

Shader Sauce

How to use shaders to create stylized VFX

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twitter.com/veerFX



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A brief introduction



probably**MONSTERS**™

LEGENDS OF
RUNETERRA

- Riot Games

CRASH
BANDICOOT 4
IT'S ABOUT TIME

- Toys for Bob
- Activision



**ROCKET
LEAGUE**

- Psyonix
- Epic Games



THE FAR SHORE

- Superbrothers
- Pine Scented
Software



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What this talk is about

Common
perception
about
“stylized”
VFX

Intro to
VFX Shaders
101

Neat tips
and tricks

Walkthrough
& setup in
UE4

What this talk is not about

Hand drawn
or
simulation
VFX

Using
Particle
Systems

Complex
Shader Math
Or
Optimizing

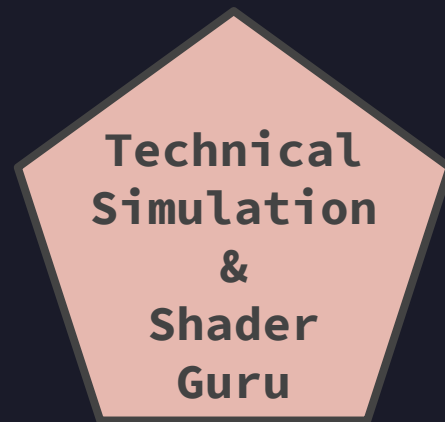
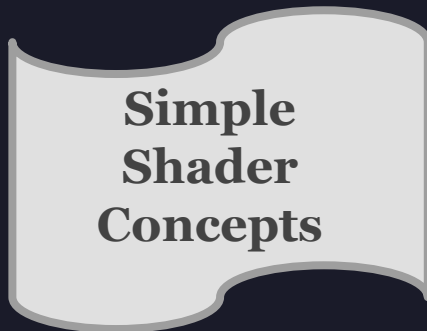
Creating
Textures



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Common misconceptions about stylized VFX



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Common misconceptions about stylized VFX

*What
is
Stylized
?*



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Common misconceptions about stylized VFX



- Studio MDHR



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Common misconceptions about stylized VFX



- EA DICE



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Common misconceptions about stylized VFX



- Epic Games



- Naughty Dog



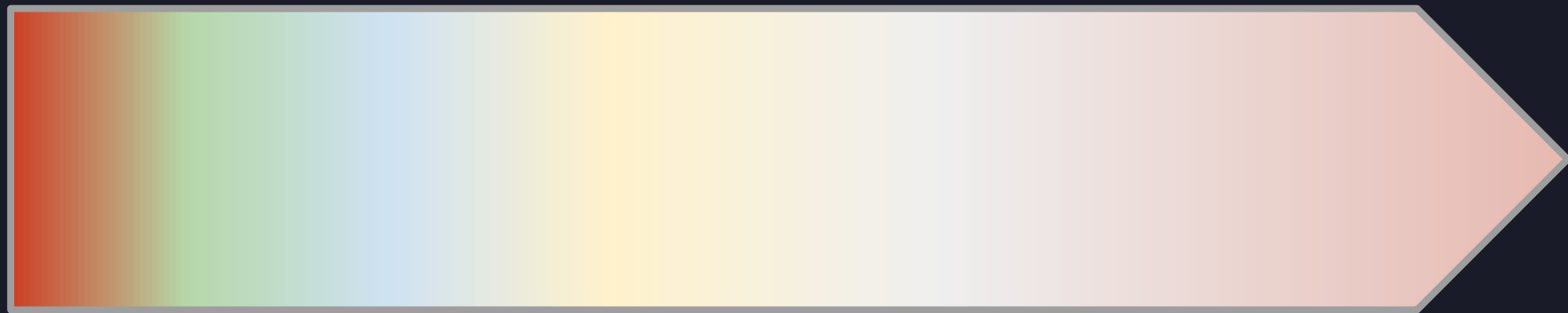
- Gearbox



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Common misconceptions about stylized VFX



Cartoony



STYLIZED



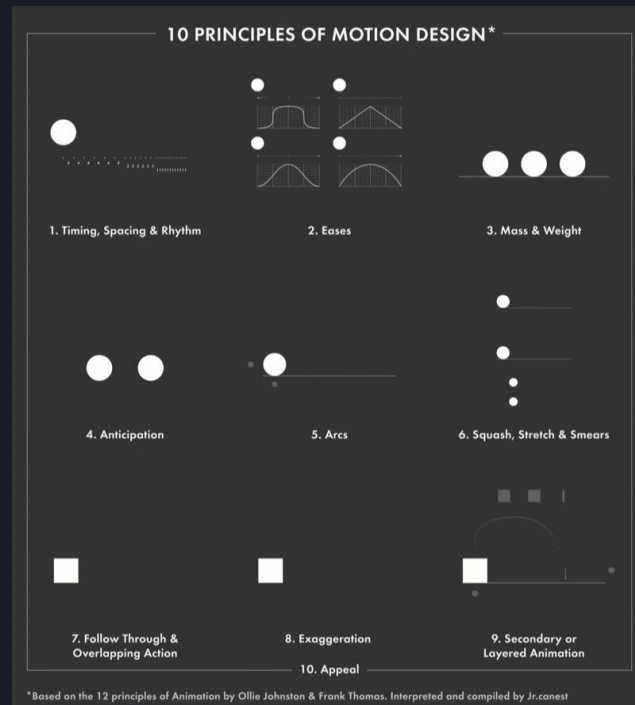
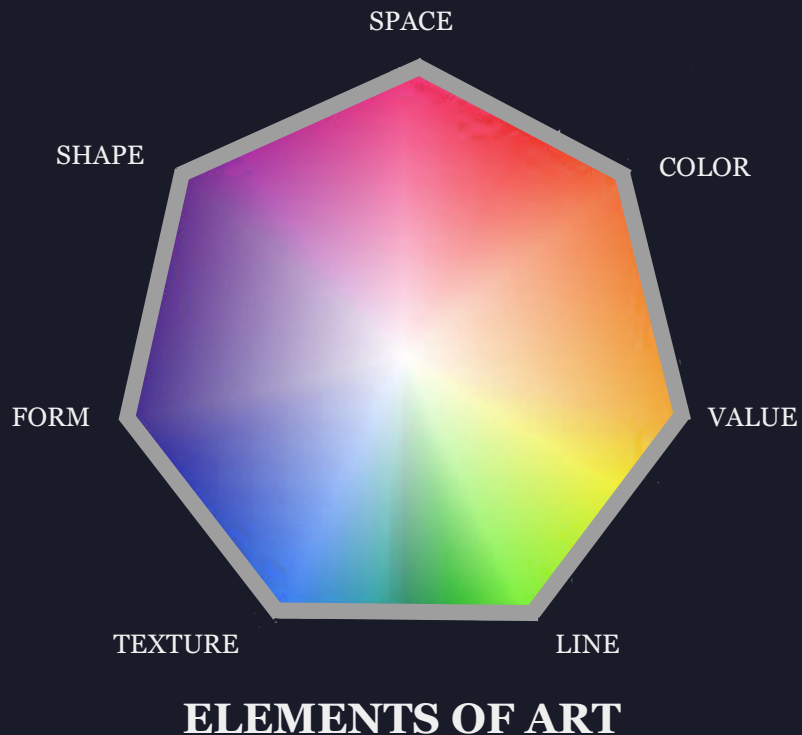
Realistic



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Common misconceptions about stylized VFX



- Jorge R. Canedo Estrada



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Shader 1

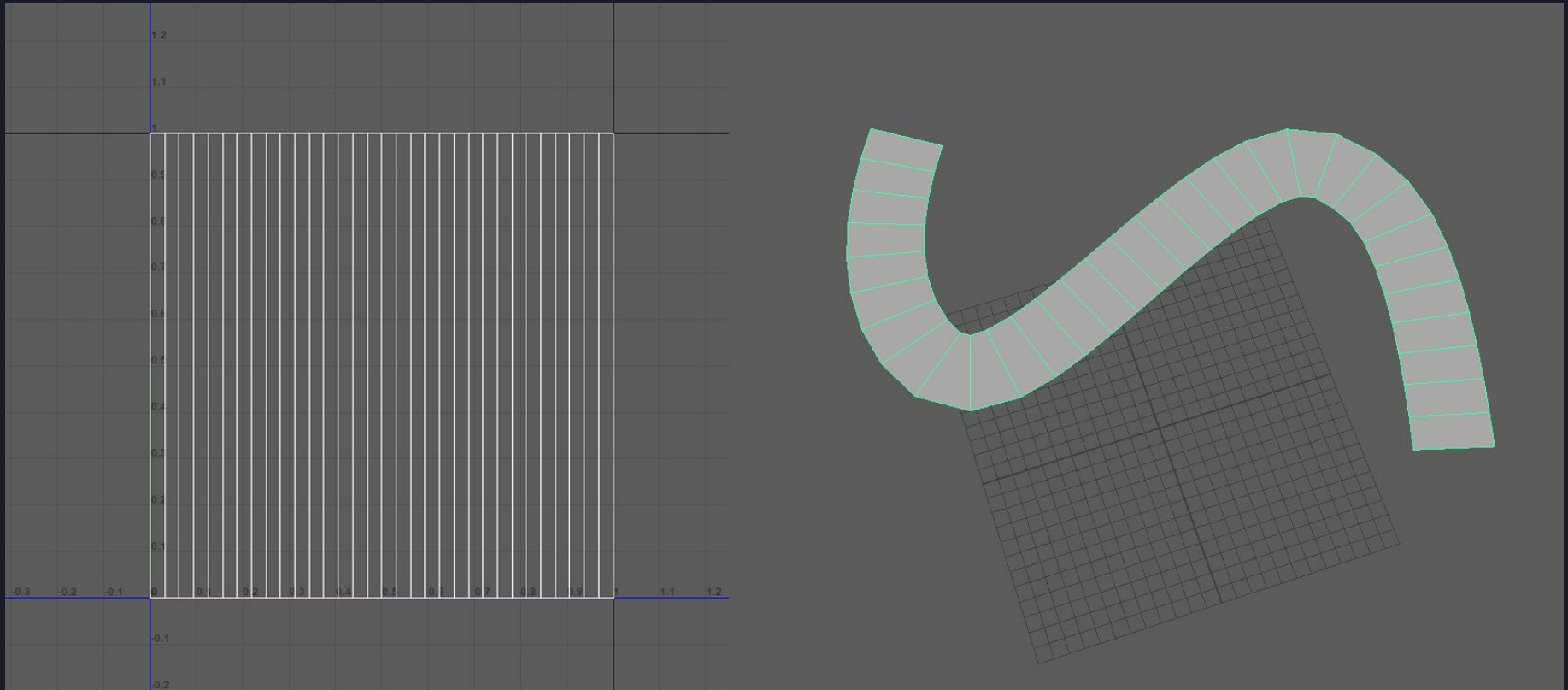
Scrolling Texture Along UVs



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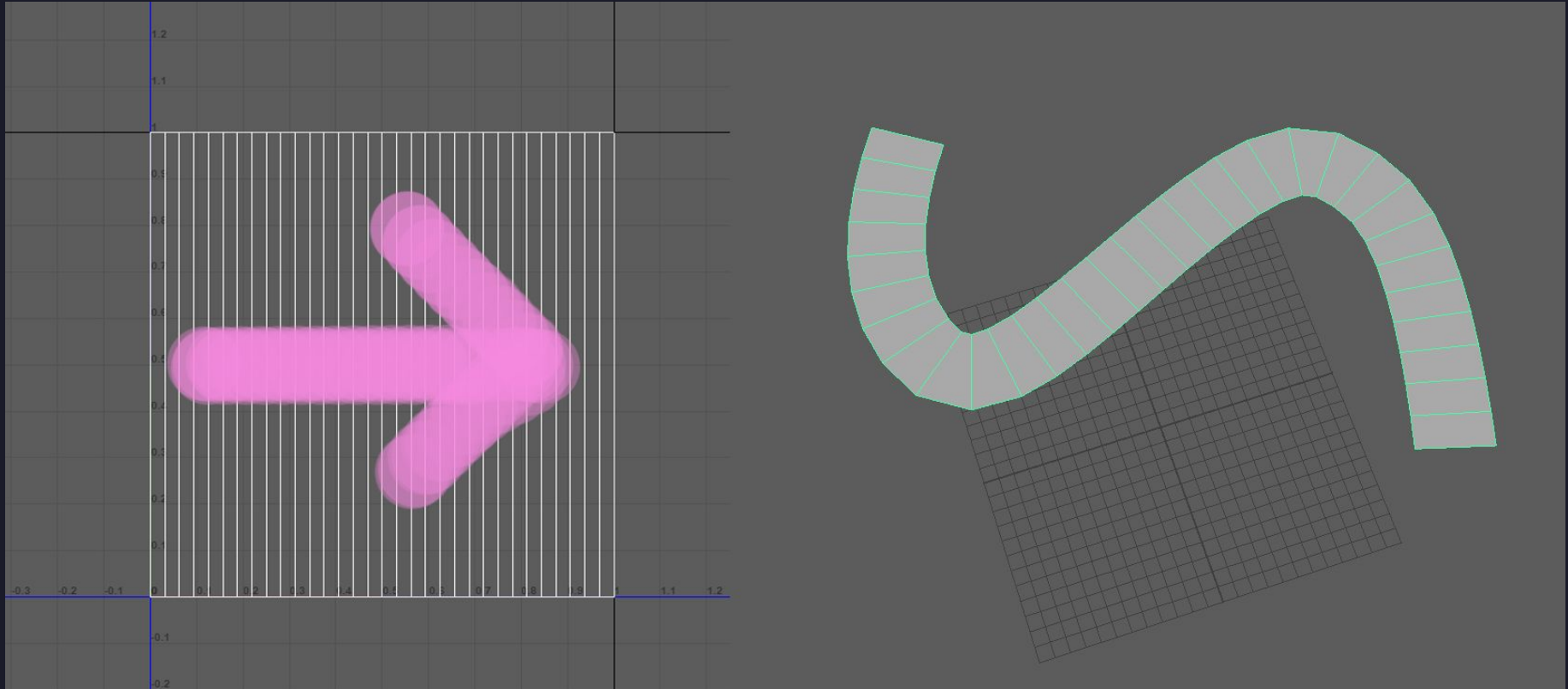
Shader 1: Scrolling Texture along UVs



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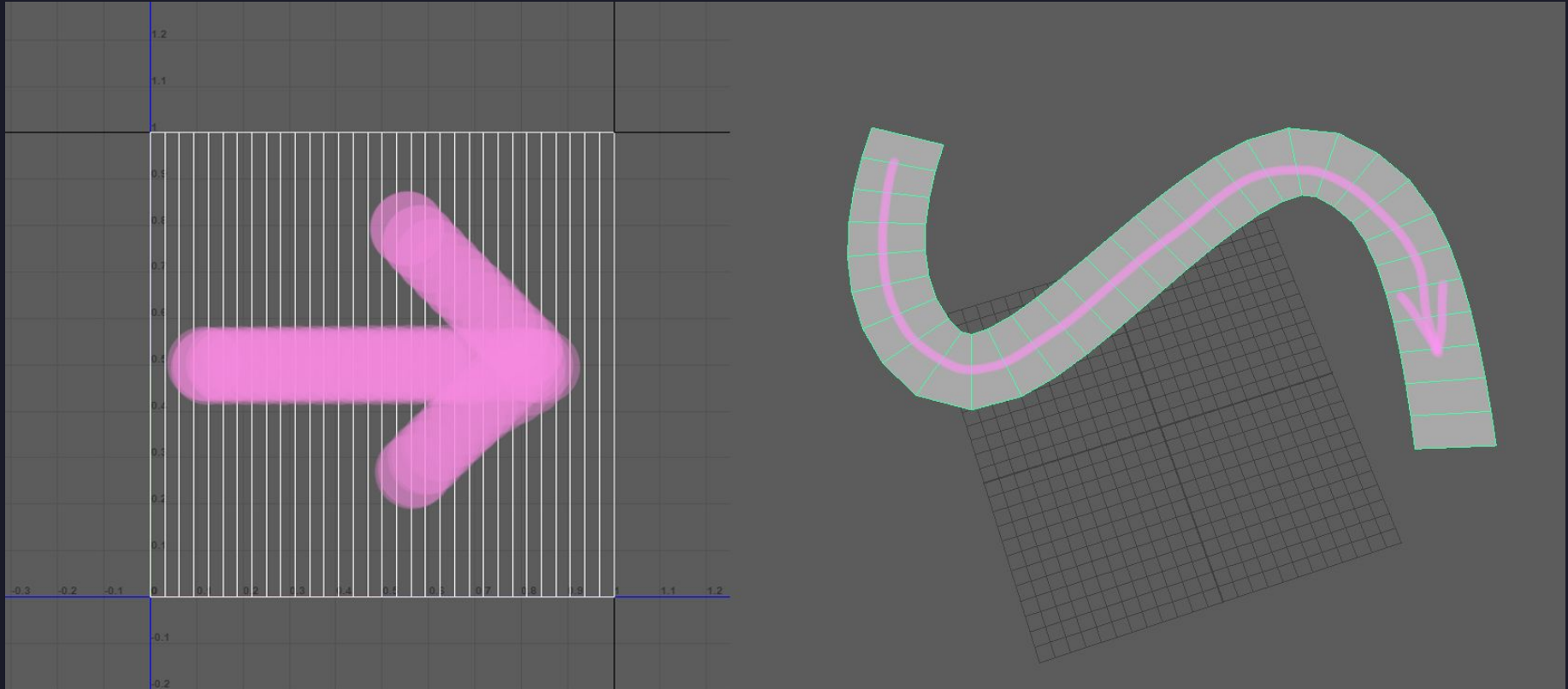
Shader 1: Scrolling Texture along UVs



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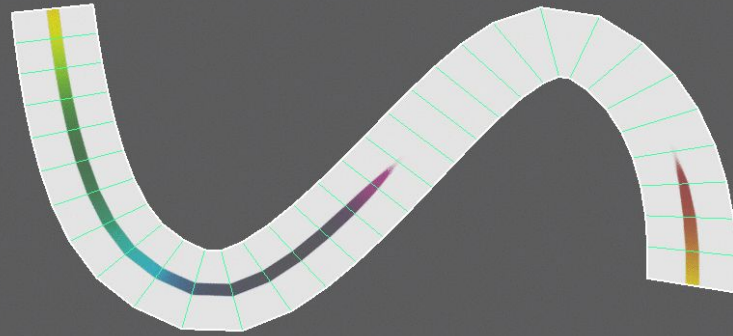
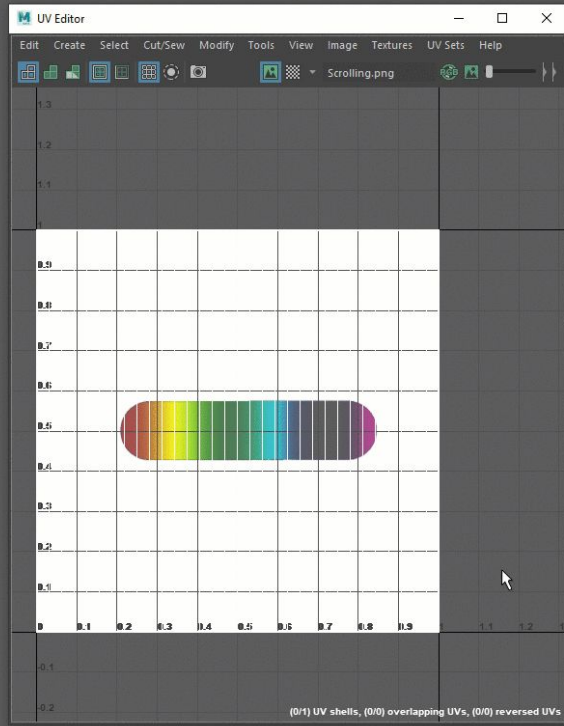
Shader 1: Scrolling Texture along UVs



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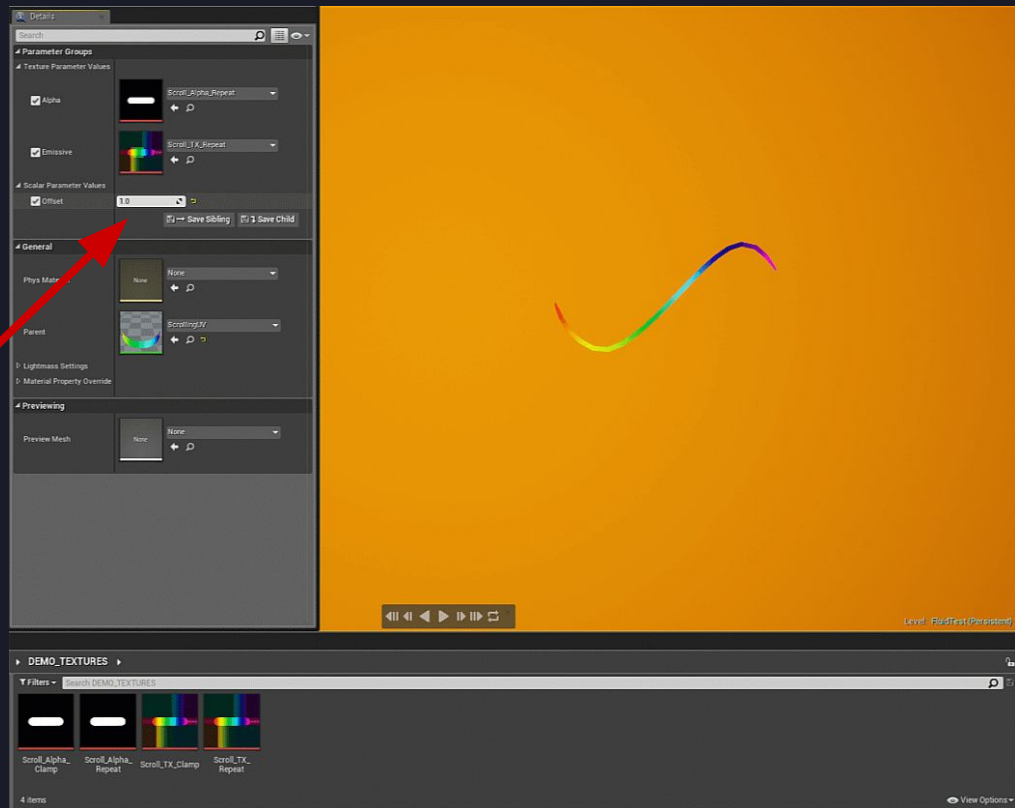
Shader 1: Scrolling Texture along UVs



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Shader 1: Scrolling Texture along UVs



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Shader 1: Scrolling Texture along UVs

REPEAT

VS

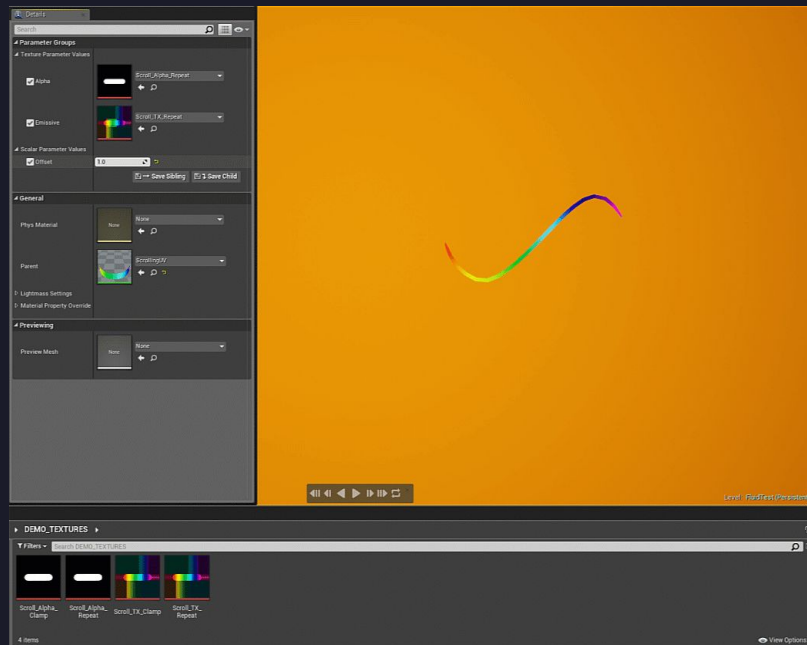
CLAMP



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Shader 1: Scrolling Texture along UVs



REPEAT



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- The Coalition
- Xbox Game studios

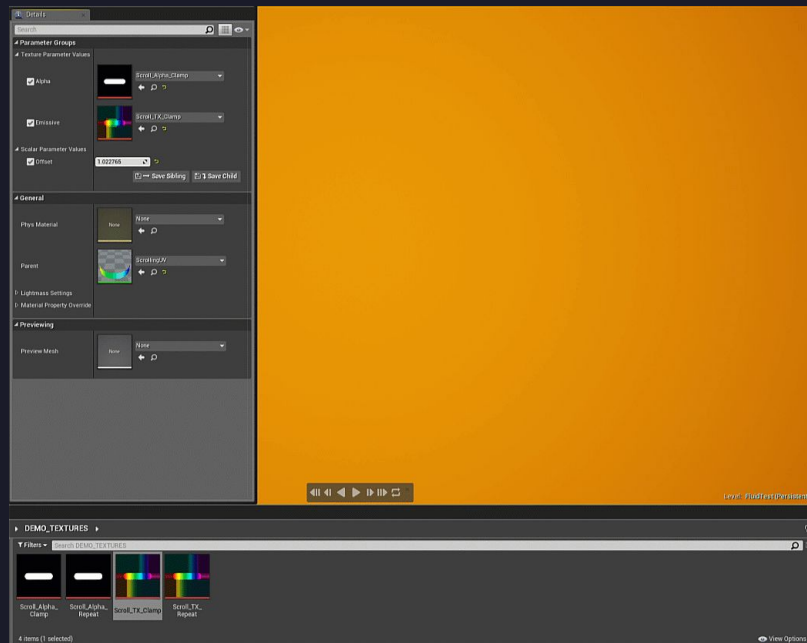
- Toys for Bob
- Activision



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Shader 1: Scrolling Texture along UVs



CLAMP



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- Activision Blizzard



- The Coalition
- Xbox Game studios



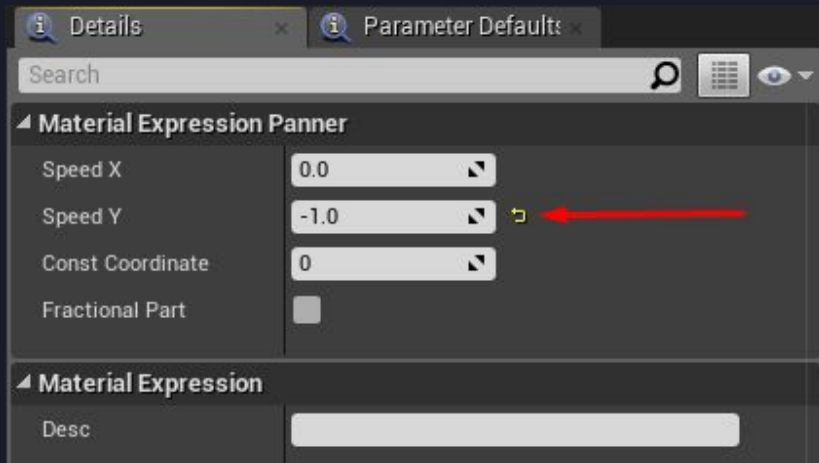
- Atlus
- P Studio



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Shader 1: Scrolling Texture along UVs



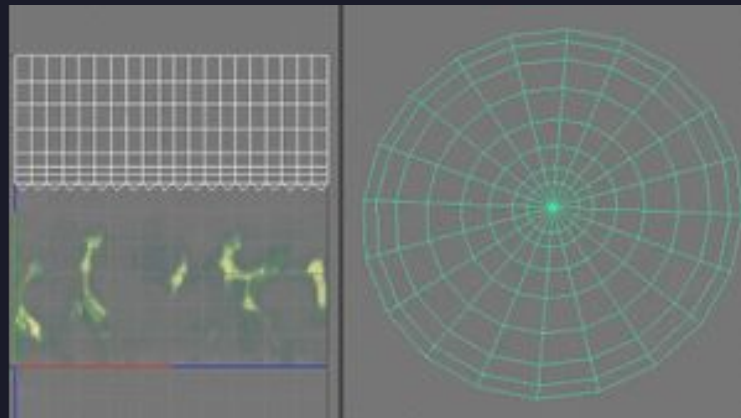
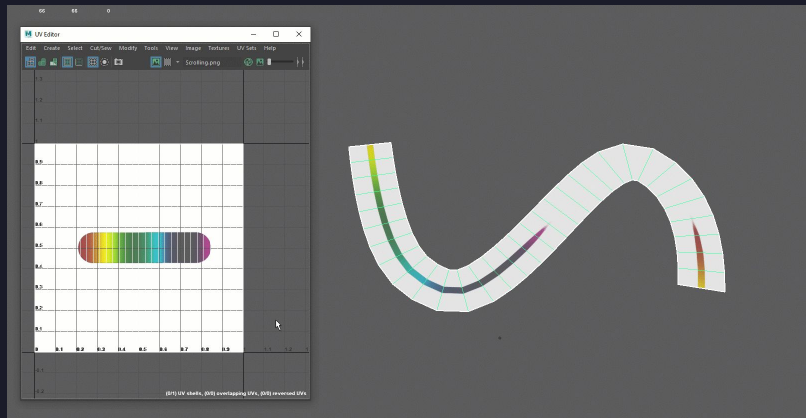
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Shader 1: Scrolling Texture along UVs



Shader 1: Scrolling Texture along UVs



- Shannon Berke McSheehan



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Shader 2

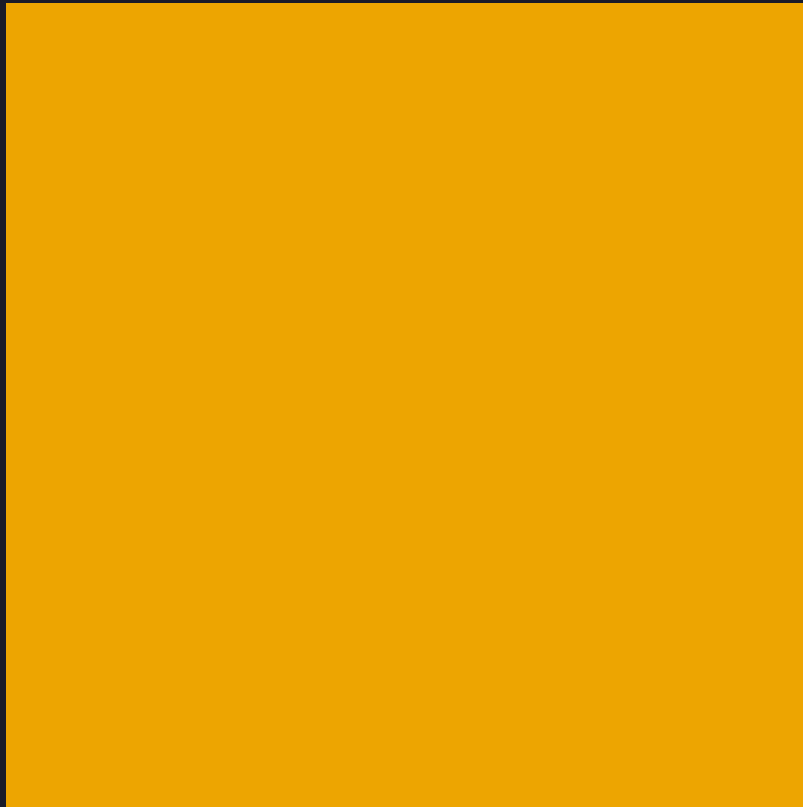
Alpha Erosion



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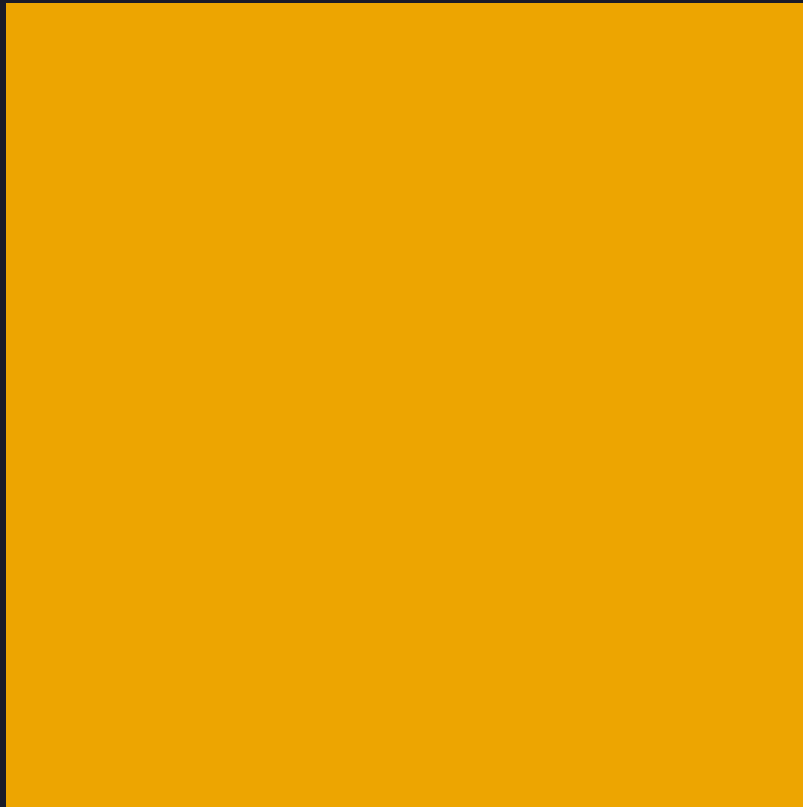
Shader 2: Alpha Erosion



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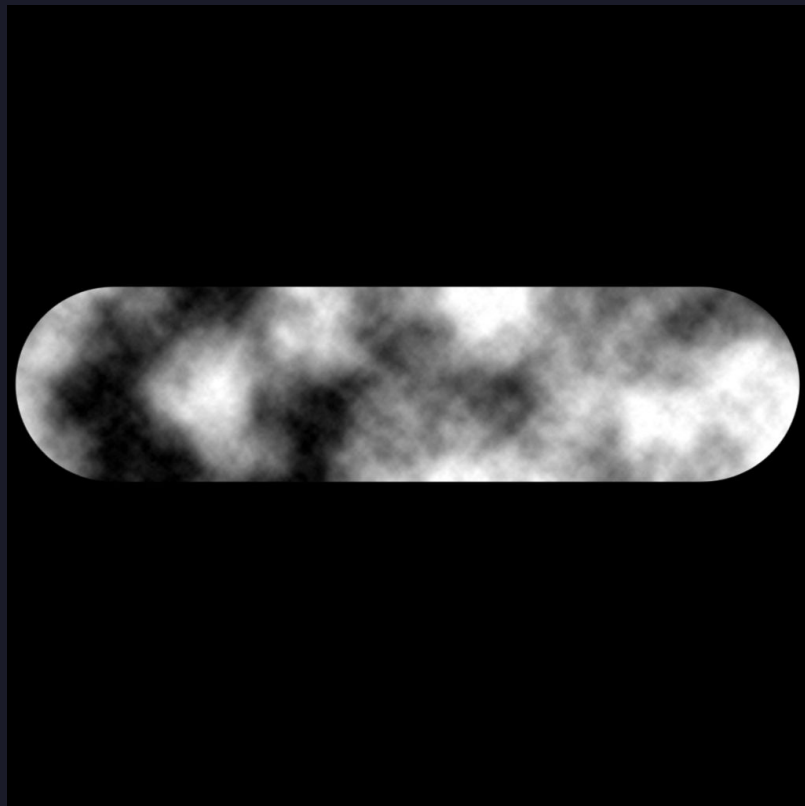
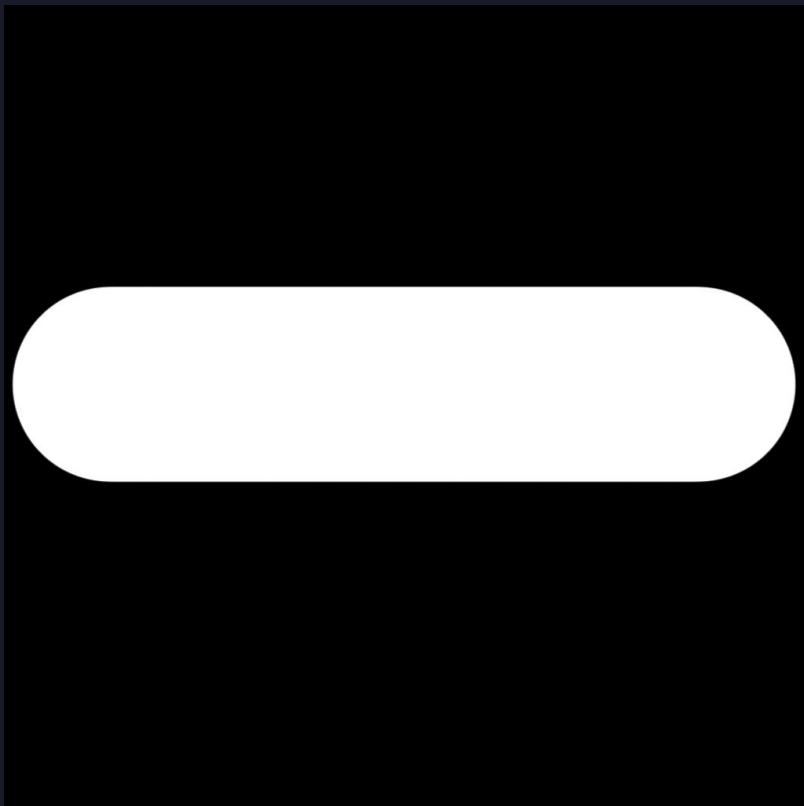
Shader 2: Alpha Erosion



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Shader 2: Alpha Erosion



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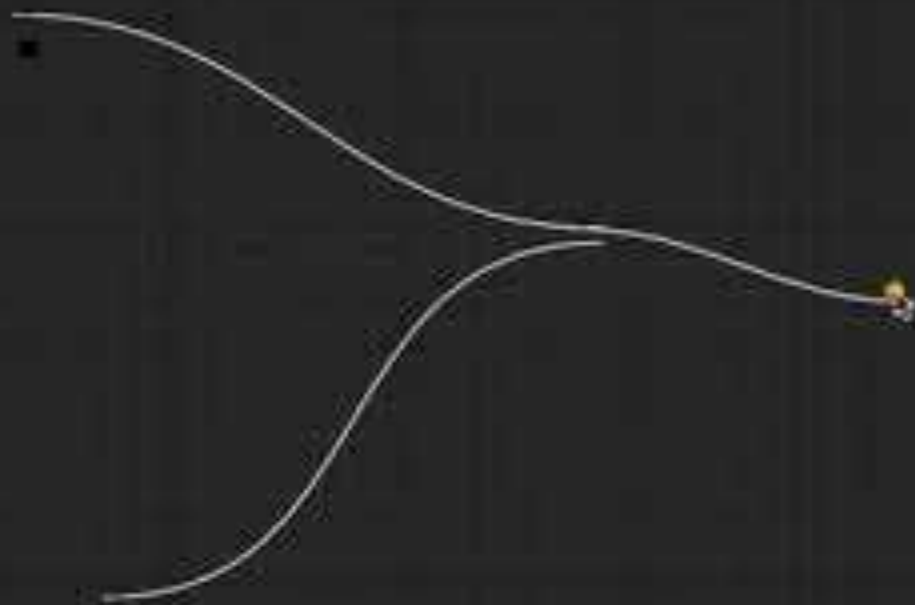
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Shader 2: Alpha Erosion



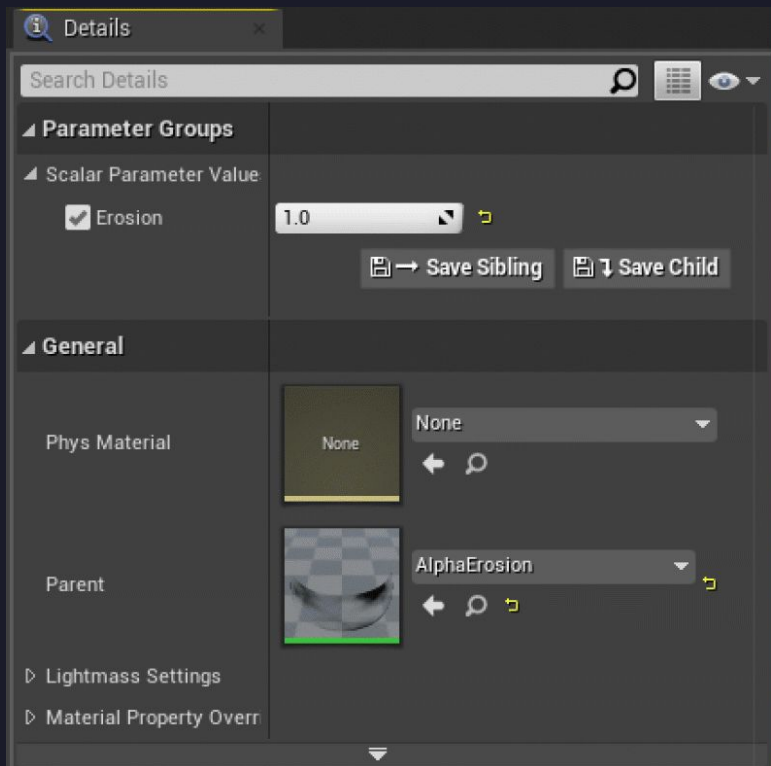
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MATERIAL

Shader 2: Alpha Erosion



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- Nintendo



- Ubisoft



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Shader 3

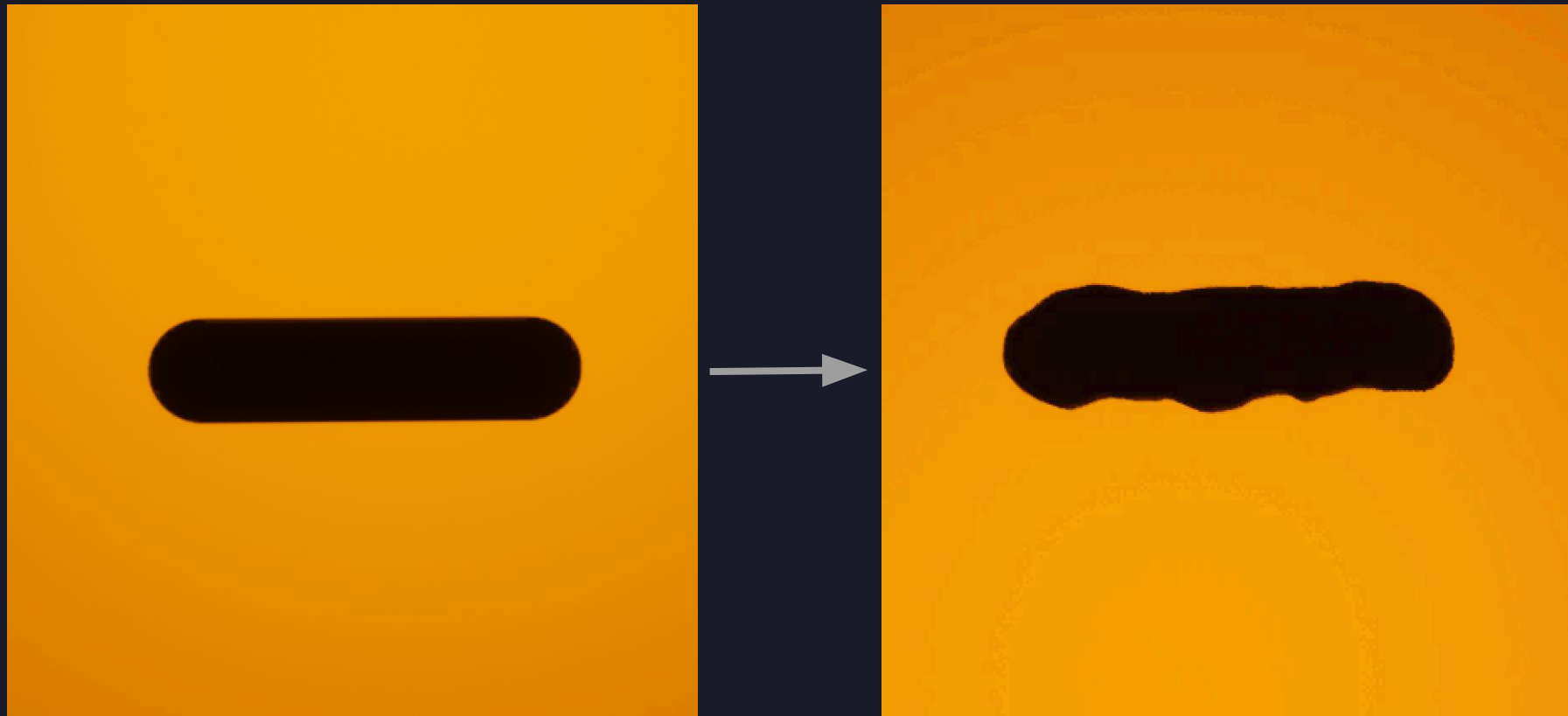
UV Distortion



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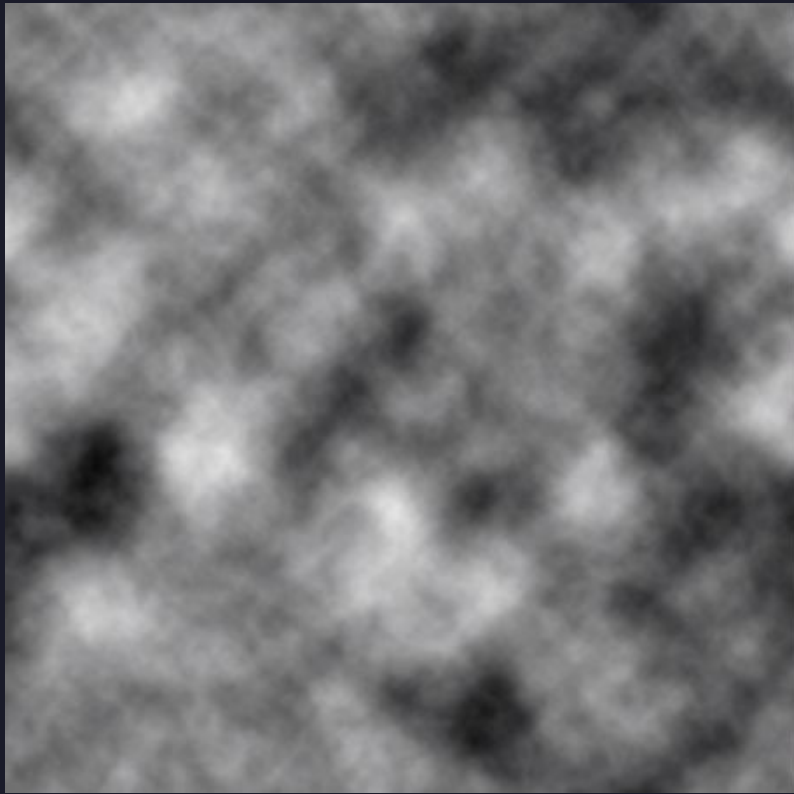
Shader 3: UV Distortion



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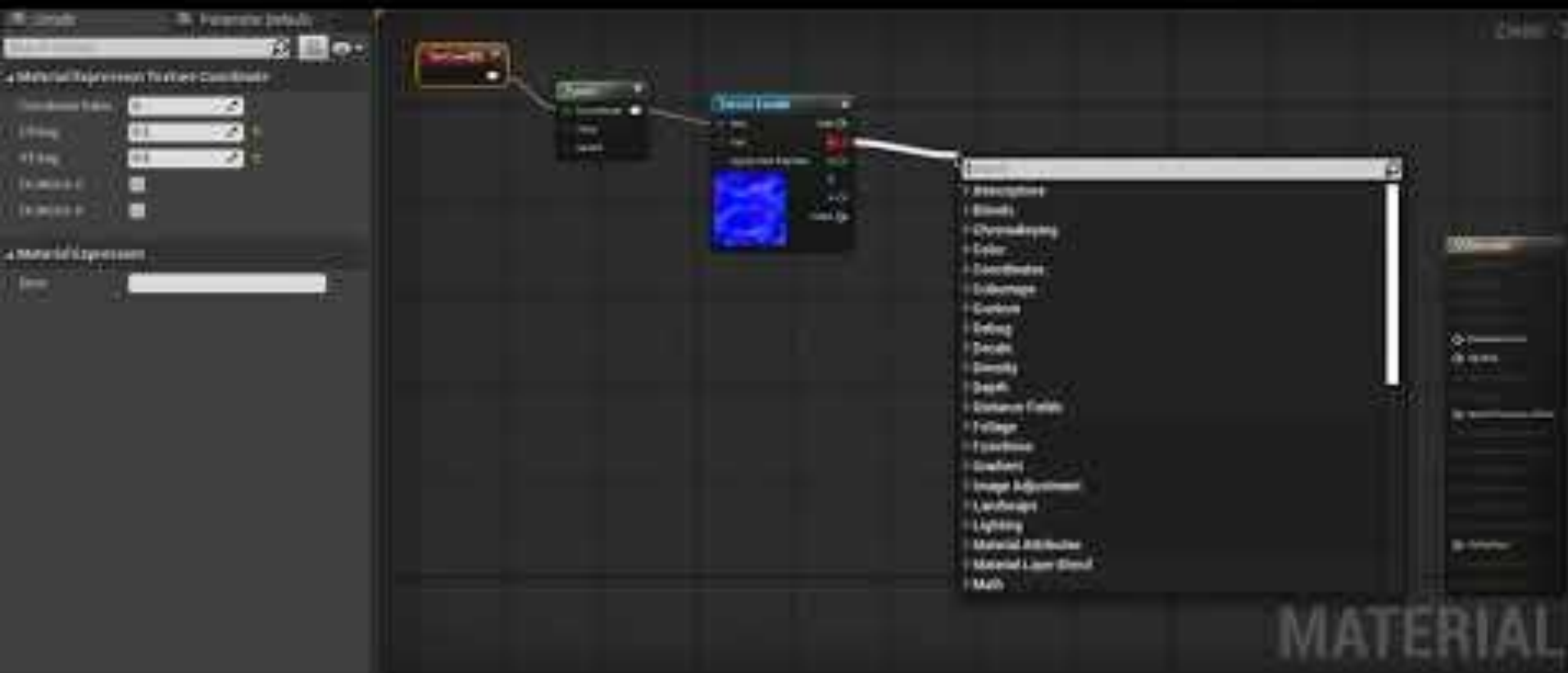
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Shader 3: UV Distortion

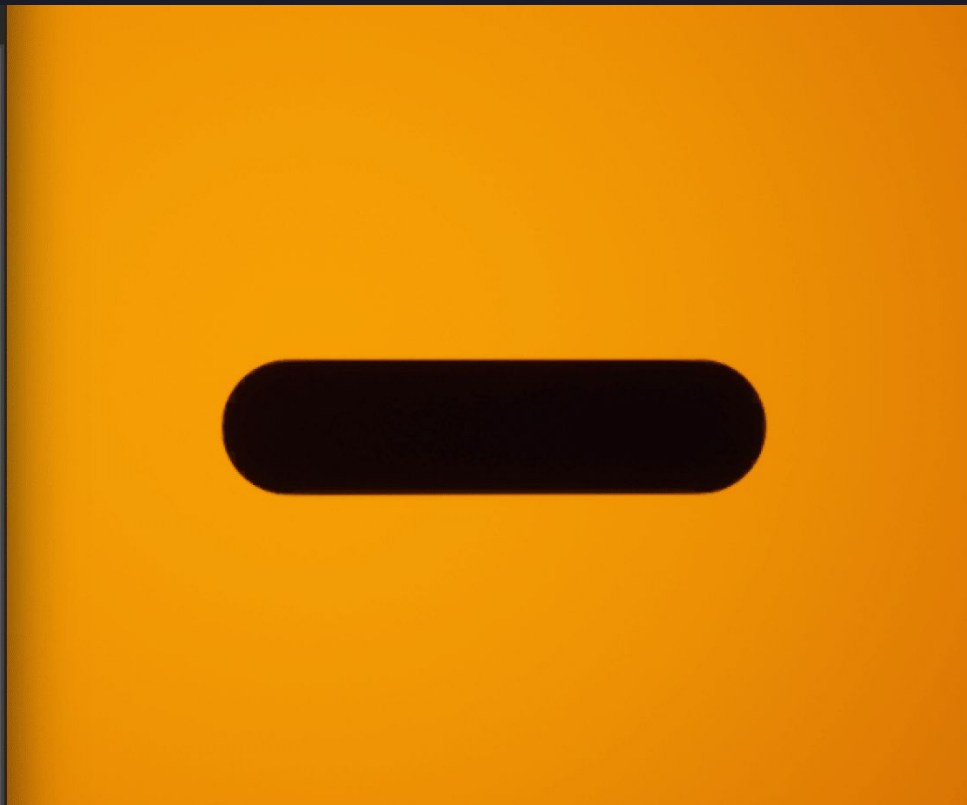
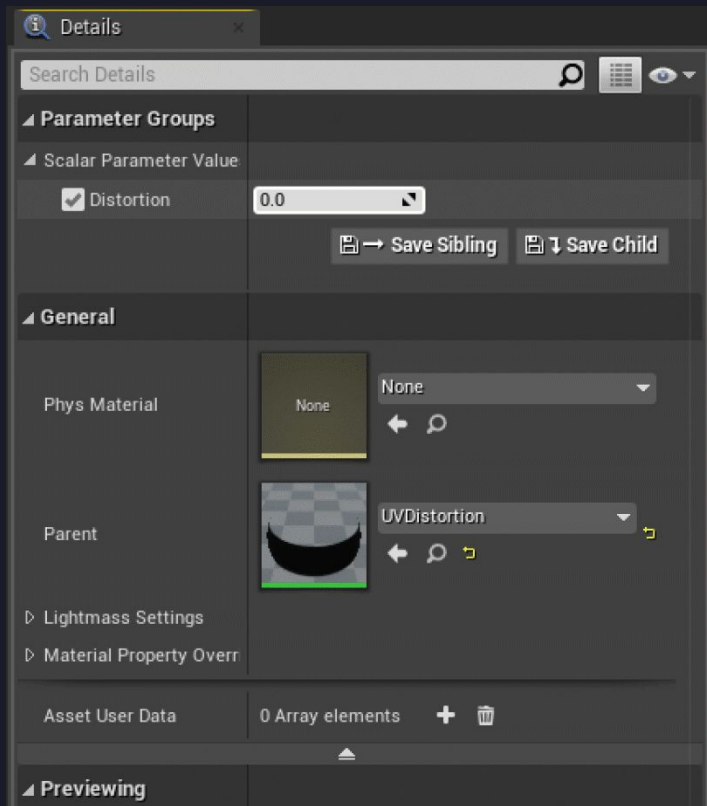


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Shader 3: UV Distortion



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Shader 3: UV Distortion

Remapping

0 <-> 1

To

-1 <-> 1



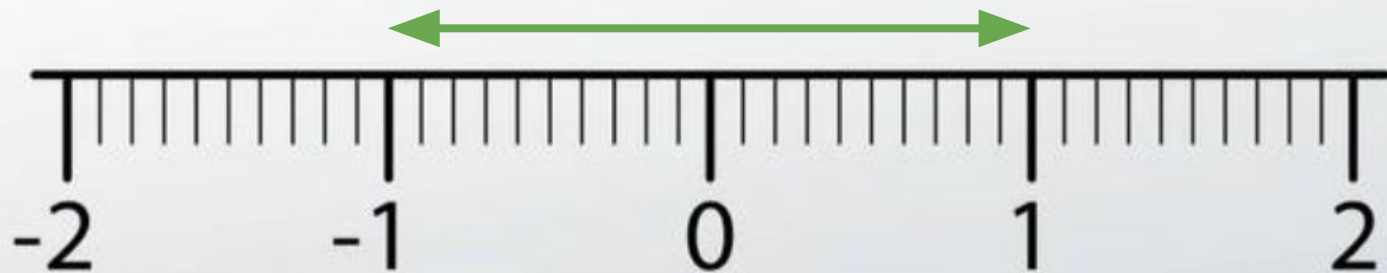
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$x2$



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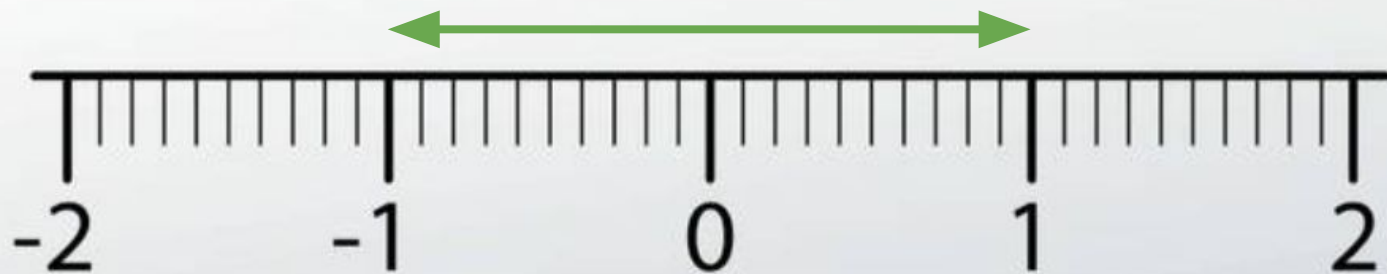


-1



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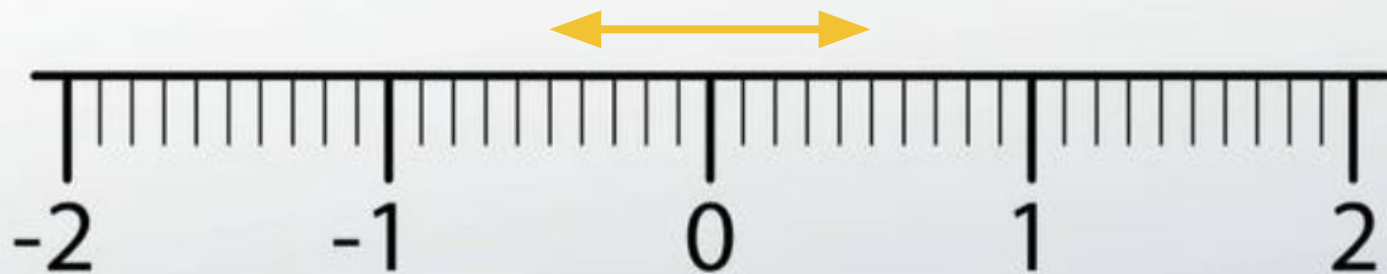


-0.5



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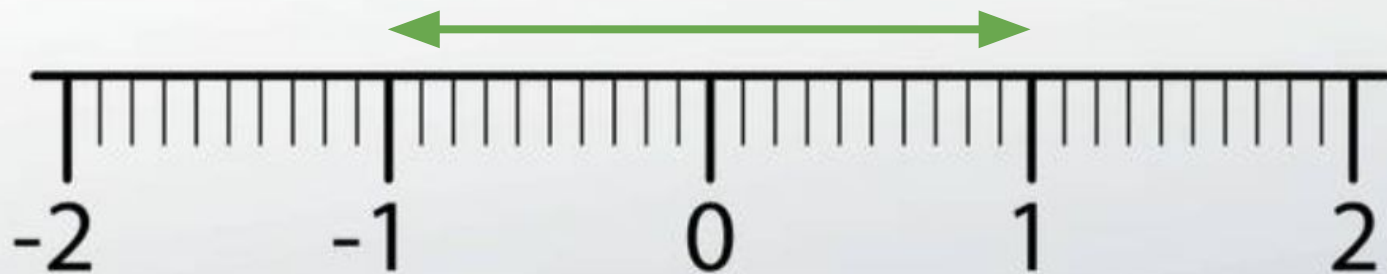


$\times 2$



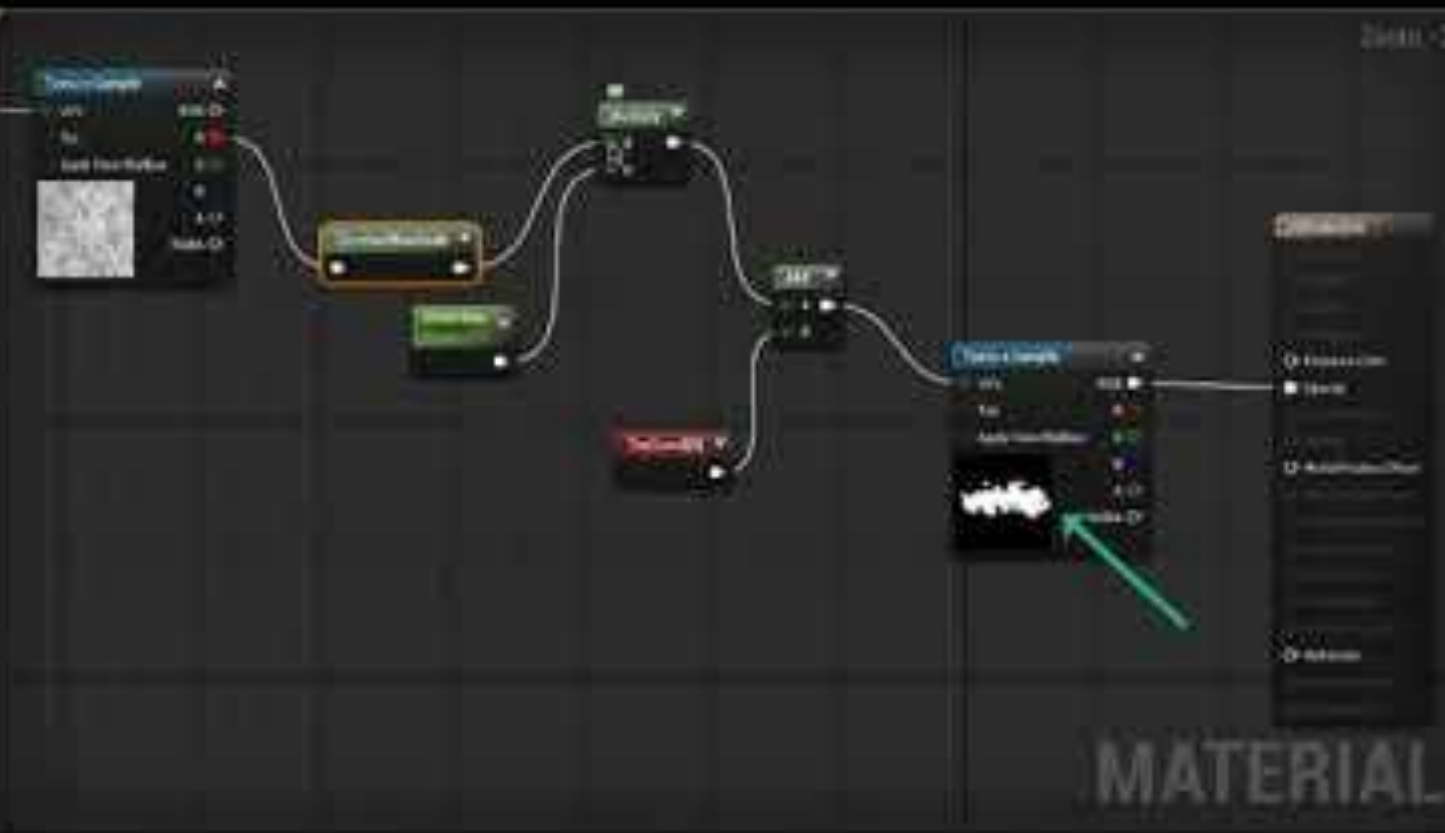
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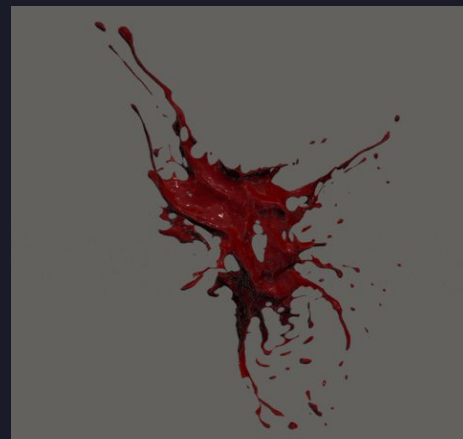




- Nintendo



- Ubisoft



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Shader 3: UV Distortion



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Shader 4

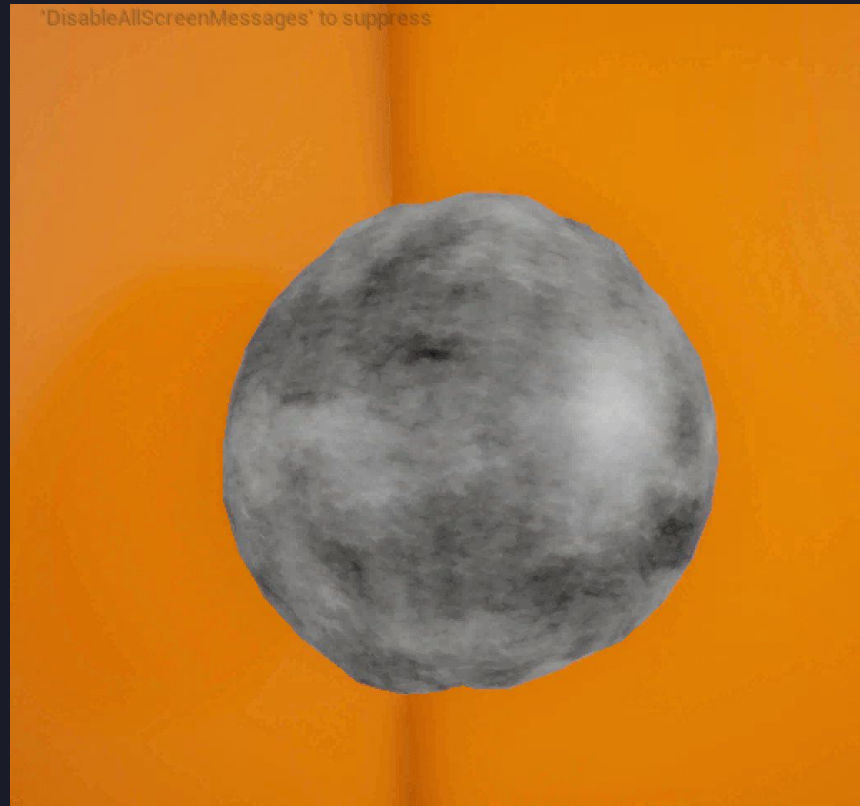
Vertex Offset



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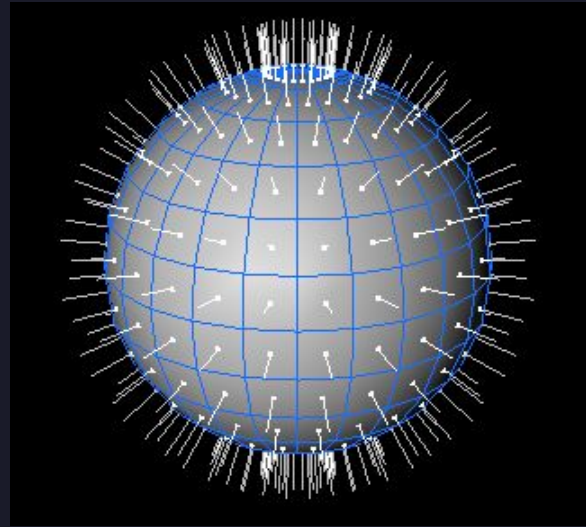
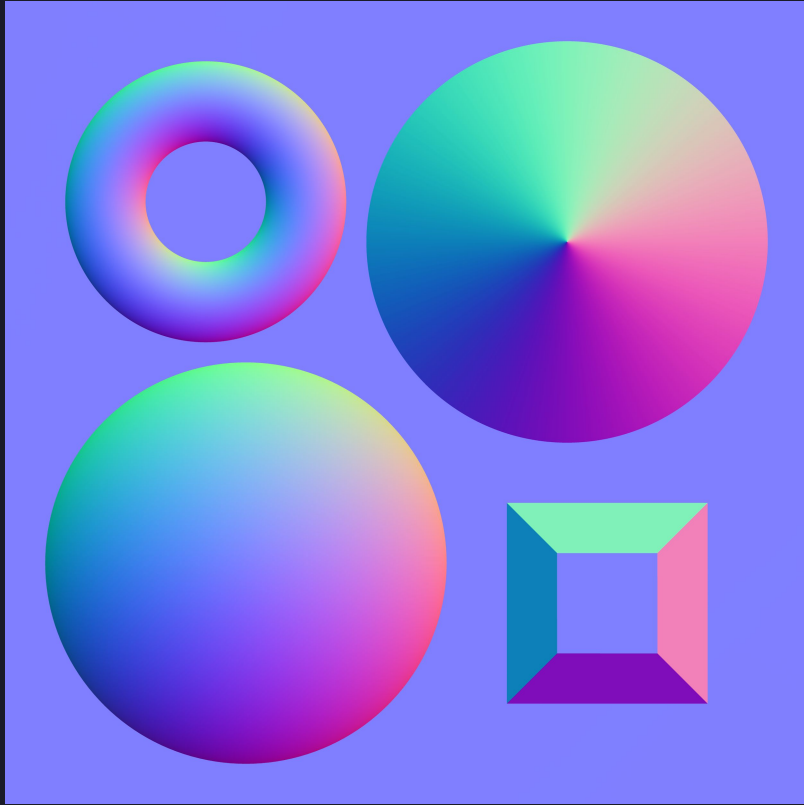
Shader 4: Vertex Offset



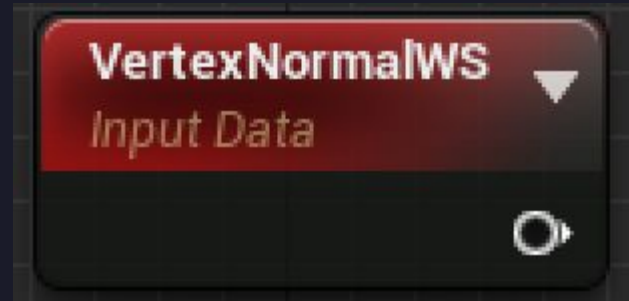
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Shader 4: Vertex Offset



- wikimedia

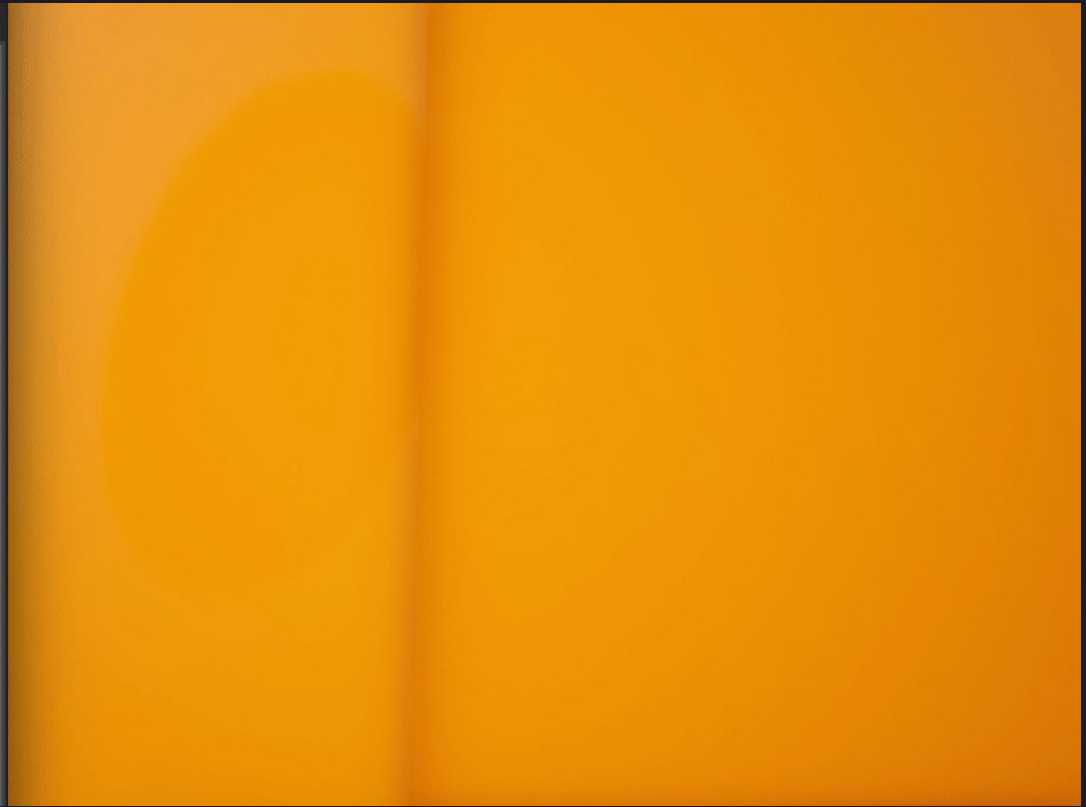
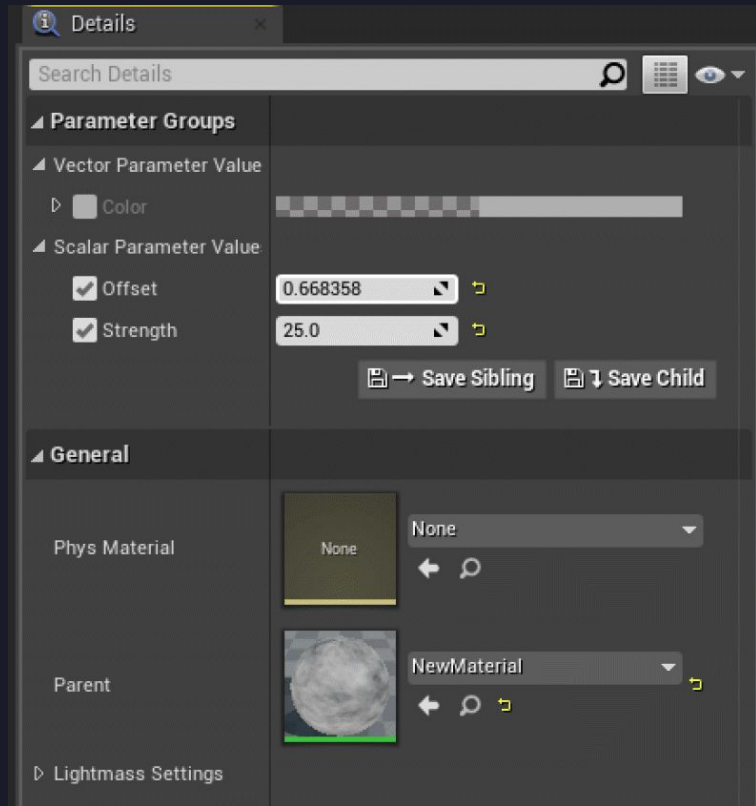


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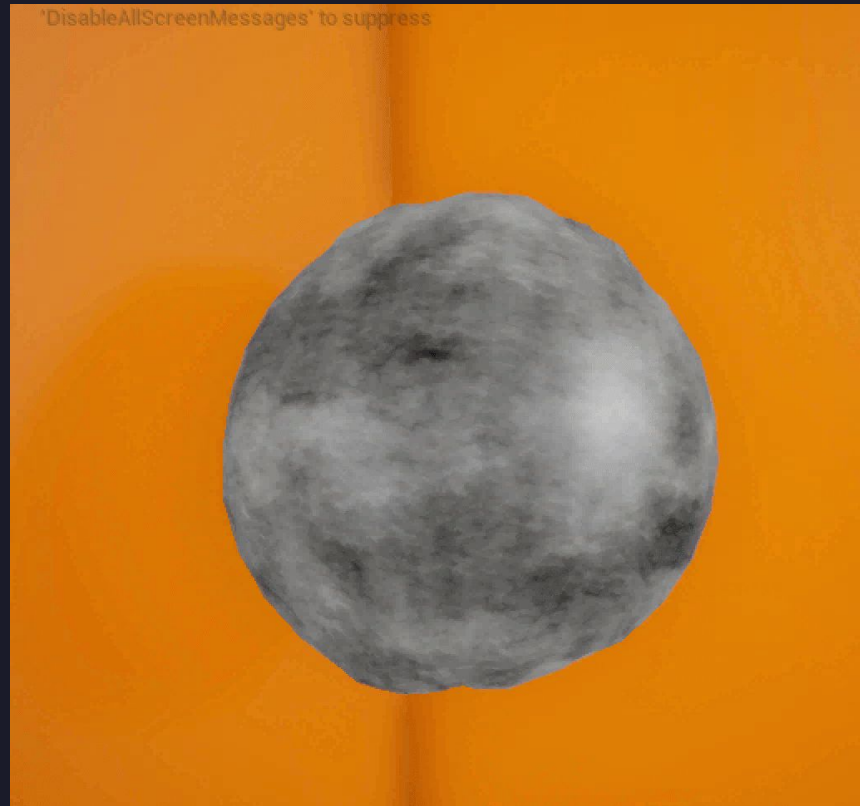
Shader 4: Vertex Offset



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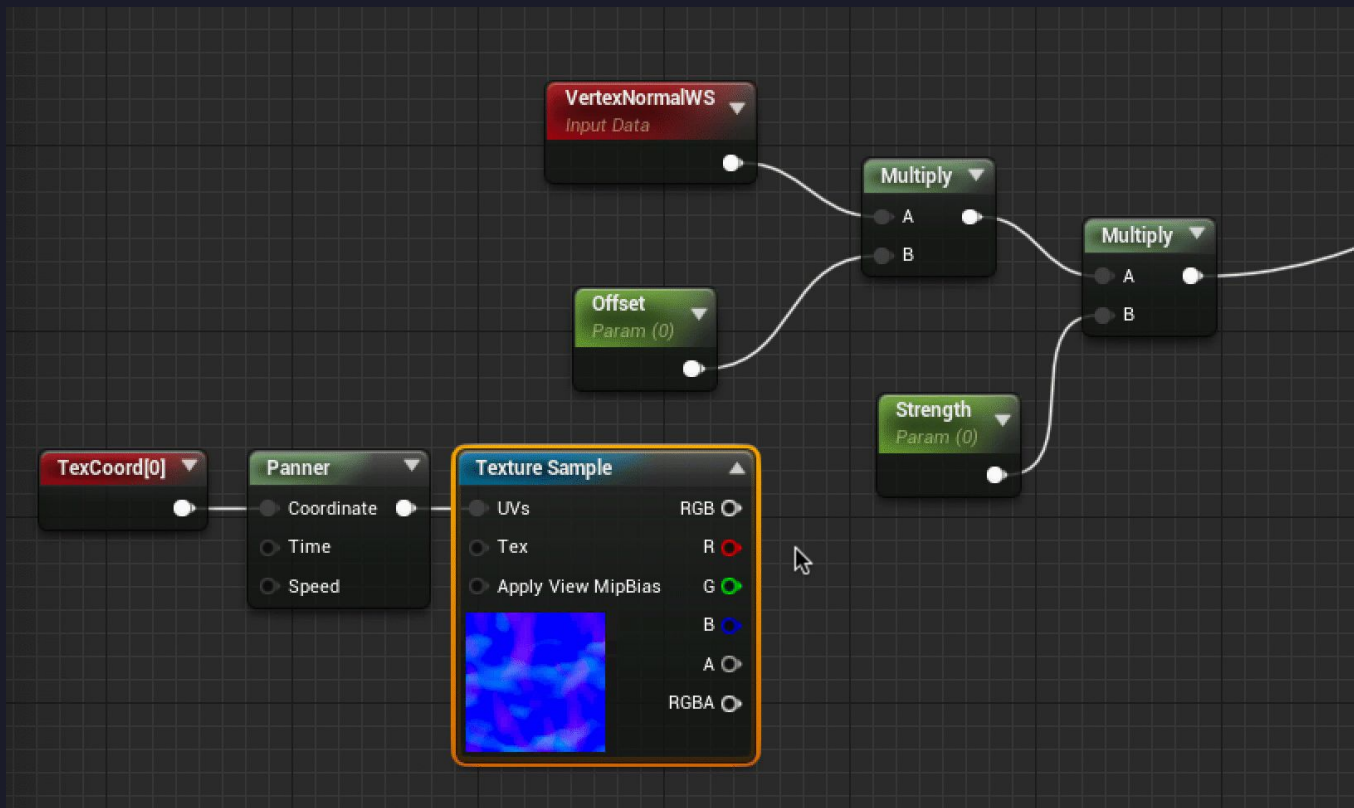
Shader 4: Vertex Offset



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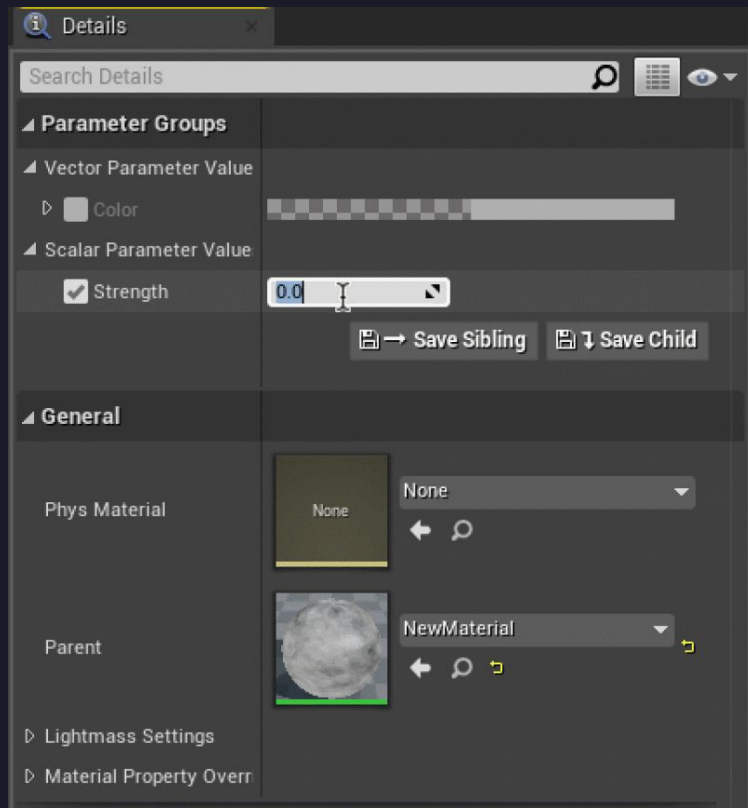
Shader 4: Vertex Offset



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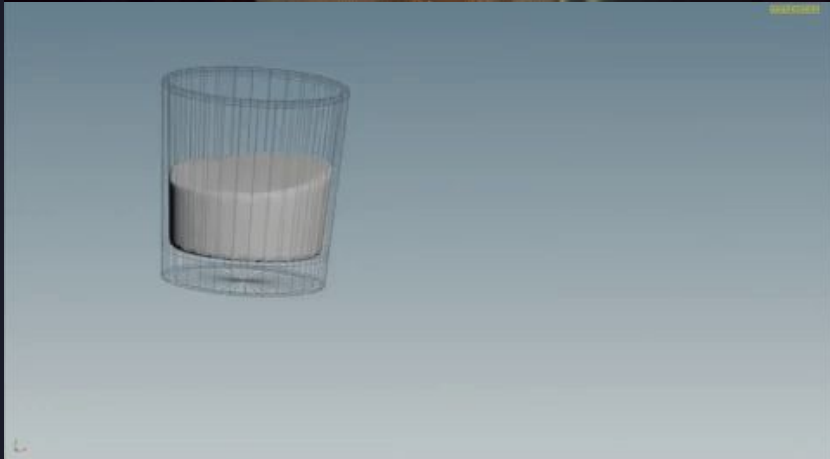
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Shader 4: Vertex Offset



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- Naughty Dog



- Giant Squid



- Giant Squid
- Annapurna Interactive



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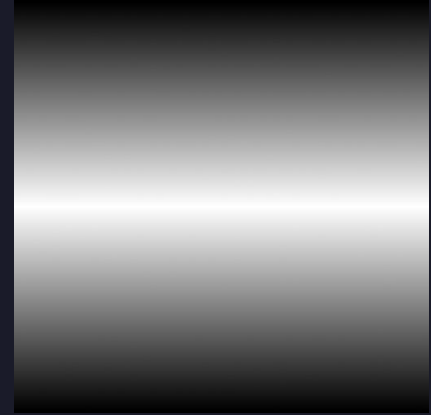
Shader 4: Vertex Offset



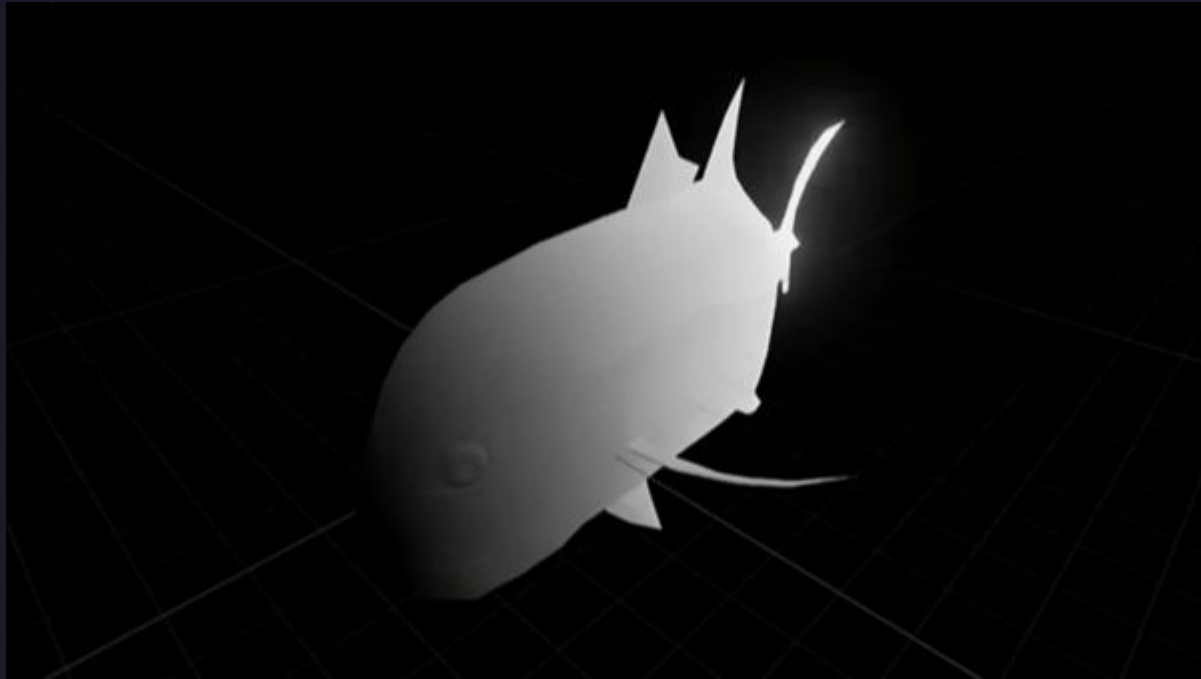
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Neat trick 1: Masks



Neat trick 1: Masks

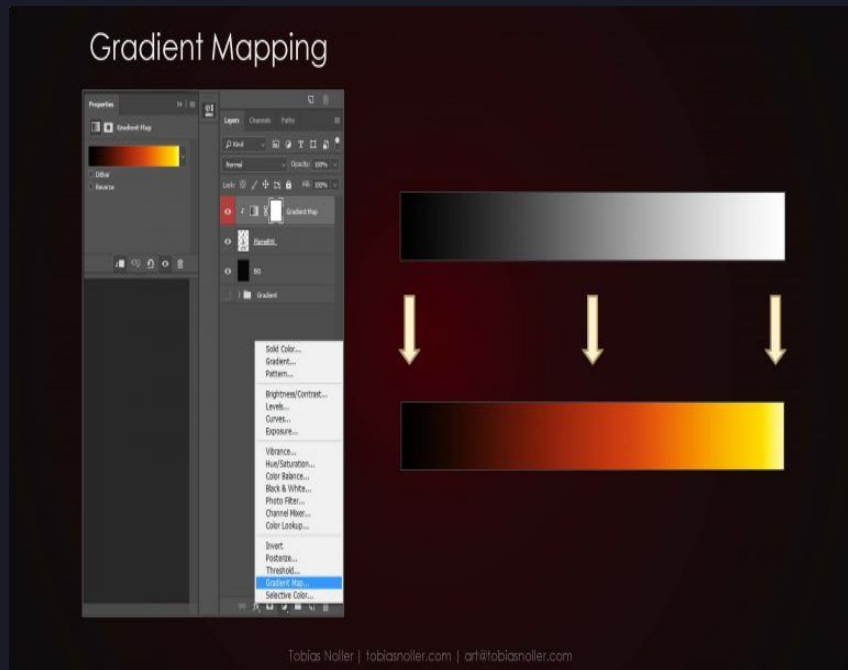


0

1

- Giant Squid

Neat trick 2: LUTs & Gradient Mapping



- Tobias Noller



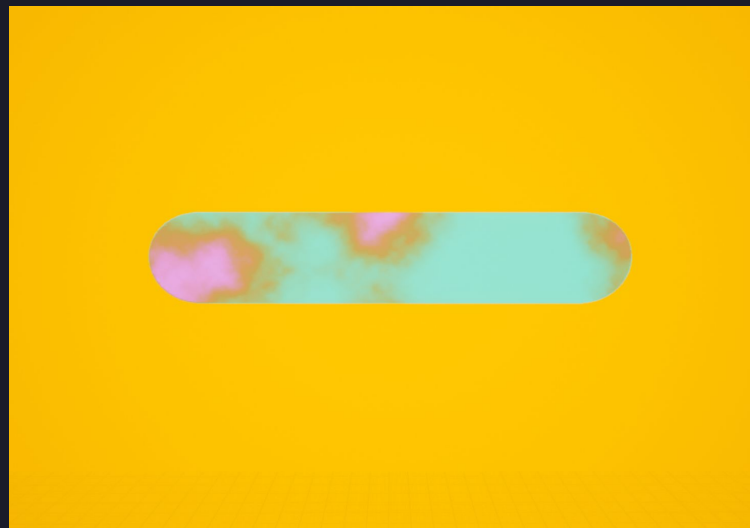
- Tobias Noller



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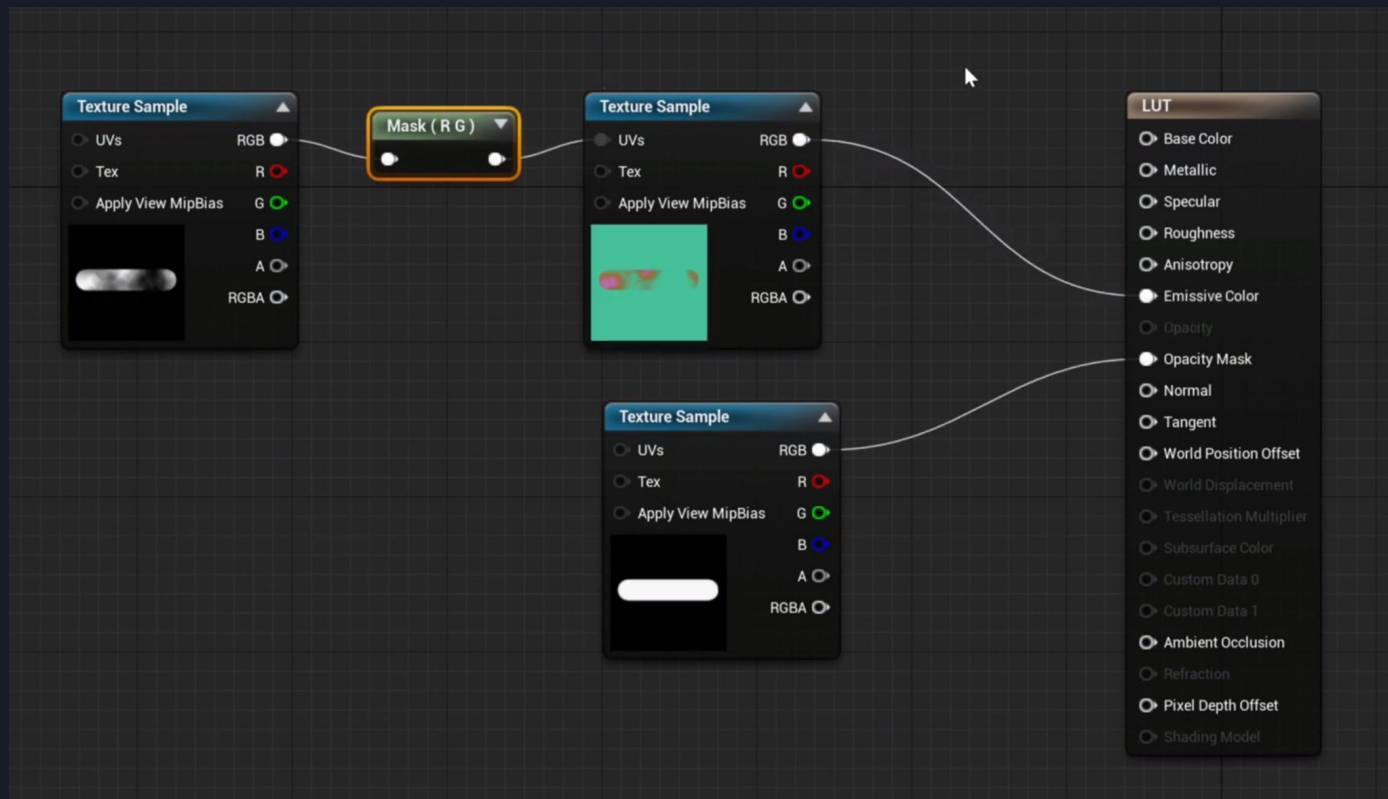
Neat trick 2: LUTs & Gradient Mapping



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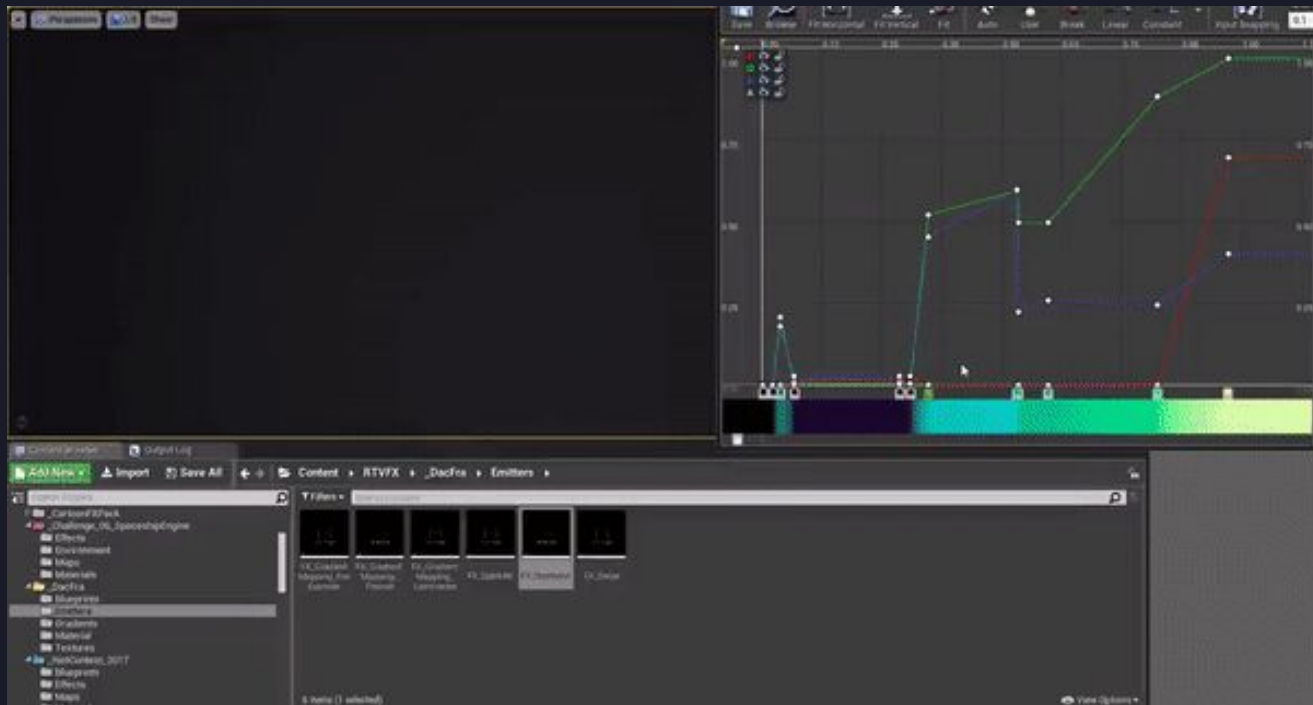
Neat trick 2: LUTs & Gradient Mapping



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Neat trick 2: LUTs & Gradient Mapping



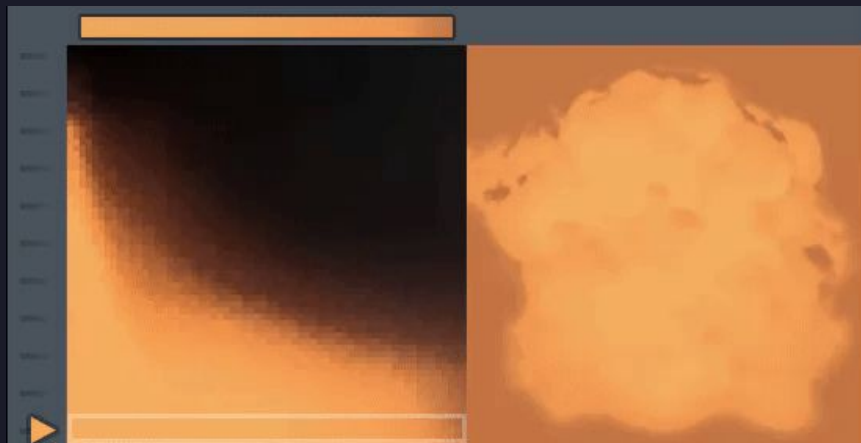
- Tobias Noller



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Neat trick 2: LUTs & Gradient Mapping



- Bethesda



- Bungie
- 343 Industries
- Microsoft Game studios



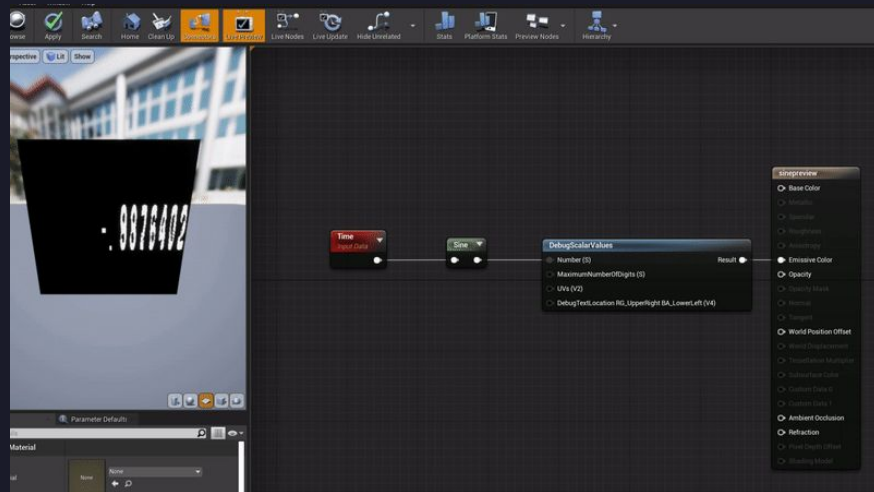
- Riot Games



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Neat trick 3: Debugging



DebugBinaryValues-Float

- ☐ Number To Convert (S) Result
- ☐ Number of Bits (S)
- ☐ UVs (V2)

DebugFloat2Values

- ☐ Vector2 (V2) ColorCodedOutput
- ☐ MaximumNumberOfDigits (S) GreyScaleOutput
- ☐ UVs (V2)
- ☐ DebugTextLocation RG_UpperRight BA_LowerLeft (V4)
- ☐ Component Spacing (V4)

DebugScalarValues

- ☐ Number (S) Result
- ☐ MaximumNumberOfDigits (S)
- ☐ UVs (V2)
- ☐ DebugTextLocation RG_UpperRight BA_LowerLeft (V4)

DebugOnOff

Result

DebugTimeSine

Speed (S) Result



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Neat trick 4: Lerp



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Neat trick 5: Dynamic Parameters

Details | Parameter Defaults

Search Details

Material Expression Dynamic Parameter

Param Names 4 Array elements

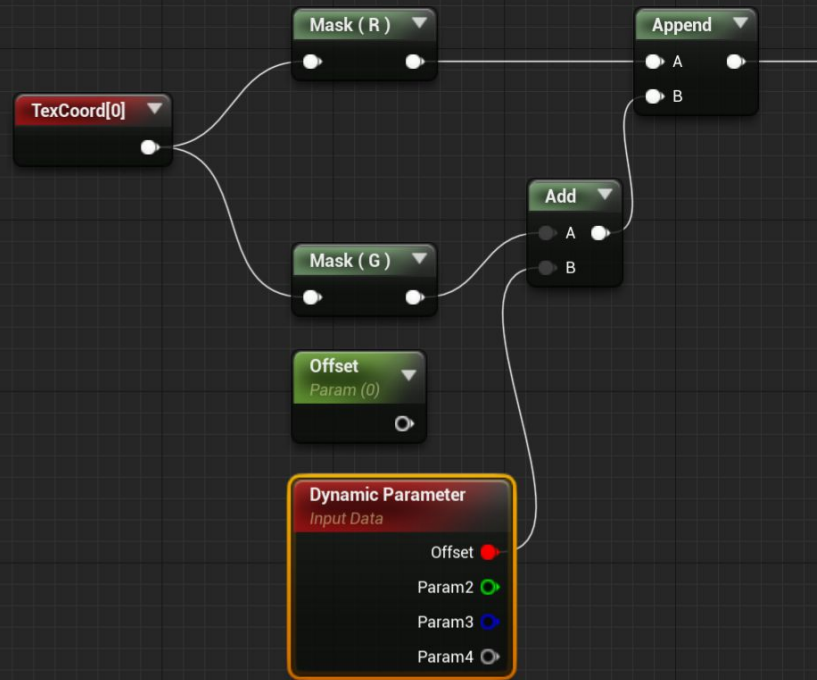
0	Offset
1	Param2
2	Param3
3	Param4

Default Value

R	0.0
G	1.0
B	1.0
A	1.0
Parameter Index	0

Material Expression

Desc



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Neat trick 5: Dynamic Parameters



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End of Part 1



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SUPPLEMENTAL RESOURCE

Project files: [!! Link in Chat !!](#)

Simon's blog: <https://simonschreibt.de/gat/stylized-vfx-in-rime/>

Shannon's blog: <https://realtimevfx.com/t/shannon-mcsheehan-lol-fx-knowledge-share/>

Tobias' blog: <https://tobiasnoller.com/articles/ue4-gradient-mapping-vfx/>

REAL-TIME VFX

Forum: <https://realtimevfx.com>

Discord: <https://discord.gg/edrcPnn>

Facebook Group: <https://www.facebook.com/groups/realtimevfx>



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Questions?



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artstation.com/vsharma



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★ GO ★
Make
— SOMETHING —
★ AWESOME ★



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