# CS 550 Final Project Report

## Mario’ s House

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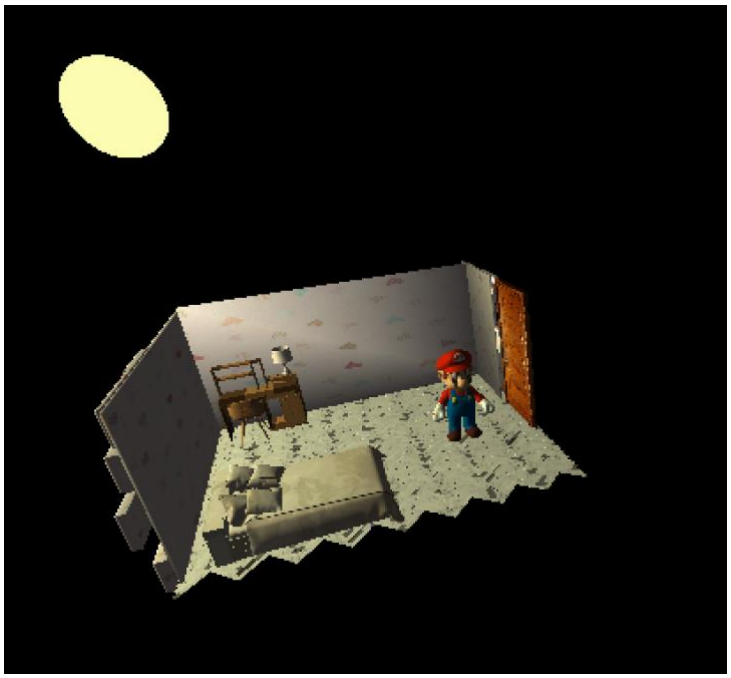
December 4, 2018



1. **Introduction**

   In this project, I build a house for Mario. Then I set up the wall, the door, the bed, the desk, the chair, the floor, two lighting source and the most important Mario.

2. **Proposal**

   For the final project, I want to build a bedroom and study room. It may like this, but not exactly same.

   In order to build my final project, I need to use these methods.

   A. Load some .obj files, which includes door, chair, desk, lamp and so on

   B. Give the texture for those things

   C. Put them into the appropriate place

   D. Set the sport light for each lamp

   E. Use the animation function to change the position of the light

   F. Has an excellence outside view which can look the whole room

3. **What I really did?**

   For this those object,for example the wall, the desk and so on. I found the free object at the first. Then used the Loadobj function to load them.

```
CList = glGenLists( 1 );
glNewList( CList, GL_COMPILE );
glTranslated(-310, 0, 35);
LoadObjFile("/Users/ellenchen/Documents/fall2018/CS550/final/
    final/Desk.obj");
glEndList( );
```

I used the Transformed , Rotated, and Scared to put it in the right position.

```
glTranslated(50, 0, 130);
glRotated(180, 0, 1, 0);
glScalef(0.4,0.4,0.4);
```

I used the bmp function to paste the texture.

```
glBindTexture(GL_TEXTURE_2D, tex4);

unsigned char* Texture4 = BmpToTexture((char*)"/Users/ellenchen/
    Documents/fall2018/CS550/final/final/Floor.bmp", &width1,
    &height1);

glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_S, GL_CLAMP);
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_T, GL_CLAMP);
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_MAG_FILTER, GL_LINEAR);
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_MIN_FILTER, GL_LINEAR);
glTexEnvf(GL_TEXTURE_ENV, GL_TEXTURE_ENV_MODE, GL_MODULATE);
glTexImage2D(GL_TEXTURE_2D, 0, 3, width1, height1, 0, GL_RGB,
    GL_UNSIGNED_BYTE, Texture4);
```

Then I set the spotlight for my little lamp

```
SetSpotLight(GL_LIGHT1, -79, 32, 140,  100, -0, 90,  1, 1, 1);
```

set the point light for my yellow ball and pretend it is a sun.

```
SetPointLight(GL_LIGHT2,0 , 200, 400* cos(Time), 0.99, 0.992, 0.698);
```

I used the keyboard to control two lighting sources.

Then add the animation to the point light.

4. **How your project differs from what you proposed, and why**

I found that it did not do the screen like my imaging. Because I cannot find the same beautiful object which like the image. And the light source has some problems. In this picture, it uses the ray-tracking. However, I just only used the spotlight and point light.

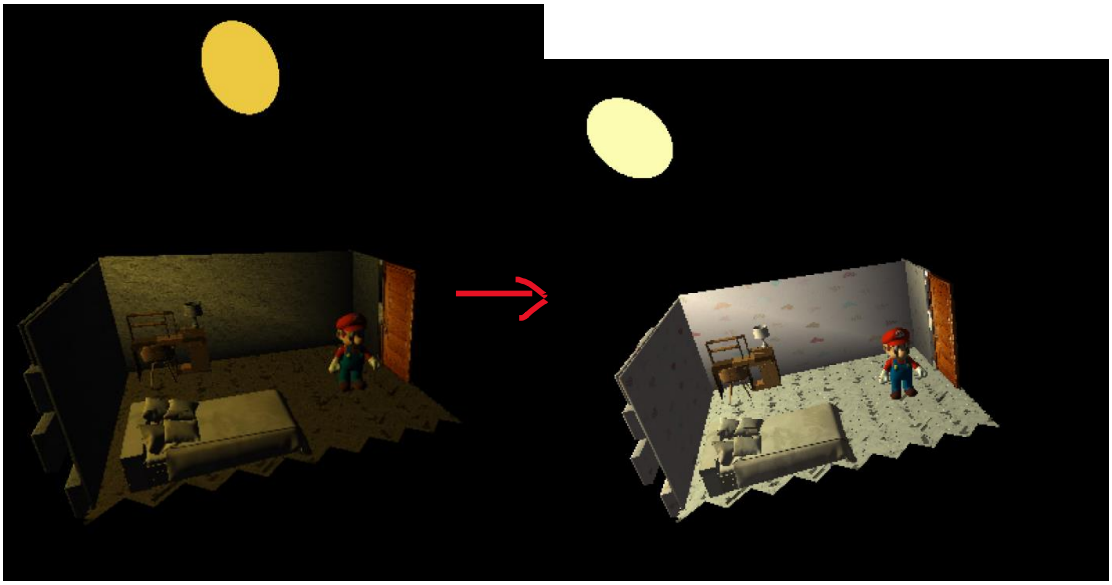
5. **Any impressive cleverness you want us to know about?**

   In the display light, I found that when I closed the light, the Mario become bright. So I found I need to use the **glDisable(GL_TEXTURE_2D);** to achieve those function. Moreover, I found when the light open and closet the lamp and the ball also shining. So I decide to use the if condition to achieved it.

```
glEnable(GL_TEXTURE_2D);
glBindTexture( GL_TEXTURE_2D, tex3 );
if (Light1On){
glDisable( GL_LIGHTING );
glColor3f(1, 1, 1);
glCallList( JList );
    glEnable(GL_LIGHTING);}
else
glCallList( JList );
glPopMatrix();
  glDisable(GL_TEXTURE_2D);

glPushMatrix();
glDisable(GL_LIGHTING);
if (Light2On){
glColor3f(0.99, 0.992, 0.698);
glTranslated(0, 200, 42);
glTranslated(0, 0, 400* sin(Time));
glCallList(KList);
glEnable(GL_LIGHTING);}
```

6. **What you learned from doing this project (i.e., what you know now that you didn't know when you started)**

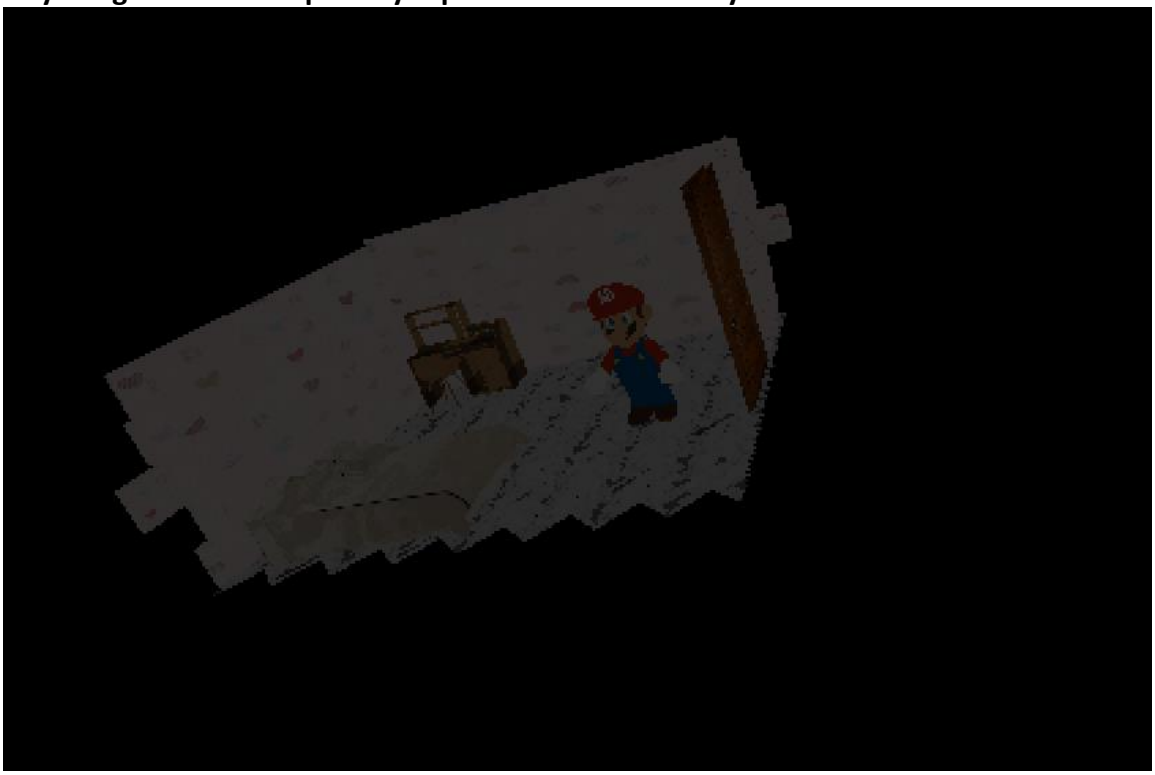
   In this project, I did not use the set material at the first. So my screen is super dark which likes a prison. Then I found that I can set material to let the object become shine. So the whole screen become more bright and beautiful.

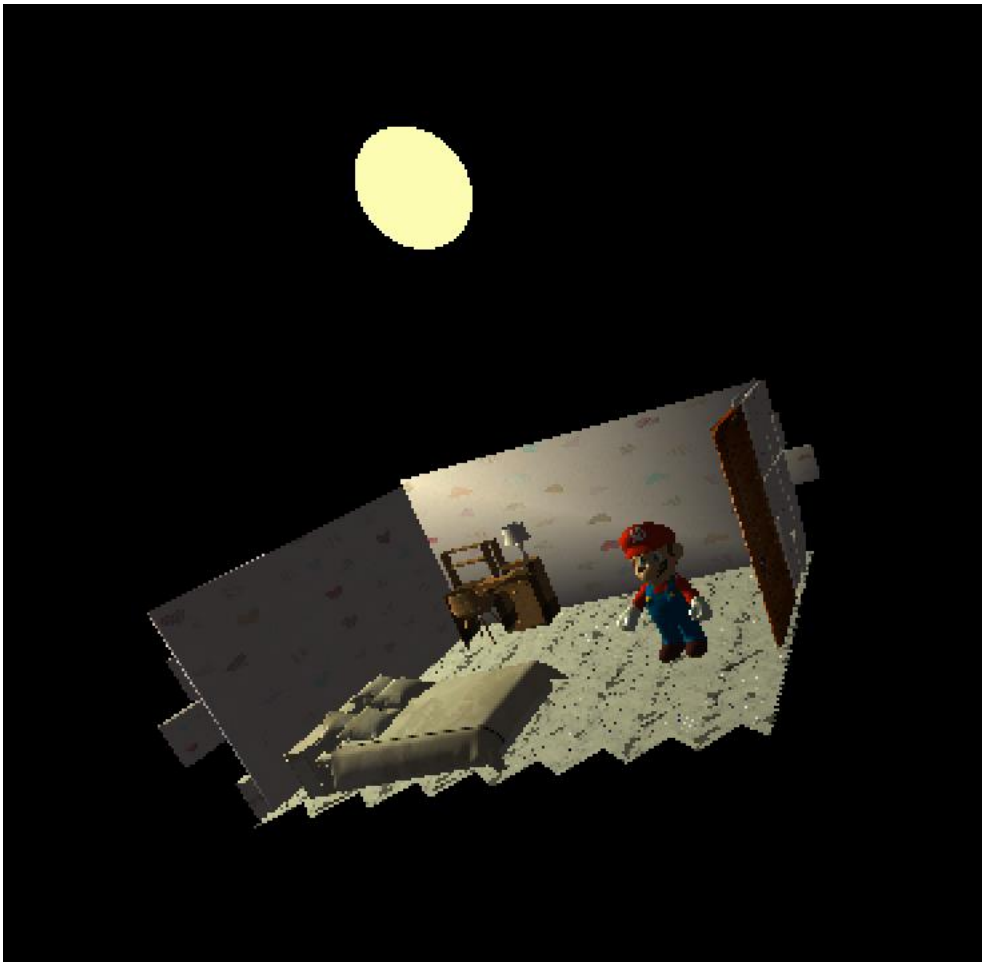


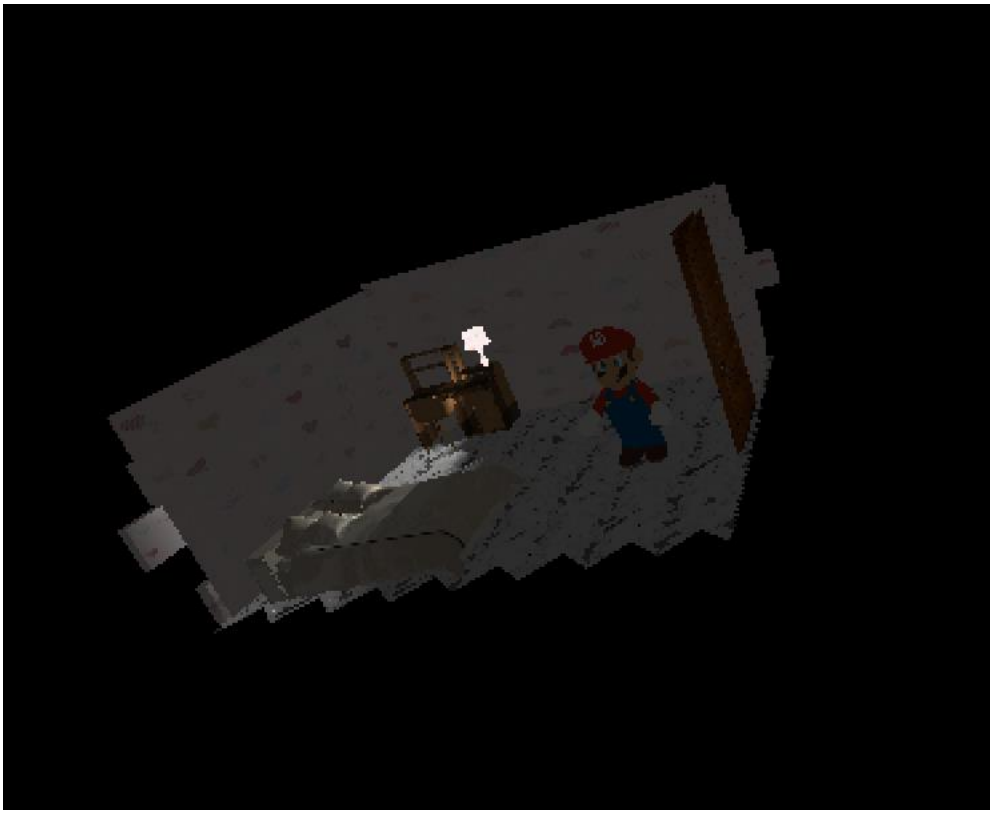
Moreover, in the load texture function, I used get info to get the object detail length and height. However, I found that I can set the width and height argument. Then the function will load the .bmp automatically.

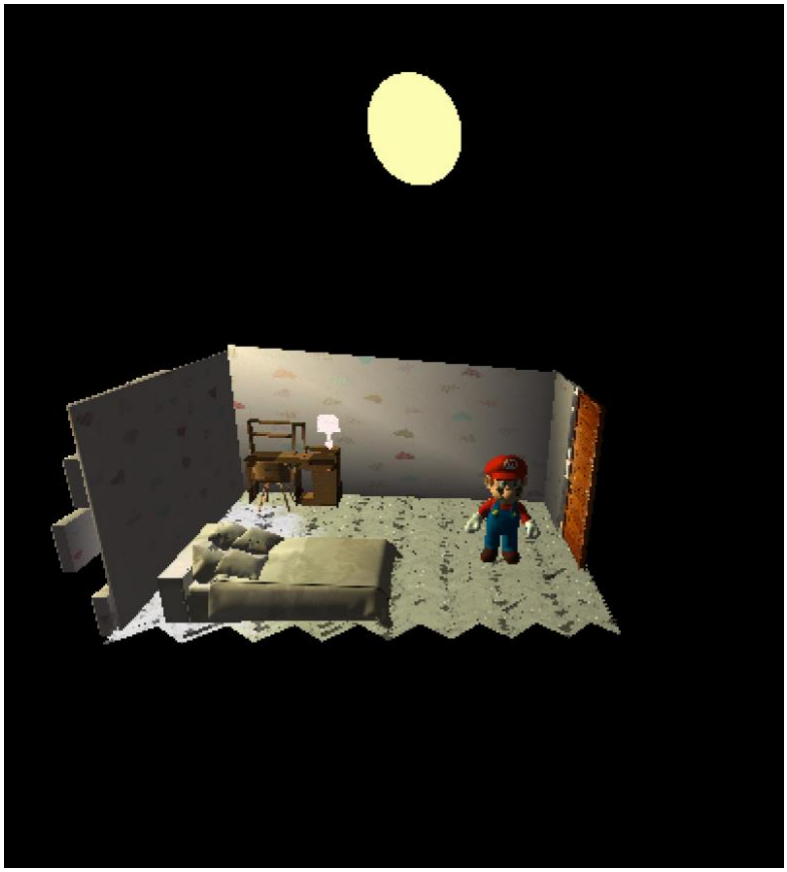
```
   glBindTexture(GL_TEXTURE_2D, tex2);

unsigned char* Texture2 = BmpToTexture((char*)"/Users/ellenchen/Documents/fall2018/CS550/final/
    final/Desk.bmp", &width, &height);

glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_S, GL_CLAMP);
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_T, GL_CLAMP);
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_MAG_FILTER, GL_LINEAR);
glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_MIN_FILTER, GL_LINEAR);
glTexEnvf(GL_TEXTURE_ENV, GL_TEXTURE_ENV_MODE,GL_MODULATE);
glTexImage2D(GL_TEXTURE_2D, 0, 3, 1024, 512, 0, GL_RGB, GL_UNSIGNED_BYTE, Texture2);

    glBindTexture(GL_TEXTURE_2D, tex3);

    glBindTexture(GL_TEXTURE_2D, tex3);

    unsigned char* Texture3 = BmpToTexture((char*)"/Users/ellenchen/Documents/fall2018/CS550/
        final/final/Wall.bmp", &width, &height);

    glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_S, GL_CLAMP);
    glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_WRAP_T, GL_CLAMP);
    glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_MAG_FILTER, GL_LINEAR);
    glTexParameteri(GL_TEXTURE_2D, GL_TEXTURE_MIN_FILTER, GL_LINEAR);
    glTexEnvf(GL_TEXTURE_ENV, GL_TEXTURE_ENV_MODE, GL_MODULATE);
    glTexImage2D(GL_TEXTURE_2D, 0, 3, width, height, 0, GL_RGB, GL_UNSIGNED_BYTE, Texture3);
```

7. **Any images that are especially representative of what you did**









8. **Link**
   https://media.oregonstate.edu/media/t/0_9djqc62p