

Qin Substrate UE5 Plugin - Documentation

Overview:

This Unreal Engine 5 plugin implements the Qin Substrate — a 2D, mask-driven coherence operator running as a compute shader.

Installation:

1. Place the QinSubstrate folder into:

YourProject/Plugins/QinSubstrate/

2. Regenerate project files if using C++.

3. Build the project in Visual Studio or Rider.

4. Open Unreal and enable:

Plugins -> Rendering -> Qin Substrate 2D

Usage:

1. Create two TextureRenderTarget2D assets (e.g., 256x256, R8).

2. Create a Mask Texture2D (white = ON, black = OFF).

3. In Blueprint Tick, call:

`QinStep2D(CurrentRT, MaskTex, OutRT, Params)`

4. Swap A <-> B each frame (ping-pong).

5. Display the RT using a material on a plane or full-screen quad.

Parameters:

- Eta: diffusion strength
- Beta: nonlinearity sharpness
- Gamma: mask influence toward target values
- UOn: mask "on" value
- UOff: mask "off" value

Folder Structure:

QinSubstrate/

QinSubstrate.uplugin

Source/

QinSubstrate/

Public/
Private/
Shaders/
QinCS.usf

This plugin enables real-time experimentation with the Qin operator inside UE5. Suitable for GPU research, graphics experimentation, and simulation/VFX workflows.