**Helen Nicholson. /Udacity Project/ VR NanoDegree / StorytellersRevenge**

Using Unity 2017-3-0

1. **Description**

A 360 video player – based on Unity Sample project in Assets / 360 Interactive pLayer.

This should be my StoryTellersRevenge project but as I have been unable to get 360 videos playing satisfactorily on an iPhoneX I have set this test project up instead.

This is a basic 360 video system without particles, controls, interactivity to test performance of playing 360videos on an iPhoneX using an iMac for development

I have other projects set up with these features but for testing purposes have stripped this project to the minimum

ISSUE

This needs to work properly so that Udactity VR NanoDegree Specialisation in Mobile Performance/360Videos is useful.

ATTEMPTS TO RESOLVE PROBLEM :

Many discussions with mentors (Victor & Antonios S) in Idacity Student Hub support. Very helpful but limitations with experience using iOS for development and iPhone for deployment.

THIS TEST PROJECT

I built various test scenes.

The first test (my2DGvr) was to follow the Unity sample project and to play the 360 video using a SkyBox panoramic shader.

The second set of tests (360Video, 360VidURL, 360Video-v2) were to play the video on the inside of a sphere using a flippy shader.

**TestVideo used**

<https://www.dropbox.com/s/0ac5m1l6qr8y507/BW_Short.mp4?d=0>

Edited in PremierPro Stitched in AutoPano Video and adjusted in Autpoano Giga

Video Codec : fast1080p format set up using Handbrake

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1. **Current Problems**

**My2DGvr**

Set up like Unity example scenes but adapted for Gvr google cardboard – video playing on skybox using skybox panaroamic shader

The app loads up but then when the video is supposed to play – the screen just goes black – suggesting the video isn’t rendering properly

Error warning in Unity

Metal: Fragment shader missing texture binding at index 0 (\_MainTex / Skybox/Panoramic)

Xcode errors

2018-11-17 12:16:08.178506+0000 360Video[4461:719093] Execution of the command buffer was aborted due to an error during execution. Ignored (for causing prior/excessive GPU errors) (IOAF code 4)

**360Video, 360VidURL, 360Video-v2**

VideoPlayer set up on sphere using unlit/FlippyShader

For these test scenes - the videos do not play in iPhoneX – black screen only after the app has been loaded

Error warning in Unity

Metal: Fragment shader missing texture binding at index 0 (\_MainTex / Skybox/Panoramic)

Xcode error

2018-11-17 12:16:08.178506+0000 360Video[4461:719093] Execution of the command buffer was aborted due to an error during execution. Ignored (for causing prior/excessive GPU errors) (IOAF code 4)

***QUESTIONS?***

1. What do I need to do to get this working?
2. Should I be using a different shader/code.
3. Is the Metal : Fragment shader missing error a Unity bug?

Ref : <https://issuetracker.unity3d.com/issues/fragment-shader-missing-texture-binding-at-index-0-when-packing-sprite-into-atlas-metal-only>

D: Are the Xcode GPU errors due to Unity or an Apple/iOS or time out errors due to internet connection speed?

Ref : <https://forum.unity.com/threads/iphone-8-a11-gpu-hang-error-command-buffer.500549/>

1. **Scenes & Tests**

**Scene : My2DGvr in Interactive360/Scenes/VideoScenes Build: My2DGvr**

Adaption of Unity Interactive 360 Video project – just adapted for google cardboard

Plays 3D video onto SKyBox using SkyBox/Panormaic Shader

**Scene : 360Viewer in My360/Scenes Build: 360Viewer**

DisPlays 360 Image onto a Sphere

**Scene : 360Video Build: 360Video**

Plays 360 Video on a Sphere using an Unlit/FlippyShader

**Scene : 360VidURL Build: 360VidURL**

Plays 360 Video on a Sphere using an Unlit/FlippyShader streaming video from a URL to a dropbox link

**Scene : 360Video-v2 Build: 360Video-v2**

Plays 360 Video on a Sphere using an Unlit/FlippyShader

1. **Method Used to create Scenes : 360Video, 360VidURL, 360Video-v2**
   1. **Create New Render Texture**

Same size as video and 2D

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* 1. **Create new unlit shader – FlippyShader**

Open Shader (code)

Delete existing code and replace with this

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// Upgrade NOTE: replaced 'mul(UNITY\_MATRIX\_MVP,\*)' with 'UnityObjectToClipPos(\*)'  
  
// Based on Unlit shader, but culls the front faces instead of the back  
  
Shader "Unlit/FlippyShader" {  
Properties {  
    \_MainTex ("Base (RGB)", 2D) = "white" {}  
}  
  
SubShader {  
    Tags { "RenderType"="Opaque" }  
    Cull front    // ADDED BY BERNIE, TO FLIP THE SURFACES  
    LOD 100  
  
    Pass {    
        CGPROGRAM  
            #pragma vertex vert  
            #pragma fragment frag  
  
            #include "UnityCG.cginc"  
  
            struct appdata\_t {  
                float4 vertex : POSITION;  
                float2 texcoord : TEXCOORD0;  
            };  
  
            struct v2f {  
                float4 vertex : SV\_POSITION;  
                half2 texcoord : TEXCOORD0;  
            };  
  
            sampler2D \_MainTex;  
            float4 \_MainTex\_ST;  
  
            v2f vert (appdata\_t v)  
            {  
                v2f o;  
                o.vertex = UnityObjectToClipPos(v.vertex);  
                // ADDED BY BERNIE:  
                v.texcoord.x = 1 - v.texcoord.x;                  
                o.texcoord = TRANSFORM\_TEX(v.texcoord, \_MainTex);  
                return o;  
            }  
  
            fixed4 frag (v2f i) : SV\_Target  
            {  
                fixed4 col = tex2D(\_MainTex, i.texcoord);  
                return col;  
            }  
        ENDCG  
    }  
}  
}

**4.3.Create New Material**

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* 1. **In Assets/Materials drag NewUnlitShader onto New Material**

With NewMaterial and FlippyShader in same directory (Assets/Materials)

Drang FlippyShader onto New Material

A picture containing indoor

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* 1. **From Assets / Textures drag NewVideoRender texture into Select box of NewMaterial**

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* 1. **Drag NewVideoMaterial onto VideoScreenSphere (mesh Renderer)**

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**4.7**

**Set NewVideoRender on VideoComponent**

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**4.8 Player Settings for Build / to play video from URL**

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