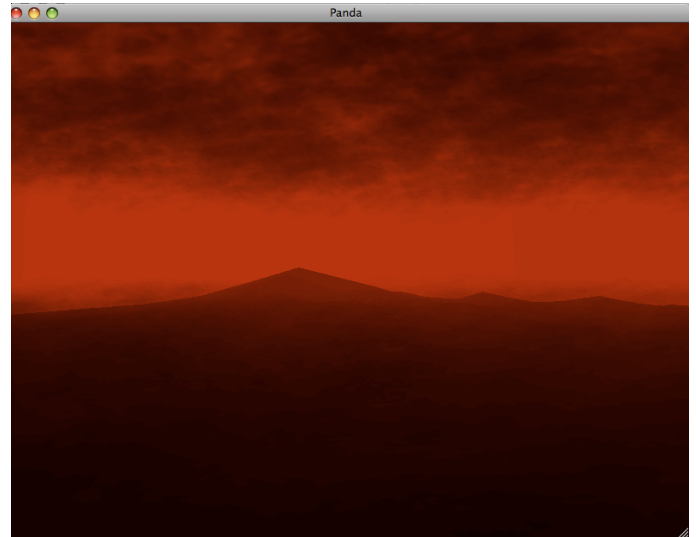


Figure 2: Screenshot 1

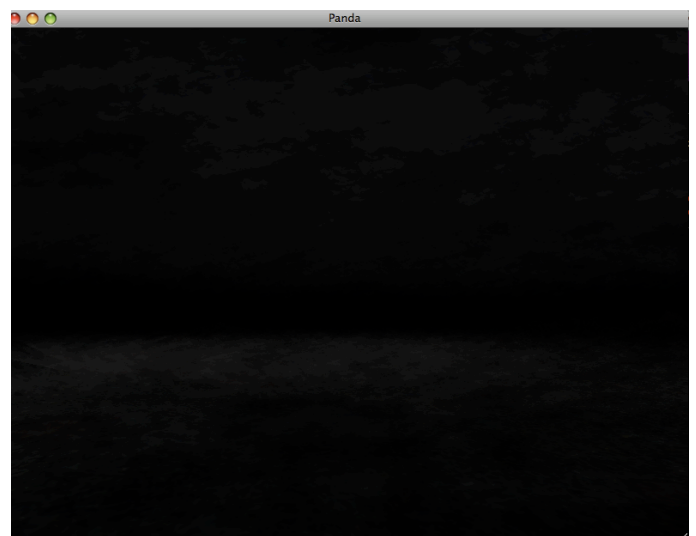


Figure 3: Screenshot 2

Future work

I chose to make an environment for two reasons.

1. It's what I'm most interested in and wanted to learn more about it.
2. I want to use it for later project/projects I will work on.

So the possibilities are basically endless to what the next steps for the project could be. For example:

- Rain
- If rain would be added then work on the effects that happen when rain crashes into the terrain or any other object...
- Create a city (buildings, roads, cars, etc...)
- Trees
- Add Shaders
- Create a moon and sun...
- etc...