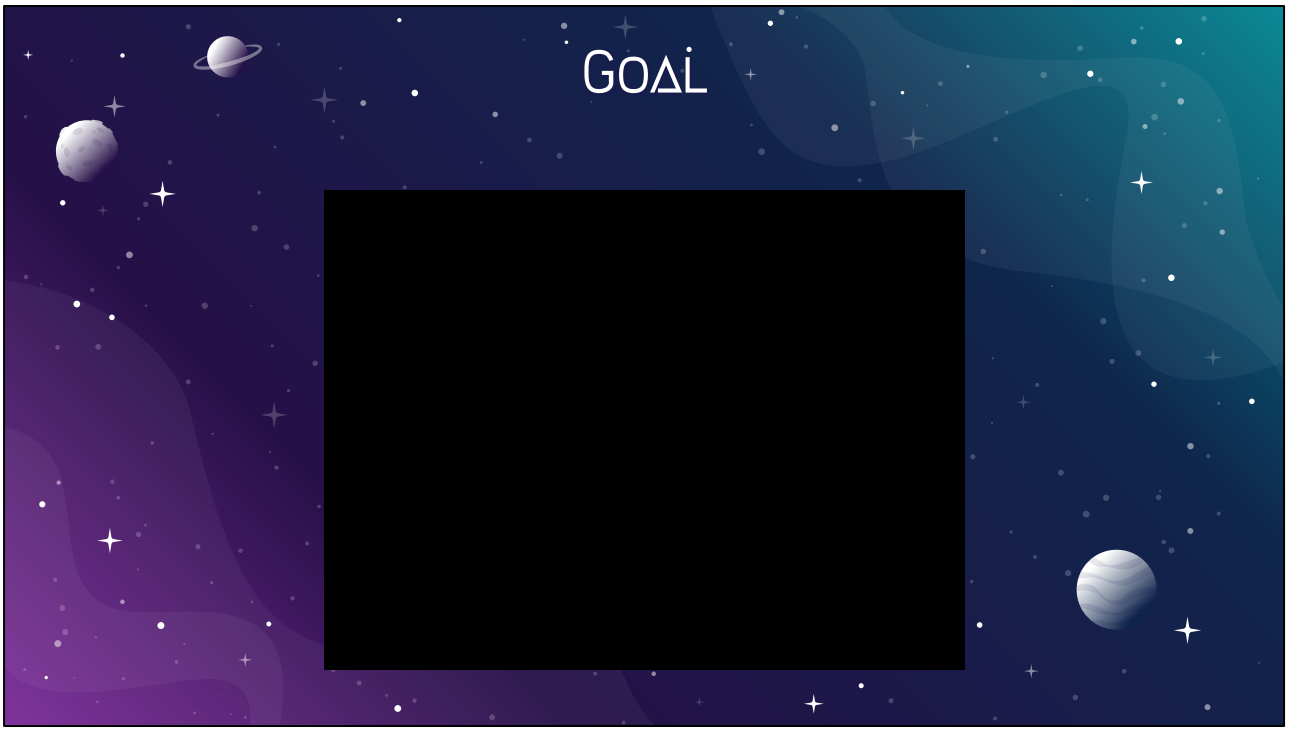
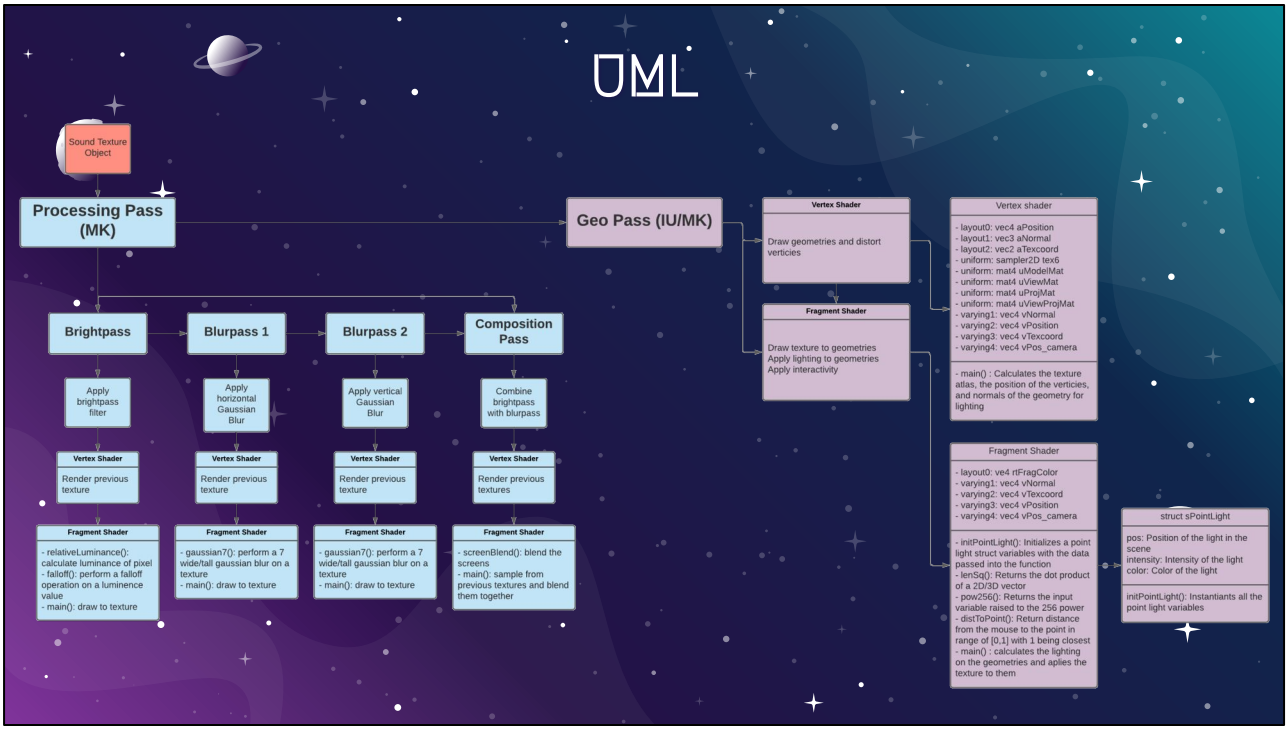

Ubisoft Interview Presentation
By Ian Urban & Michael Kashian

IU Start off

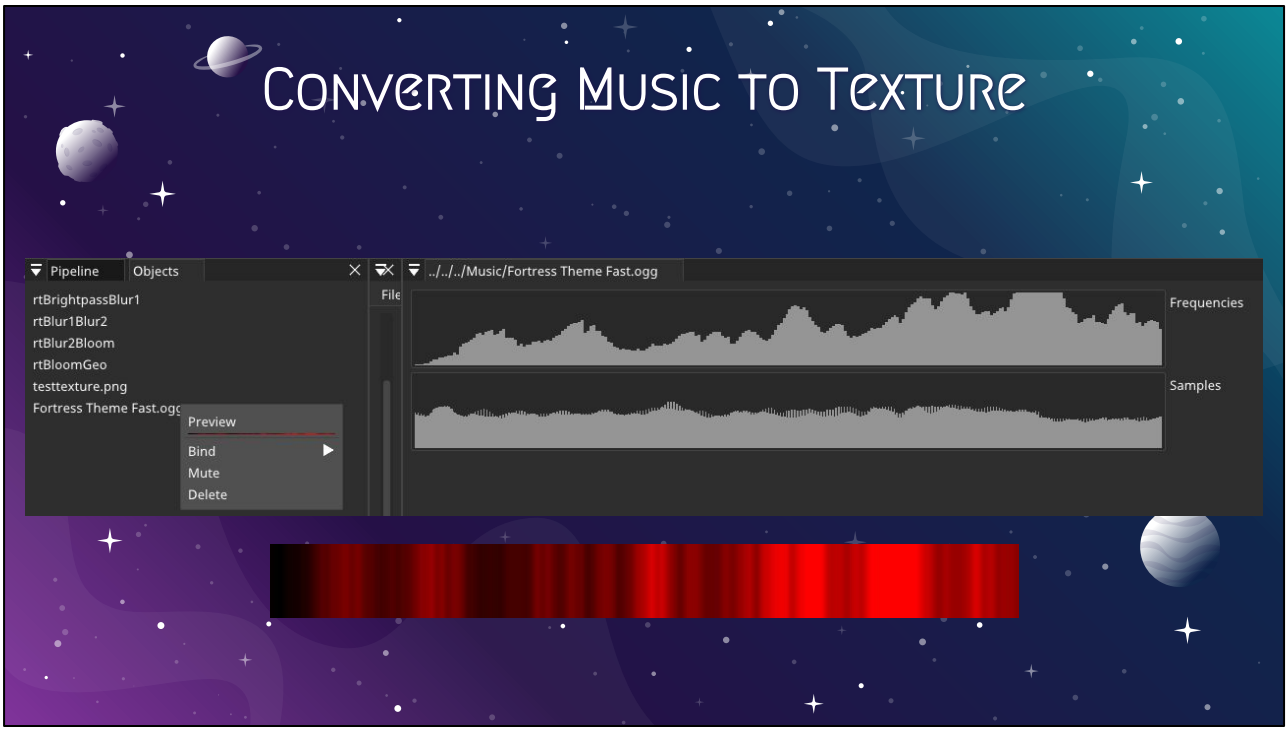


IU present:

- Our goal was to build a vertex-based music visualizer that morphs the vertices of 3D shapes depending on the song playing.



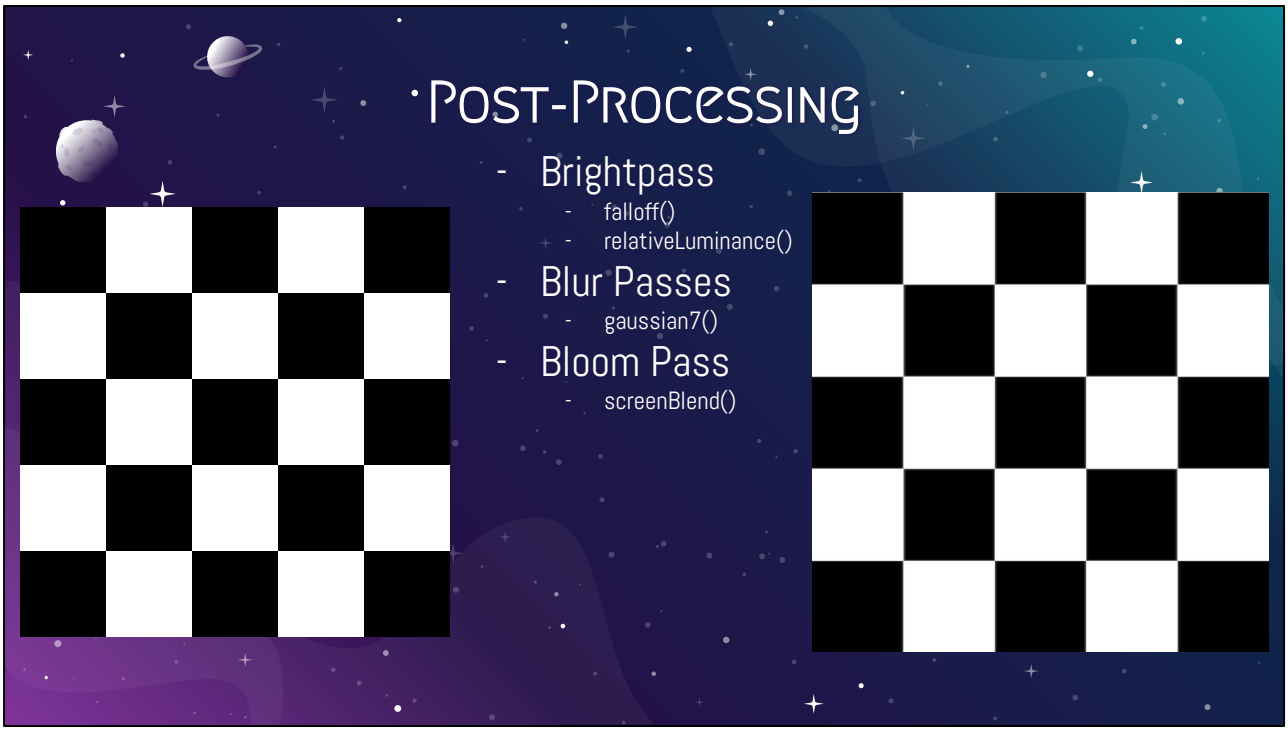
Go through UML, first is PP by MK, then is the GEO pass by IU



Presented by MK

- Create a sound object in SHADERed which automatically converts it to a 256x2 image with the first row of the texture containing FFT data and the second row containing samples (basically the top row is the one we care about)

- The red texture at the bottom is what is created by the object, which we then pass through the post-processing pass before rendering it to the geometries



Presented by IU

- For post-processing we coded a brightpass along with a multipass gaussian blur and blended them all together within the bloom pass so they could be added to the generated geometry.

Presented by the MK

- For lighting we implemented a simple bling-phong lighting and the used it to initialize multiple different lights that light up the sphere.

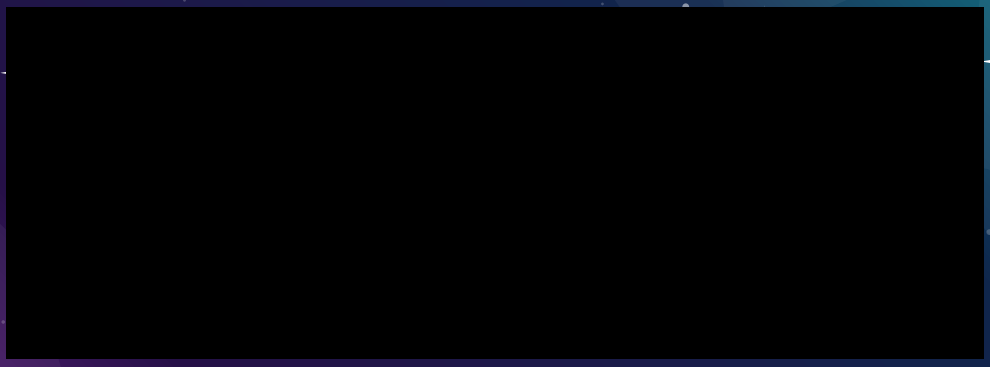
Interactivity

```
float distToPoint(in vec2 p)
{
        return max(1.0 - sqrt(lenSq(p - mousePosition)), 0.0);
}
```

Presented by IU

- For interavity we coded a function that takes the mouse position and then changes the intensity of each light on the sphere based off where the mouse is currently located within the viewspace
- Depending on the mouse position, certain locations on the sphere light-up whereas other become darker

Morphing Vertices by Music



```
vec4 texture6 = texture(tex6, vTexcoord.xy);
vPosition = vec4(aPosition.x*texture6.x, aPosition.y*texture6.x, aPosition.z*texture6.x, aPosition.w);
mat4 modelMatrixFlip = mat4(uModelMat[0], uModelMat[1], uModelMat[2] * uFlip, uModelMat[3]);
mat4 modelViewMat = uViewMat * modelMatrixFlip;
vec4 pos_camera = modelViewMat * vPosition;
vec4 pos_clip = uProjMat * pos_camera;
gl_Position = pos_clip;
```

Presented by MK

Its demo time!

Questions?

Thank you!