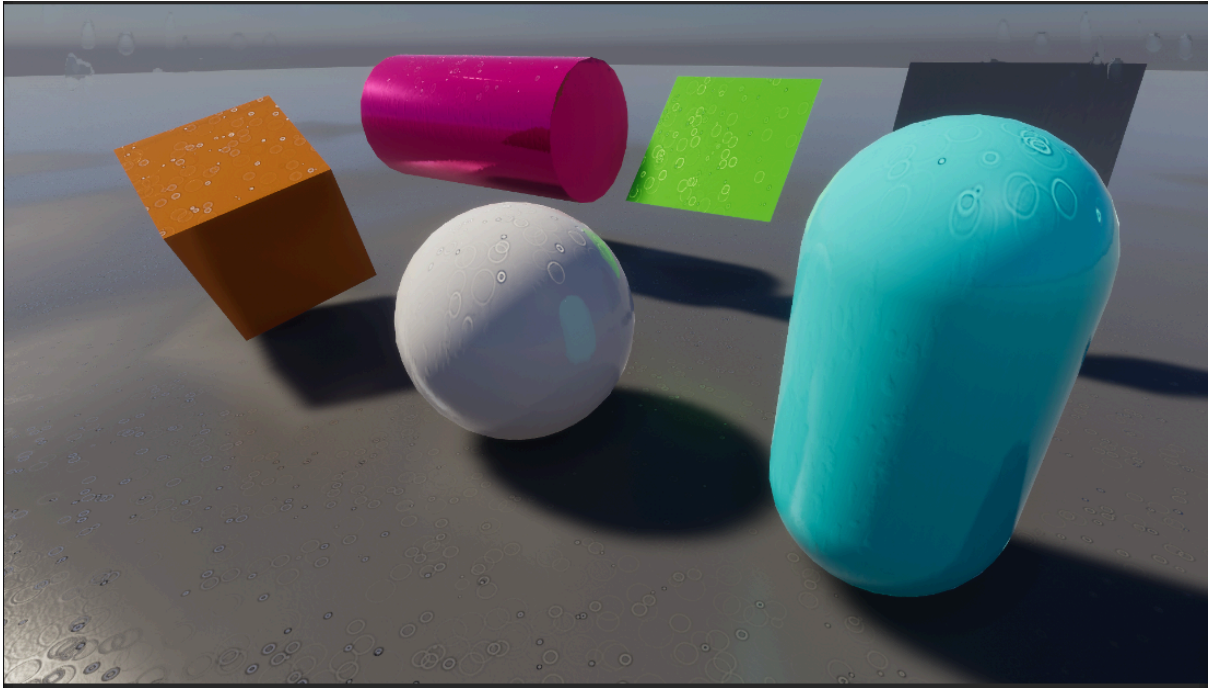# ScreenSpace Rain Wetness

Documentation

Important disclaimer

Demo use raytracing, DX12 as default setup

Explanation :

ScreenSpace RenderPass, why?

I choosed to use **Screen Space Rendering** (using Fullscreen Pass) to render few elements like RainDrops and to render directly my effect to the Normal Buffer and Smoothness buffer, this way I can write the Rain Droplet and Rain Gliding Effect to any Object in the scene, taking in account the original smoothness and normal value of each object.
Tricks inspired from : https://github.com/alelievr/HDRP-Custom-Passes (cf Screen Space Wetness), the smoothness and normal effect from the Rain/Wet can be discarded using various method like textures or vertex painting.

Optimisation : Reading and Writing the NormalBuffer is far more fast than executing the effect on each Shader/Materials in the scene, convenient effect for all environment assets

Artist friendly : Rain/Wet Effect can be mitigated across the scene using VertexColor directly using Polybrush for now, but we can absolutely allow artiste to create special texture to specify where the effect should be apply and where not.

One click setup : Drag and Drop the **FullScreen Wetness Controller** to wet any scene and add raining effect.

Using **Shader Graph**, **Custom Pass**, **VFXgraph** and **Custom RenderTextures**

The **RainOnCamera** effect
Is just for fun, it is a modified version from the HDRP fullscreen samples :)

Get Started :

Open **SampleScene** in Assets/Scenes
Look at the **FullScreen Wetness Controller** to control over the rain and wet effect

Content :

Enable or disable each effect using the **FullScreen Wetness Controller**

Main components :

- ***FullScreen Wetness Controller***

  GameObject saved as prefab in Assets/FarFromHereStudio/CustomPasses,
  It have the main control we need to apply our Wetness effect.
  It control over the *ScreenSpaceWetness Pass*

- ***ScreenSpaceWetness material***

  Material (fullscreen) responsible for encoding the Depth And Normal Buffer to add
  Wet/Rain effect to all objects.
  Create the VertexColor pass to draw as Custom ColorBuffer
  Use the VertexColor pass as mask to hide the Wet/Rain effect

- ***RainOnCameraEffect material***

  Material (fullscreen) Add a screen Effect to reinforce wetness feeling

- ***Debug VertexColorFullScreen Pas*s**
  Debug the Vertex Color area painted using Polybrush to display where the
  wet effect is apply

- ***Custom RenderTexture : CustomRT_Droplets***

  This Rendertexture is 1024px, RGBA Sfloat32, used as trilinear projected textures by
  the into the NormalBuffer by the *ScreenSpaceWetness material* to create the
  droplet ring on the top of each object

- ***Custom RenderTexture : Rain_RenderTarget***

  This texture is 512px, one channel, used as trilinears projected texture use by the
  ScreenSpaceWetness material and the *RainOnCameraEffect material* to
  create the Rain Gliding on each object sides