

Environments

Workshop #2
January 23rd, 2019

Slack Group

makerspacevrchallenge.slack.com

- Anyone with a uOttawa email address can join directly
 - If you are having issues joining email me at: eprun034@uottawa.ca
- Slack Channels
 - Workshop-ideas
 - Unity-help
 - Solidworks-help
 - Blender-help

Github Repository

github.com/elishapruner/Makerspace-VR-Challenge

- Github repo has:
 - Source code for workshops
 - Powerpoint slides
 - Links to YouTube videos
 - Competition instructions

Information About Chemotherapy and Radiation Therapy

Info on Chemo and Radiation Therapy

- See the “Info on Chemo and Radiation Therapy” folder in Github
- So far I posted:
 - Focus group notes
 - Patient letter
 - Patient videos
- This is a good resource to learn and see what kind of games you can create for patients at the hospital

Susan Smith - Q & A from GNG 1103 Course



<https://youtu.be/jOsHPDVuesQ>

Terrain

Create a New Project

- Open Unity, and create a new project, call it Workshop2
- Go to the scenes folder, rename the scene to '1-Terrain'
- Right click in the Hierarchy window and click '3D Object' → 'Terrain'
- In the Assets folder right click and add a new folder called 'Terrain'
 - In the Assets folder, drag the created terrain 'New Terrain' into the Terrain folder
- Click on 'Main Camera' in the hierarchy window and go to Inspector
 - Set the position of the camera to x=250, y=20, z=500
 - Set the rotation of the camera to x=0, y=180, z=0

Add a script to move the camera

- Create a new folder under Assets called 'Scripts'
- In the 'Scripts' folder, right click and choose 'Create' → 'C# Script'
- Call this script 'MoveCamera'
- Double click on MoveCamera to open the file in a text editor
- Copy and paste the MoveCamera code from Github
- Drag the MoveCamera script onto 'Main Camera' in the 'Hierarchy' window
- Press the Play button and go to the 'Game' window
- Click on the right, left, up, and down arrow keys to move the camera

Raise and Lower the Terrain

- Click on 'Terrain' in the Hierarchy window and look at the Inspector Window
- In the Inspector window, under Terrain click on 'Raise/Lower Terrain'
- Choose a brush, a brush size, and a brush opacity
 - Click the mouse to raise the terrain
 - Shift-Click to lower the terrain
- Paint on a terrain in the Scene window, playing with different brushes
 - To create mountains click and hold for a longer period of time
- Use the 'Smooth Height' to smooth out your terrain, and 'Paint Height' to set a maximum height

Import the Environment Assets from Unity

- In the File menu, click on 'Assets' → 'Import Package' → 'Environment'
- A new folder called 'Standard Assets' will be generated in the Assets folder
 - Inside this folder look in the 'Environment' folder
 - The Environment folder has assets to help create trees, terrain, and water for your scene

Paint Terrain Texture

- With Terrain selected in the Hierarchy window, go to the Inspector window
- In the Inspector window, under Terrain, click on 'Paint Texture'
- Under the brushes, click on 'Edit Texture' → 'Add Texture'
 - Add the Albedo and Normal textures by click on 'Select' and pointing to the 'MudRockyAlbedoSpecular' and 'MudRockyNormals' texture
 - This will add the MudRocky texture to the entire terrain
- Now click on 'Edit Texture' → 'Add Texture' again and add the 'GrassHillAlbedo' texture
- Click on the texture image, and use the paint brush tools to paint on the grass
 - Go back and forth between grass and rock textures with the brush tools
 - Add as many textures to paint as you want

Add Water to the Scene

- In the Environments Folder add a Water prefab
 - There are many different water prefab options, choose whichever you like
 - I chose 'Environment' → 'Water' → 'Water' → 'Prefabs' → 'WaterProDaytime'
- Scale and position the water in the scene
 - Position the y value for the water
 - Raise the terrain around the water to make the river look realistic

Add Trees to your Scene

- Click on Terrain in Hierarchy and go to the Inspector window
- In the Inspector, under Terrain, click on 'Paint Trees'
- Click 'Edit Trees' → 'Add Tree'
 - Click on the circle beside 'Tree Prefab' and then click on 'Broadleaf_Desktop'
- Click on 'Edit Trees' → 'Add Tree' and add a second tree 'Conifer_Desktop'
- Paint the trees in your scene
 - Play with all of the tree brush settings

Add More Terrain Details

- Click on Terrain in the Hierarchy window and go to the Inspector
- In the Inspector, under Terrain, click on 'Paint Details'
- Click on 'Edit Details' → 'Add Grass Texture'
 - Click on the circle beside 'Detail Texture' and choose the 'GrassFrond01AlbedoAlpha' texture
- Now if you zoom in you'll see grass

Create Your Own Skybox

Street View App - 360 Images

- Go to your app store on your phone and download 'Google Street View'
- Follow the instructions in the app, and record a 360 of a scene
 - Open the app, click the 'PRIVATE' tab
 - Click the 'Camera' at the bottom right of the screen, and click 'Camera' again
 - Point the Camera at the dots
 - The app will then stitch the images together
- Take 20 minutes, take a picture in this building or go outside
 - When you come back we'll put this image in Unity
 - You can also test your image on the Google Cardboard

Save Scene and Create Folders

- Click 'File' → 'Save' and save scene as '2-Skybox'
- Right click on the 'Assets' folder click 'Create' → 'Folder'
- Add three new folders inside Assets named:
 - Materials
 - Skybox

Bring the 360 image into the project

- Go into the 'Skybox' folder, and drag and drop the image
- Click on the image, and then look in the 'Inspector' window
- In the 'Inspector' window change the 'Texture Shape' dropdown from '2D' to 'Cube'
- Set the 'Mapping' dropdown to 'Latitude-Longitude Layout (Cylindrical)'

Create a new material

- In the 'Materials folder, right click and 'Create' → 'Material'
- Call the material 'SkyboxMat'
- Click on SkyboxMat and look in the 'Inspector' window
- In the 'Inspector' on the 'shader' dropdown choose 'Skybox' → 'Cubemap'
- Then in 'Cubemap HDR' press 'Select' and choose your 360 image

Add the lighting settings

- In the file menu click on 'Window' → 'Rendering' → 'Lighting Settings'
- Drag the 'Lighting Settings' panel next to 'Inspector'
- Under 'Environment', find 'Skybox Material' and click on the small circle and choose 'SkyboxMat'
 - Alternatively you can drag the SkyboxMat material in the box

Add a script to rotate the camera

- In the 'Scripts' folder, right click and choose 'Create' → 'C# Script'
- Call this script 'RotateCamera'
- Double click on 'RotateCamera' to open the file in a text editor
- Copy and paste the 'RotateCamera' code from Github
- Drag the 'RotateCamera' script onto 'Main Camera' in the 'Hierarchy' window
 - Now the script can access and move this component
- Press the Play button and go to the 'Game' window
- Click on the right, left, up, and down arrow keys to rotate the camera

360 Video

GoPro - 360 Video

- MakerSpace has a GoPro device that lets you shoot 360 video to use in your VR applications
- Video content may be interesting to make apps that take you to new places, learn new cultures, learn how to do arts and crafts
 - These videos can be used inside Unity with 3D objects that the user can interact with
- GoPro device can be borrowed from the MakerSpace to shoot your films
- Video tutorial on how to use the device and stitch together the images is posted on the Github page

Resources for 360 Go Pro Video

- Basic Video Stitching (1 of 3) - Autopano Video Pro Tutorial 1
 - <https://youtu.be/dBWqiTZbGzw>
- Basic Video Stitching (2 of 3) - Autopano Video Pro Tutorial 2
 - <https://youtu.be/3FmAAij53As>
- Basic Video Stitching (3 of 3) - Autopano Video Pro Tutorial 3
 - https://youtu.be/mE_uhL9HRlk
- Full instruction manual on the Github for Workshop2

Next Week's Workshop

Next Week's Workshop

- 3D Modeling in Unity
- SteamVR Introduction

Need Help?

- Ask the question to the group on Slack in the `#unity-help` channel