

Texture Mapping with an OBJ File

Computer Graphics
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[OBJ file]:

The following describes some portions of an OBJ file.

```
# position data
v 0.0 0.0 0.0
v 0.0 0.0 1.0
v 0.0 1.0 0.0
...
# normal data
vn 0.0 0.0 1.0
vn 0.0 0.0 -1.0
...
# texture data
vt 0.0 0.0
vt 0.0 1.0
vt 1.0 1.0
...

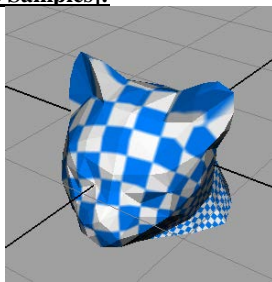
f 3/1/3 8/2/3 7/3/3
f 3/4/3 4/5/3 8/6/3
...
```

Each line starting with 'v' and 'vn' represents the information of a 3D position and a 3D normal, respectively. In the same manner, each line starting with 'vt' represents the information of a 2D texture coordinate, which indicates the mapping location in a given 2D texture images.

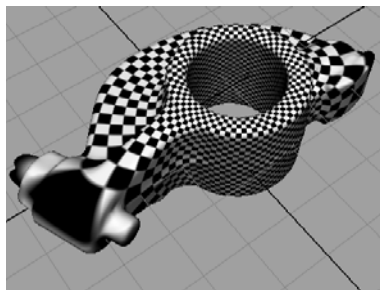
Each face consists of three or more vertices. Each vertex in a face is represented with proper indices of position and normal. For example, the line of "f 1/2/1 2/1/1 3/3/1" tells us that a face consists of three vertices, where

- 1) The positions of three vertices are (0, 0, 0), (0, 0, 1), (0, 1, 0), respectively
- 2) The textures of three vertices are (0, 1), (0, 0), (1, 1), respectively
- 3) The normal of three vertices is same as (0, 0, 1).

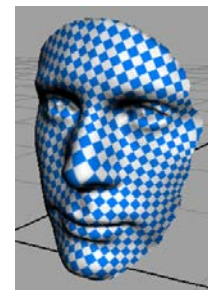
[Some Samples]:



(a) cat_head.obj w/ blue_check256.bmp



(b) rocker.obj w/ check512.bmp



(c) alex.obj w/ blue_check256.bmp

Figure 1: Snapshots of texture mapped objects.

[References]:

- OBJ file format
 - <http://www.royriggs.com/obj.html>
 - <http://en.wikipedia.org/wiki/Obj>
 - <http://local.wasp.uwa.edu.au/~pbourke/dataformats/obj/>
- Material file format
 - <http://local.wasp.uwa.edu.au/~pbourke/dataformats/mtl/>