

EXTERNAL OBJECT MODELS

OUTLINE

- Importing a Blender Model
- Overview of Blender

THE STRATEGY

- Build a complex model in a Digital Content Creation (DCC) tool
 - Export that model
 - We'll use Wavefront format (.obj)
 - Write code that reads and parses the object model format
 - We'll look at these in reverse order
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WAVEFRONT TAGS

- Character tags indicate type of data
 - v – vertex location data
 - vt - texture coordinates
 - vn – vertex normal
 - f – faces (usually triangles)
 - # - comment
 - Can also export object names, materials, curves, shadows and other object data
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SPACE SHUTTLE EXAMPLE

- Vertices:

```
v 0.000000 -0.099849 0.475893
v 0.116179 -0.059363 0.472351
v 0.113692 0.028099 0.464700
v 0.022130 0.107710 0.457734
v 0.000000 0.107655 0.457739
...
```

- 8,039 vertices listed for the shuttle model!!

SPACE SHUTTLE EXAMPLE

- Vertex Textures:

```
vt 0.402400 0.343000
```

```
vt 0.388100 0.250500
```

```
vt 0.357400 0.252400
```

```
vt 0.329400 0.325300
```

```
vt 0.329400 0.343000
```

```
...
```

SPACE SHUTTLE EXAMPLE

- Vertex Normals:

```
vn -0.000001 0.087156 0.996195
vn -0.000001 0.087155 0.996195
vn 0.000000 0.087156 0.996195
vn 0.223932 0.598655 -0.769068
vn 0.204977 0.589031 -0.781682
...
```

SPACE SHUTTLE EXAMPLE

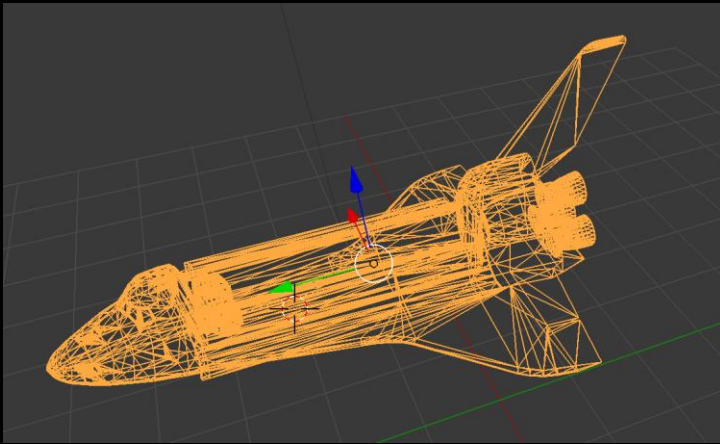
- Face Indices:

```
f 1/1/1 2/2/1 3/3/1
f 1/1/2 3/3/2 4/4/2
f 1/1/3 4/4/3 5/5/3
f 6/6/4 7/7/4 8/8/4
f 8/8/5 9/9/5 6/6/5
```

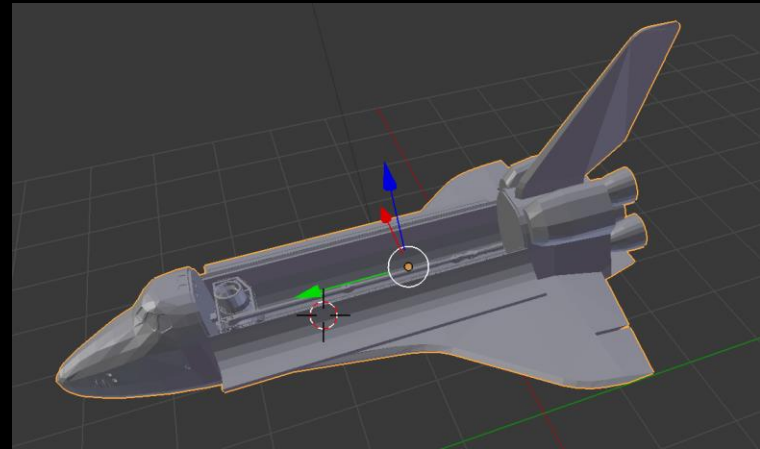
...

- For example, line 1 says:
 - For vertices listed at indices 1, 2, 3, use (the first number):
 - Texture coordinates listed at indices 1, 2, 3 (the second numbers)
 - Vertex normal from index 1 (the third numbers)

SPACE SHUTTLE EXAMPLE

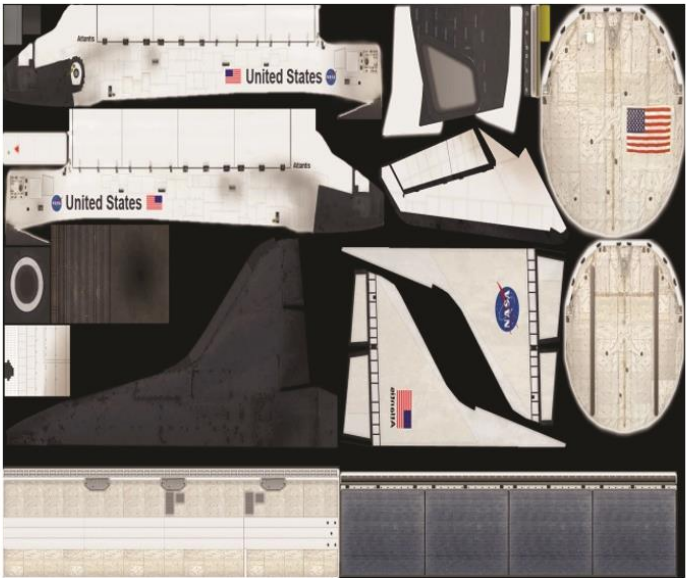


Wireframe Image

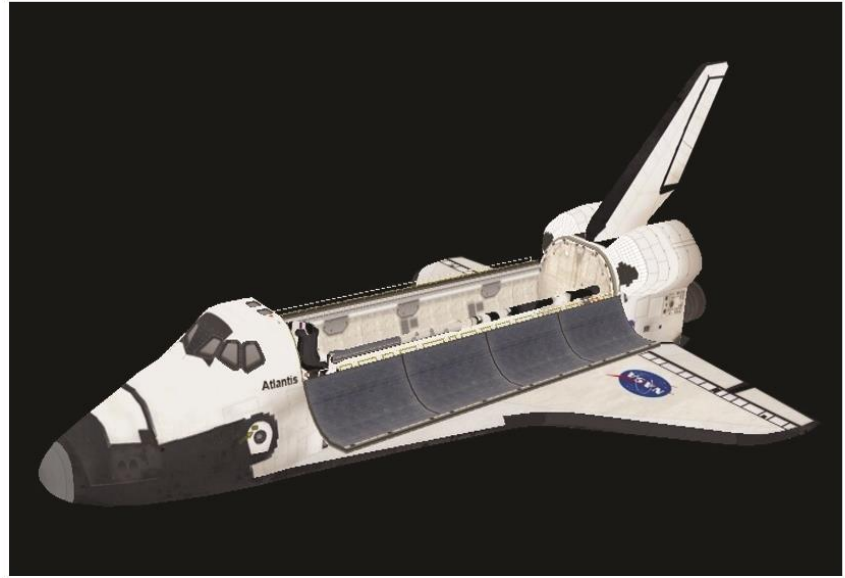


Object with Faces

SPACE SHUTTLE EXAMPLE



Texture Image



Object with Texture

SUMMARY

- Importing a Blender Model
- Overview of Blender

