GDC

How VR Going to Break All the Rules in VFX

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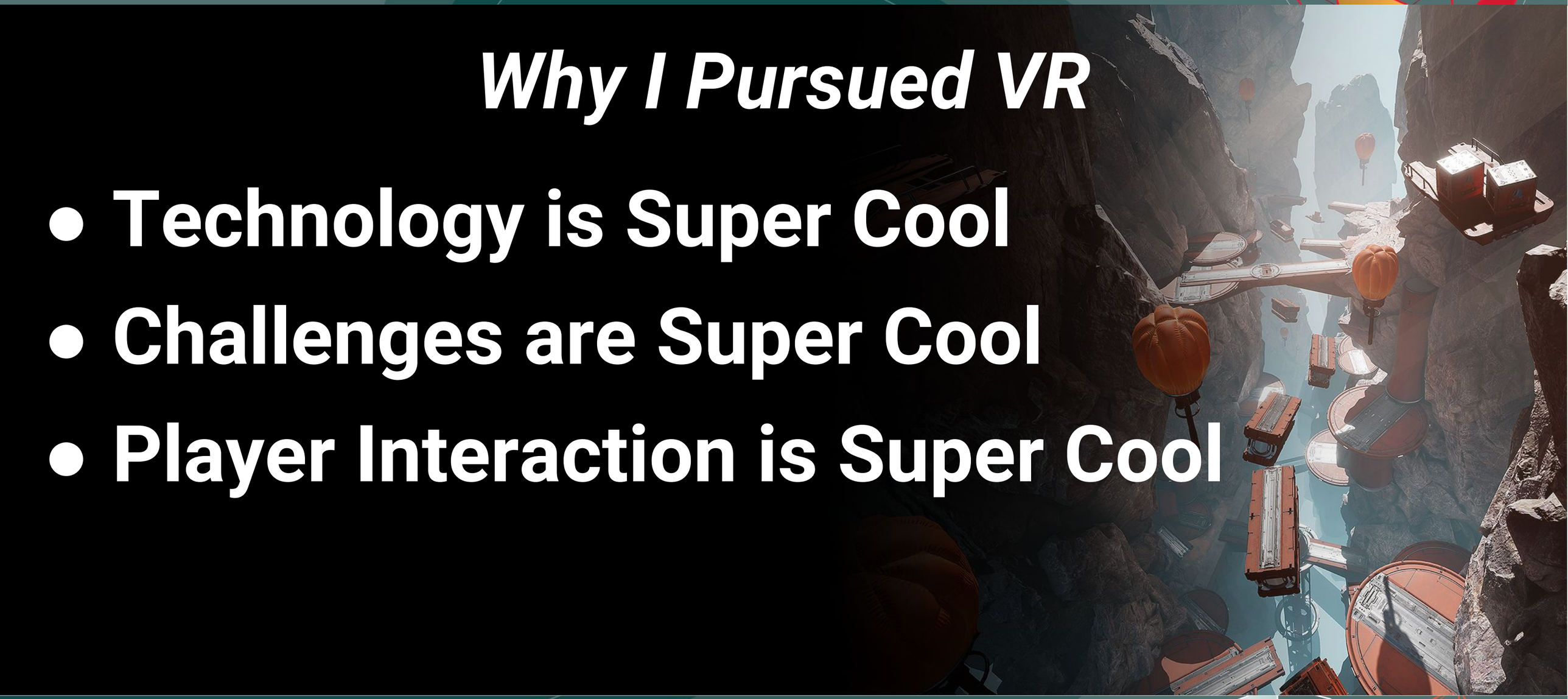
UBM

Let's Talk about...

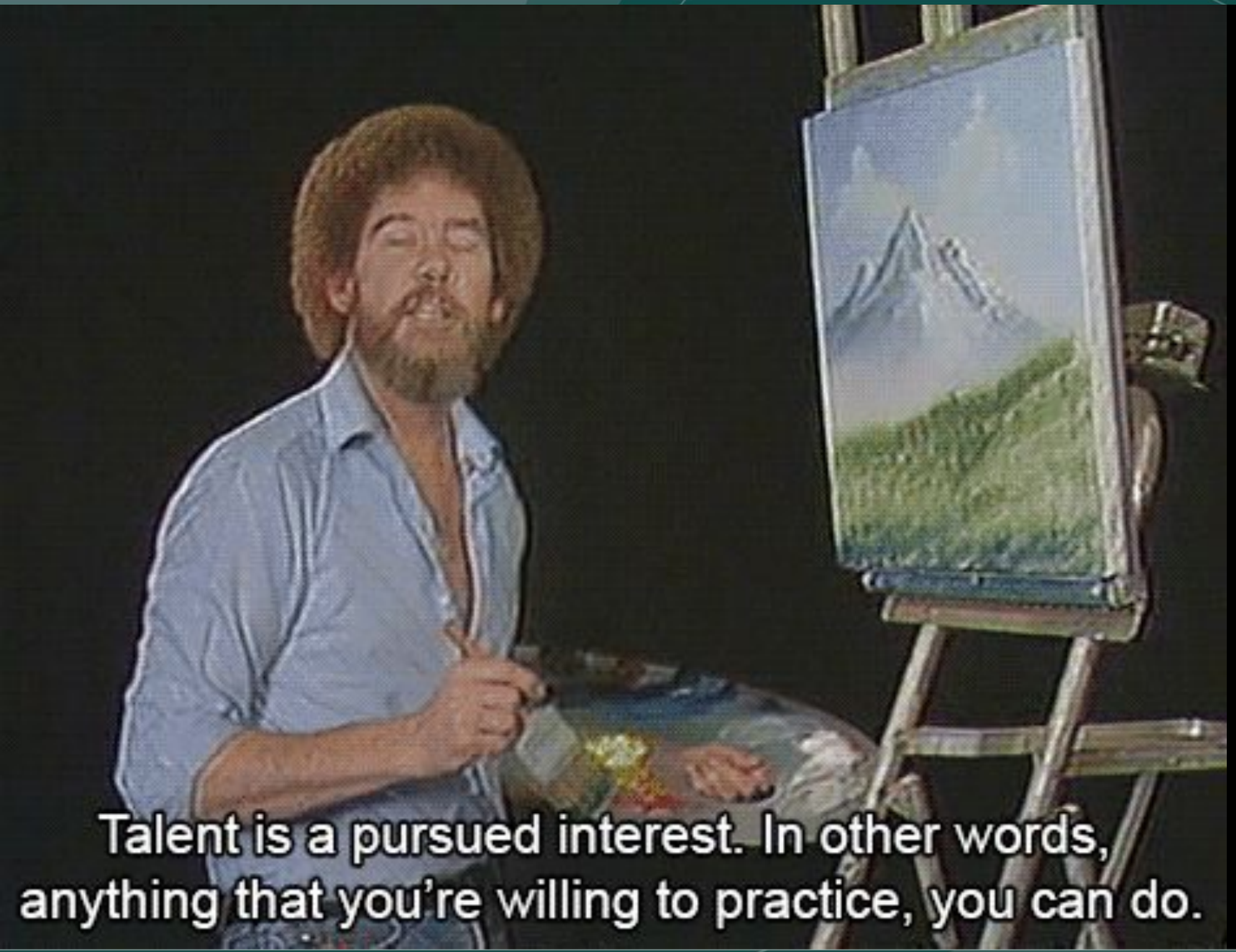
- What Is/Isn't Working in VR
- Lessons/Experiments in VR
- Work Around, Think Different

Why I Pursued VR

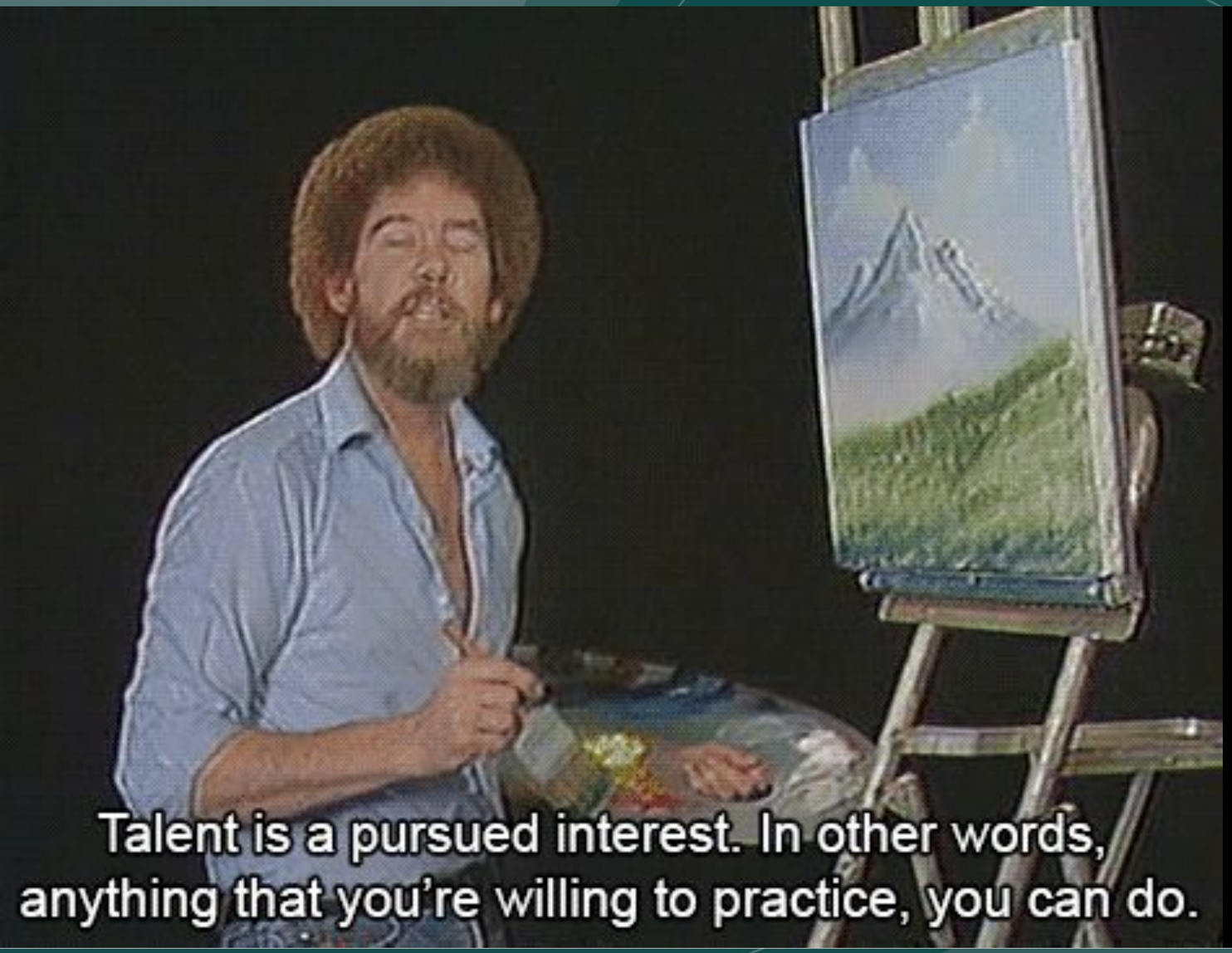
- Technology is Super Cool
- Challenges are Super Cool
- Player Interaction is Super Cool



Go and play Robo Recall



Traditional vs. VR



All of the traditional VFX rules still apply when working in VR

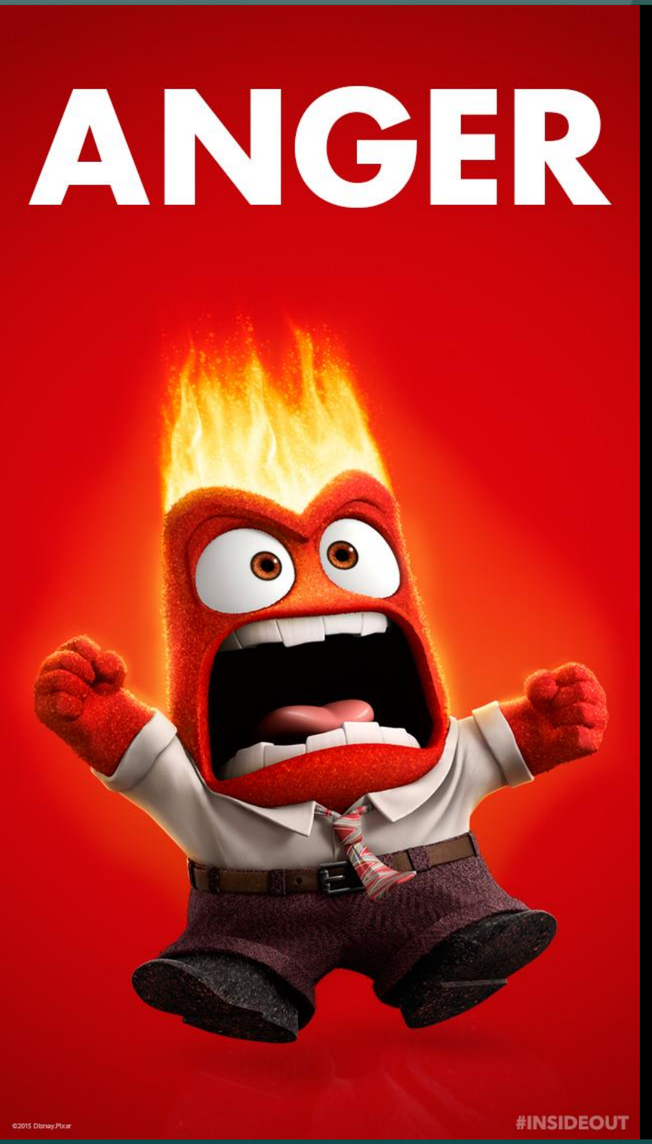
What Doesn't Work?

- Camera Shake
  - Players are the camera
  - Don't take control evvvvver
- Anyone see Cloverfield?

[NO CAMERA SHAKE EVER]

What Kind of Doesn't Work?

- **POST PROCESS**
  - Screen Space can be expensive
  - UVs need attention
- **GPU Particles**
  - Fun & pretty, but HMD deserves the GPU
- **Fluid Sims**
  - Expensive & unconvincing



What Could Work?

- Lit Particles
- Decals
- Transparency

} **EXPENSIVE!**

- Distortion
  - Asychronous Time Warp

What Does Work?

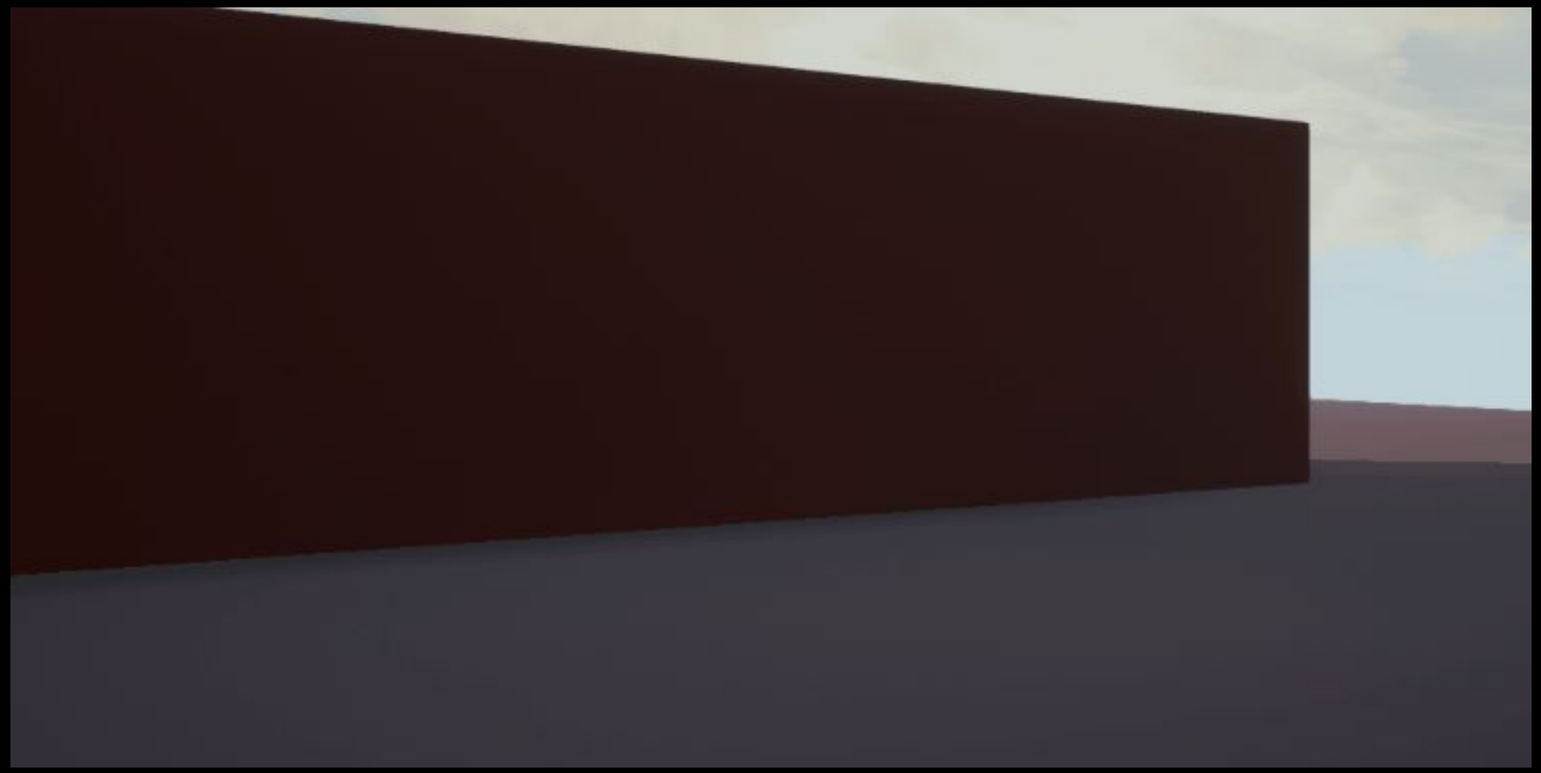
- CPU Particles (All the sprites!)
  - The smaller, the better
- Meshes (and Spline Meshes)
- Fluid Sims (??!)

VR CAVEATS

- Nothing is Forbidden
- Make Compromises
- Project Mindfulness

GUNHEART & the Problem with Teleporting

GUNHEART: Teleport Problem



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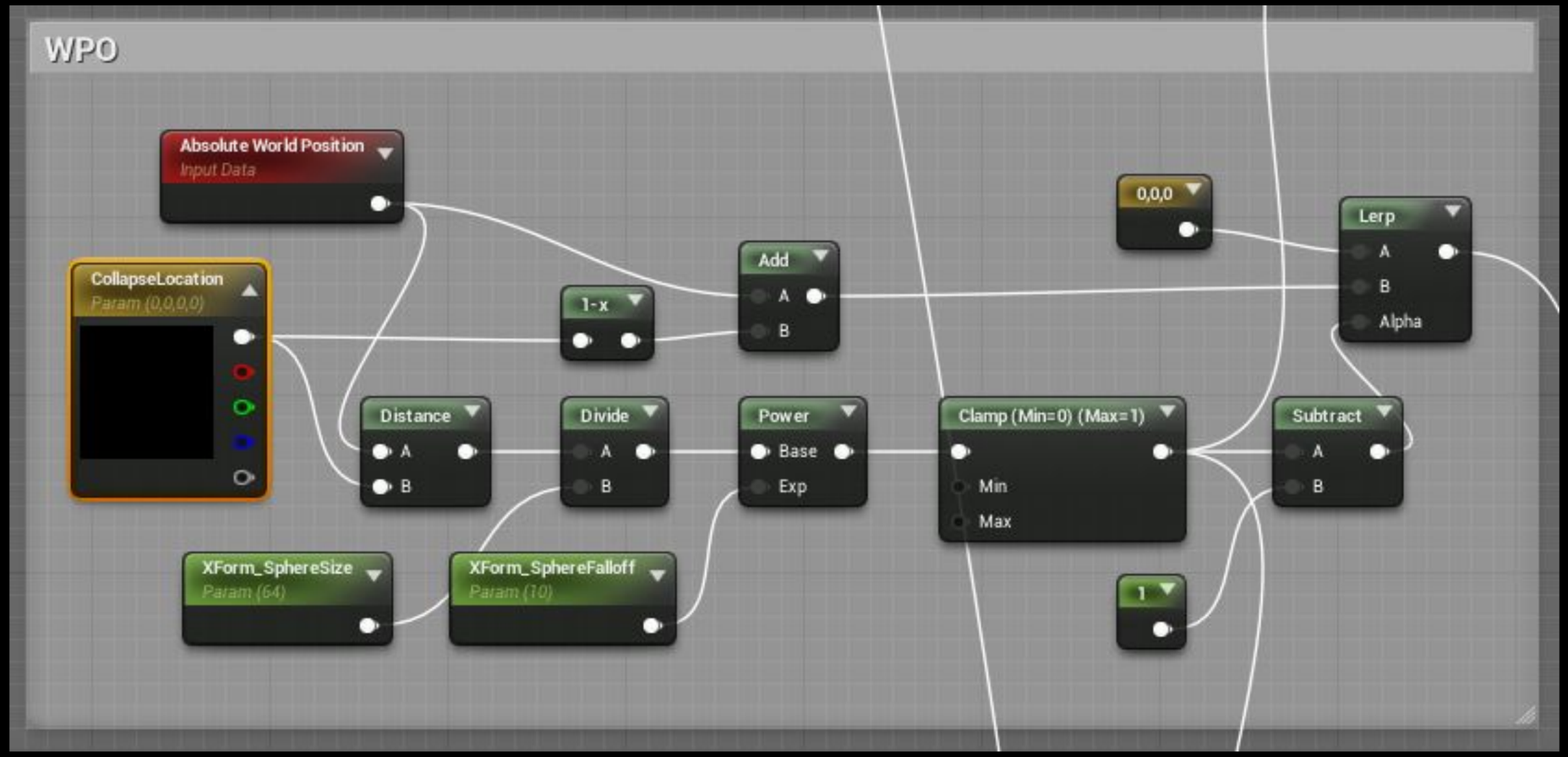

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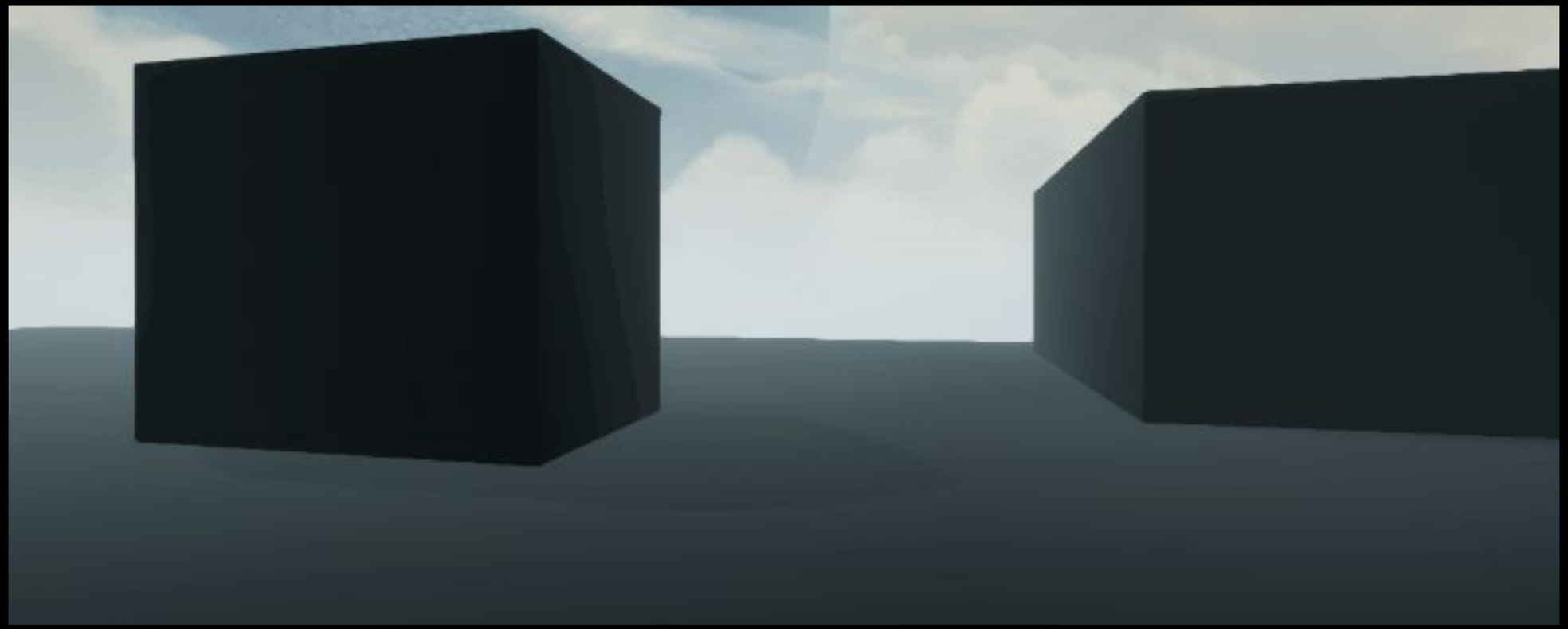
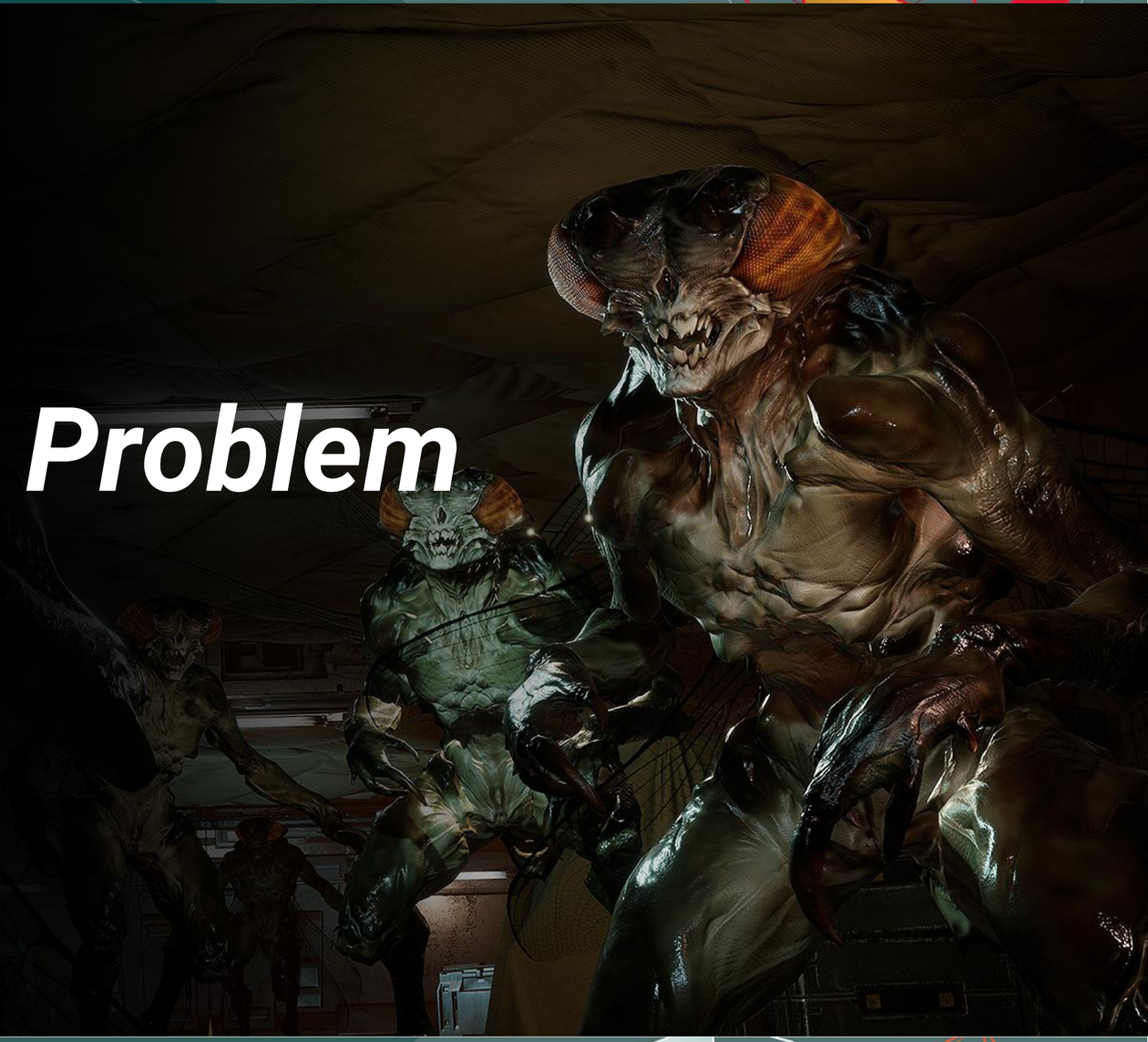


GUNHEART & the Problem with Spawning



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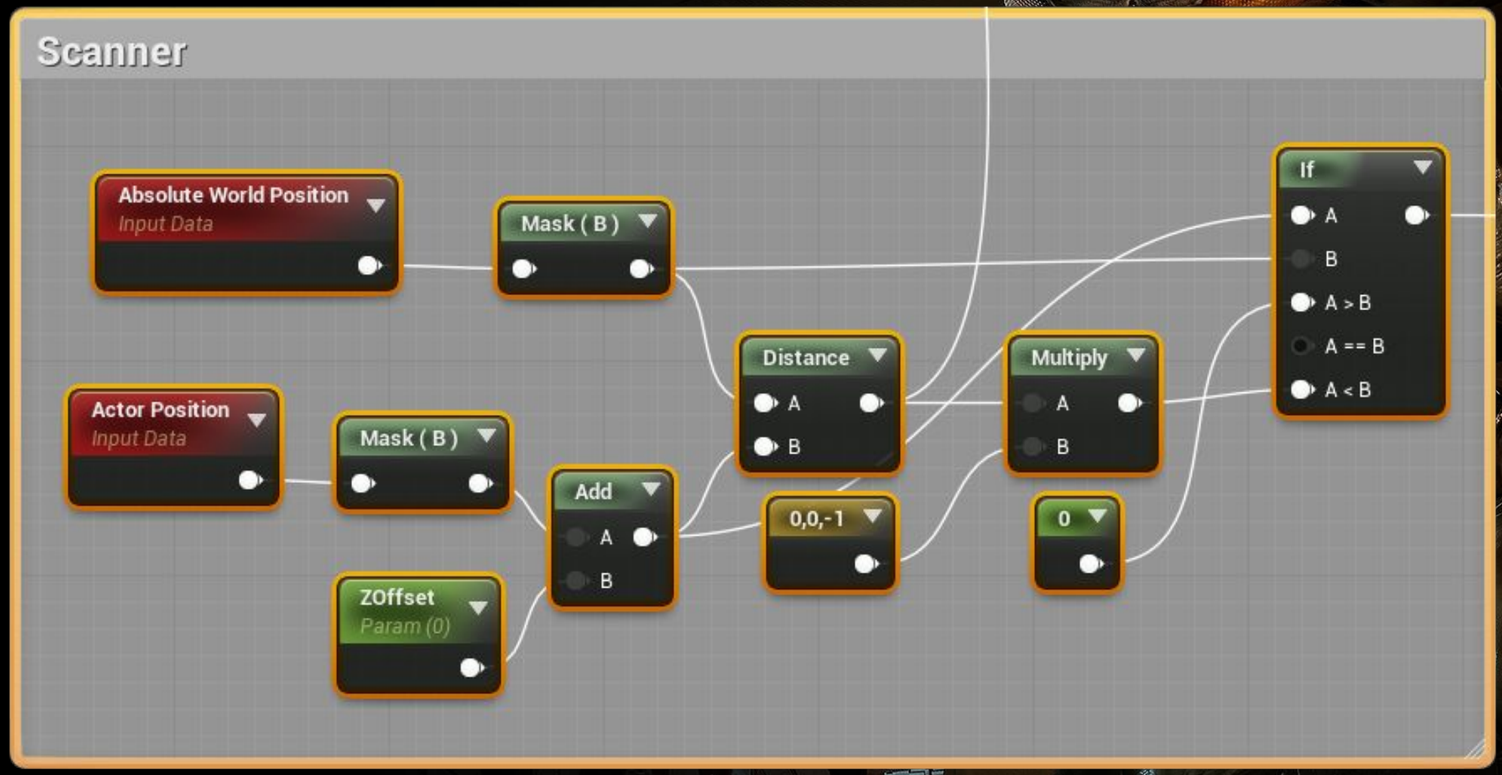

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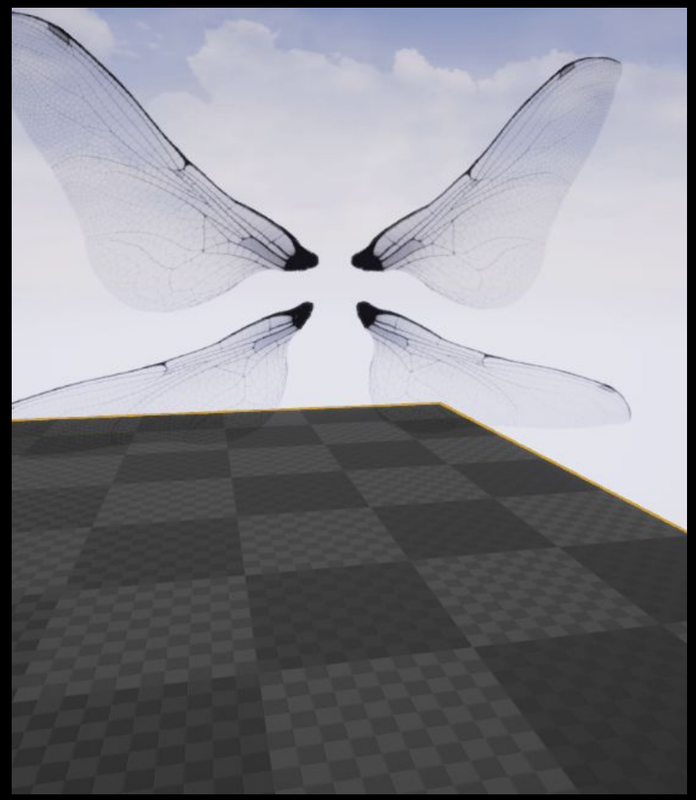

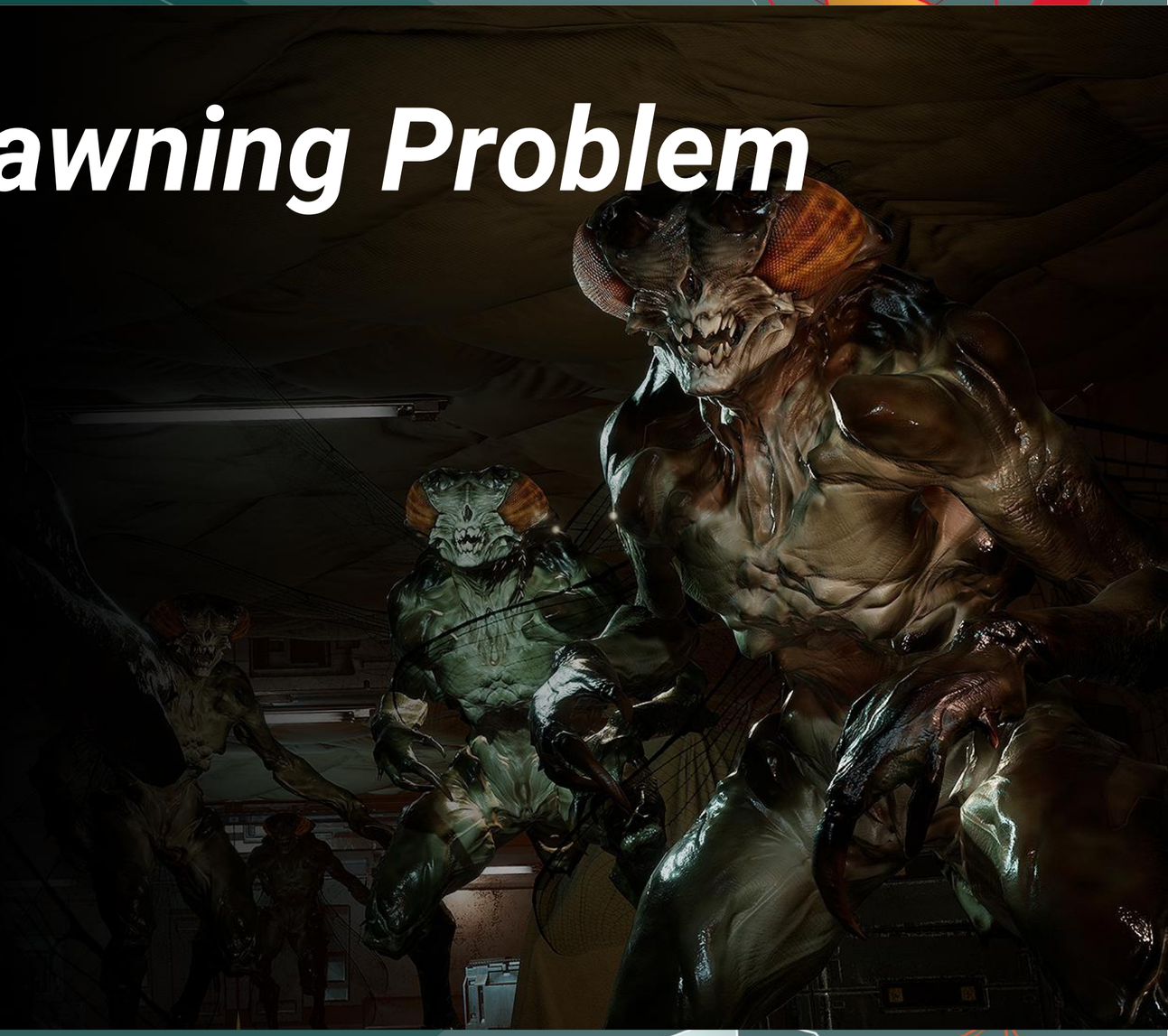

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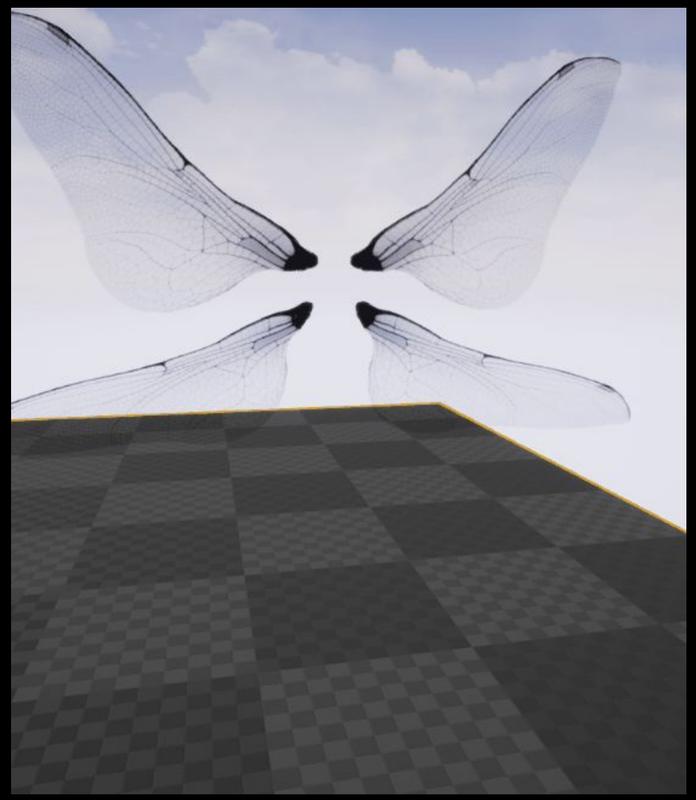
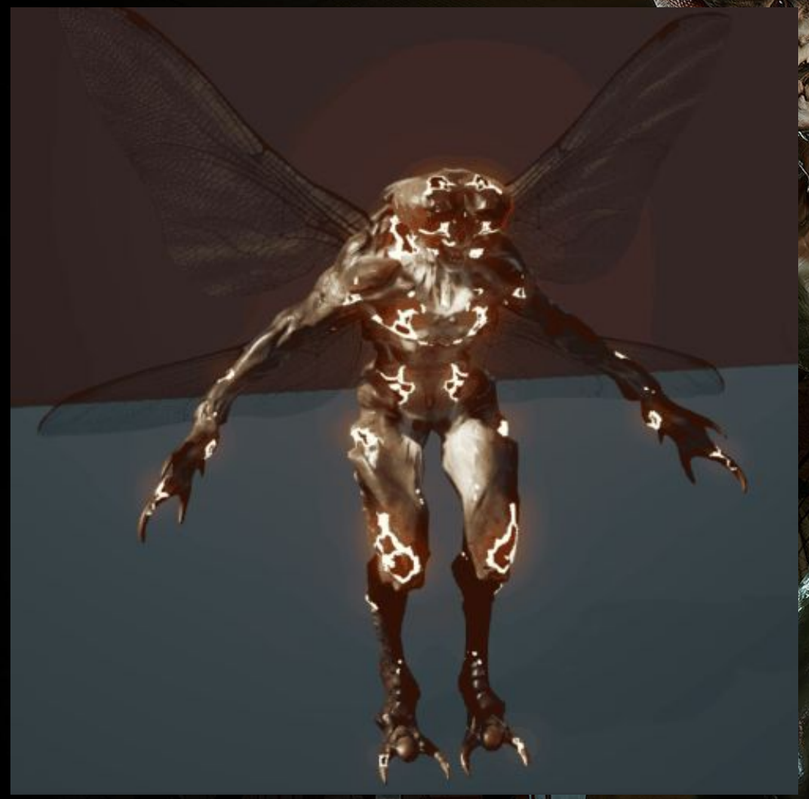




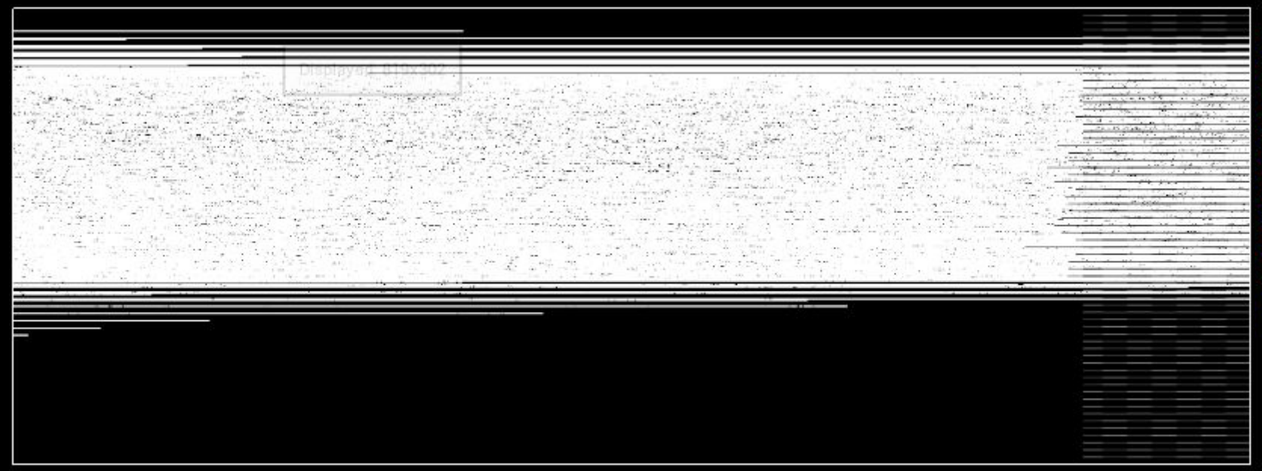
GUNHEART: Fluid Sim Problem

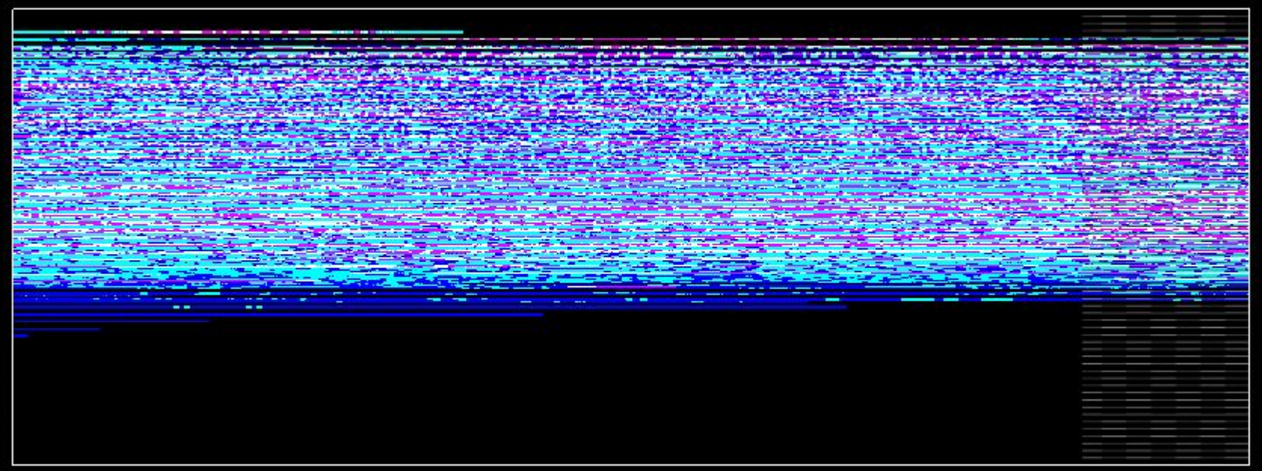
https://vimeo.com/212982381

GUNHEART: Fluid Sim Problem

Before

GUNHEART: Fluid Sim Problem





Color *(Temperature)*

Position *(x,y,z)*

GUNHEART: Fluid Sim Problem

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Perform Different

- Shader Complexity

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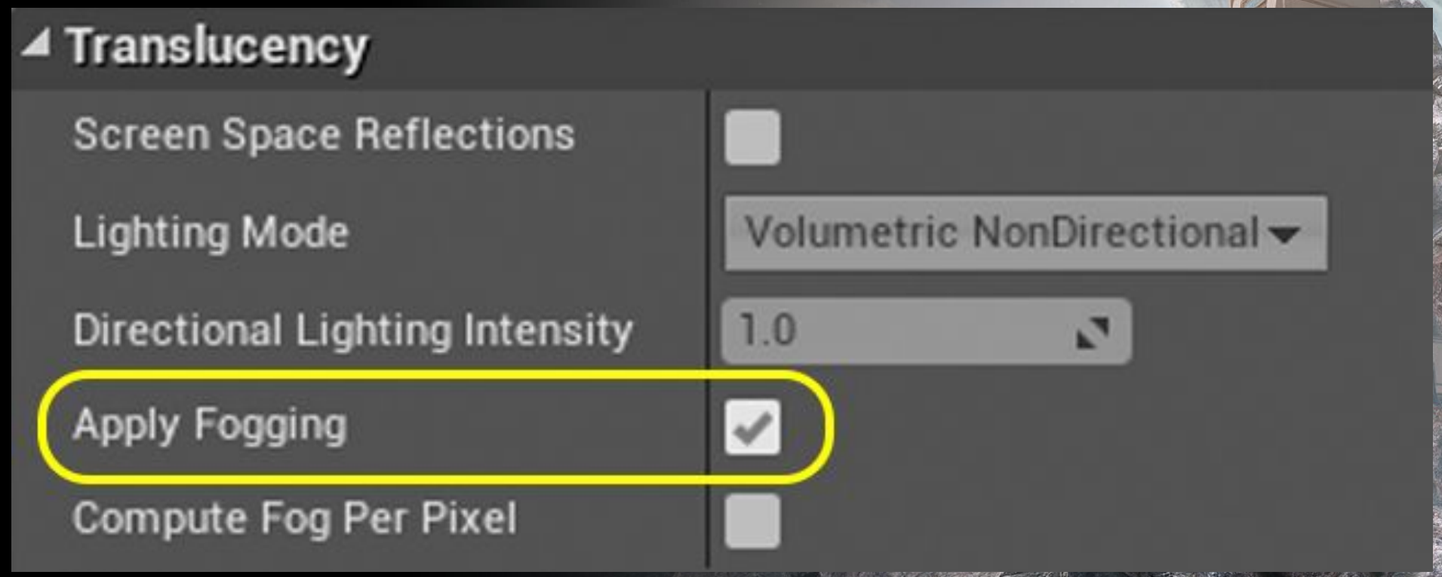
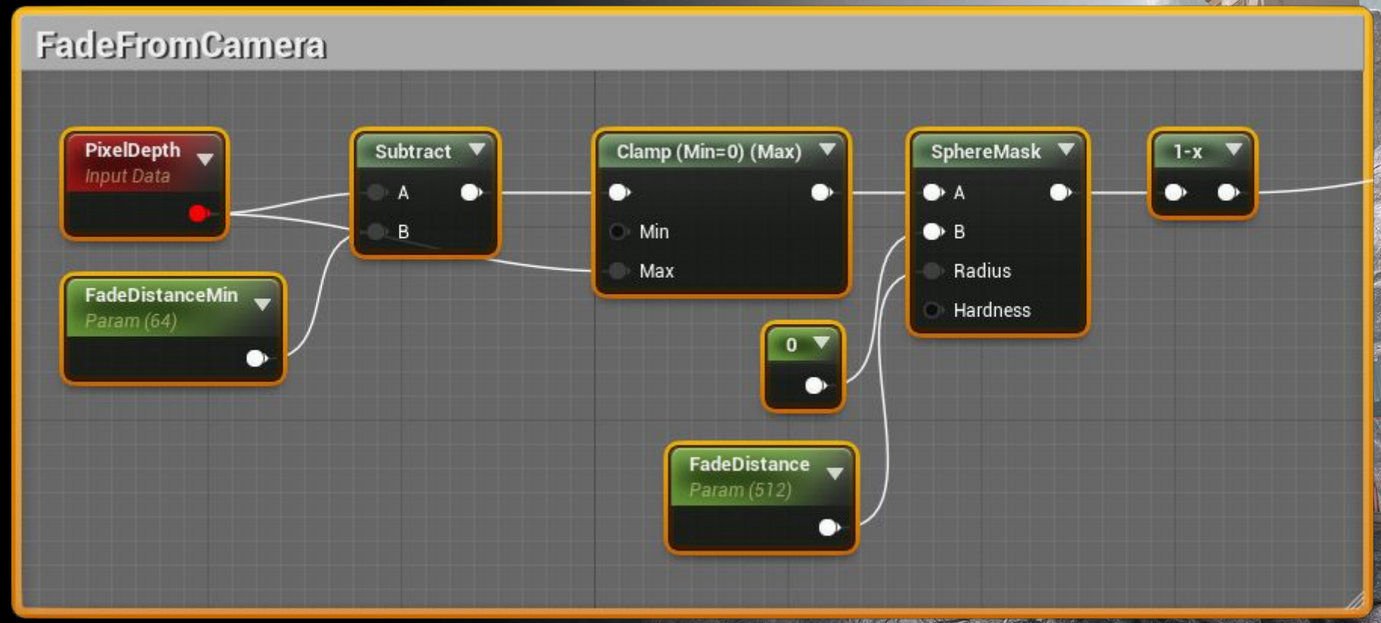
- Fogging



Perform Different

- Shader Complexity
- Fogging
- Camera Fade

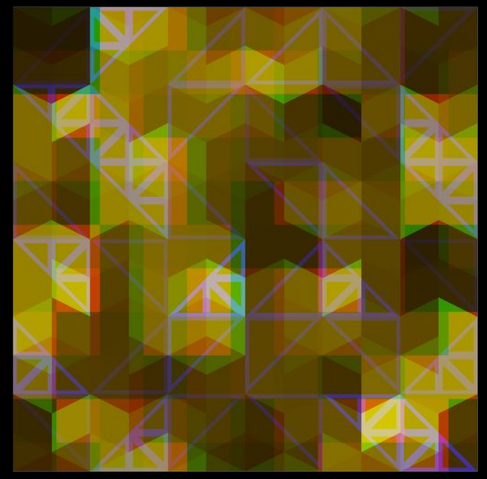


Perform Different

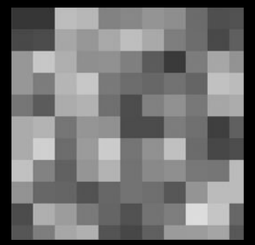
- Shader Complexity
- Fogging
- Camera Fade
- Aggressive LODs
  - LOD specific materials
  - 10 meter LOD max

Art Different

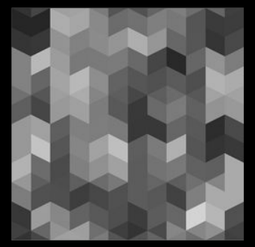
➔ Texture Packing



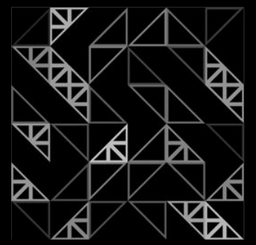
R G B



R



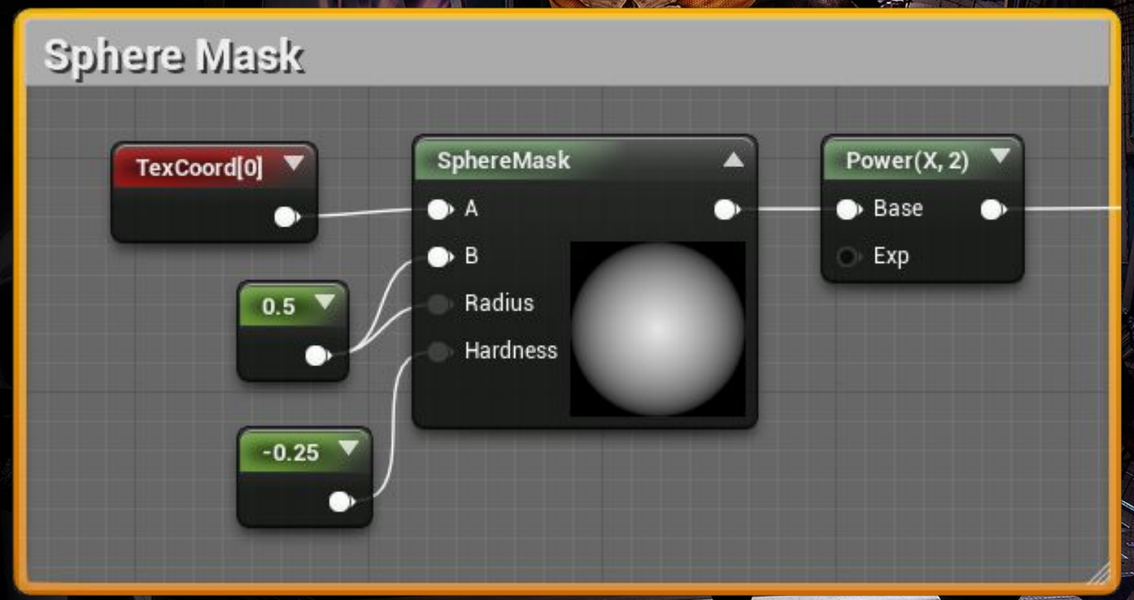
G



B

Art Different

- Texture Packing
- Procedural = No Texture Streaming = Cheaper



Art Different

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- Quality over quantity

Art Different

- Texture Packing
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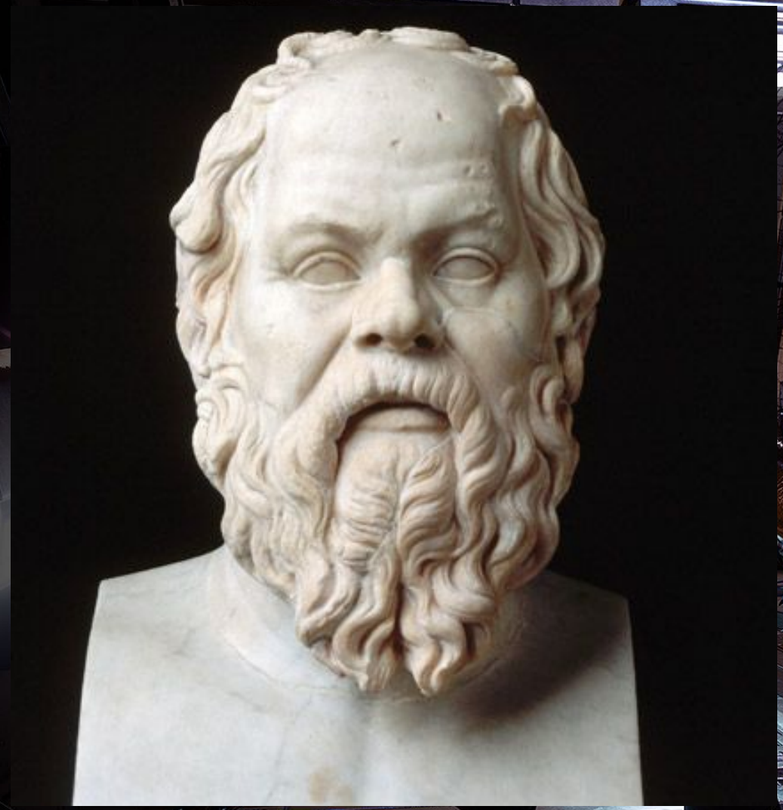
- Quality over quantity
- The Whole Hippo



Art Different

- → Texture Packing
- → Procedural = Cheaper
- → Quality over quantity
- → The Whole Hippo

Art Different

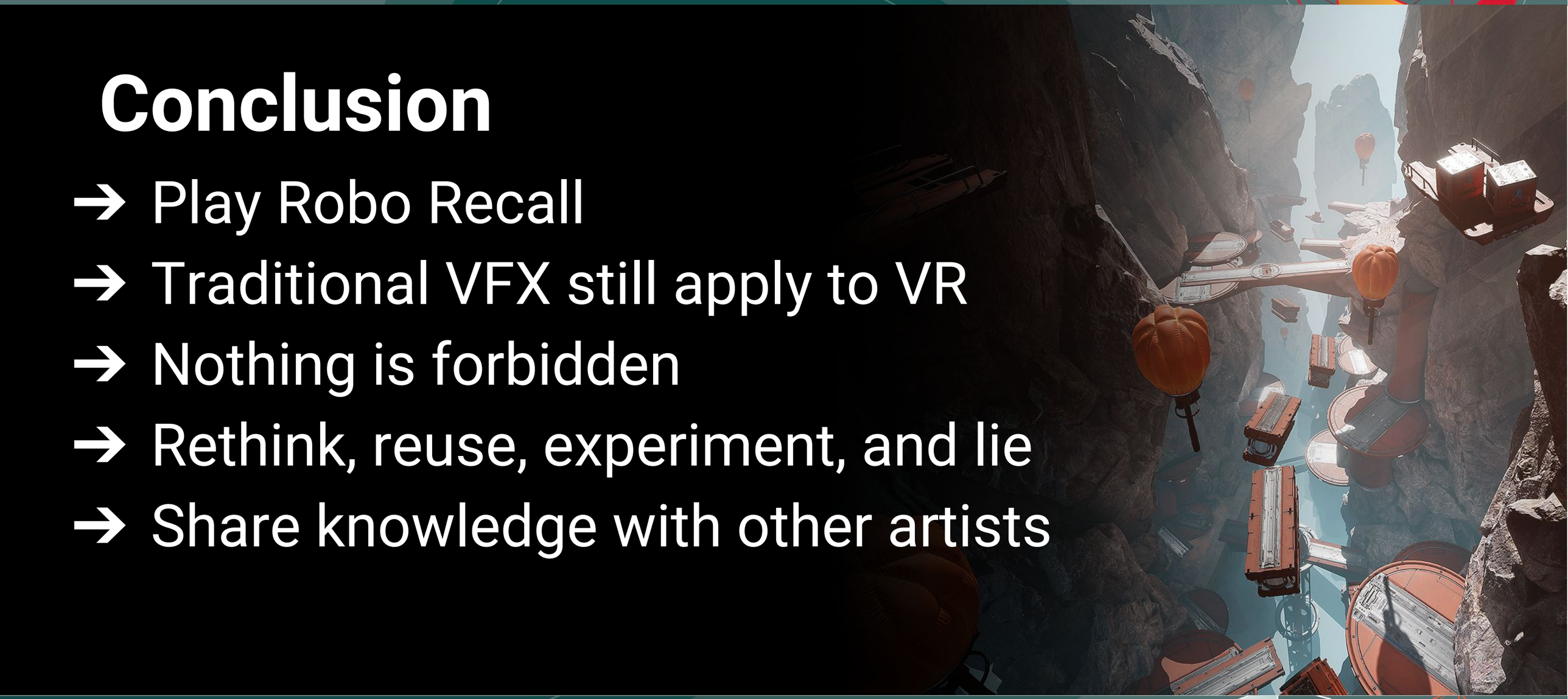
➔ The Whole Hippo

Art Different

- → Texture Packing
- → Procedural = Cheaper
- → Quality over quantity
- → The Whole Hippo
- → The Little Lies make the Big Lie seem real

Conclusion

- → Play Robo Recall
- → Traditional VFX still apply to VR
- → Nothing is forbidden
- → Rethink, reuse, experiment, and lie
- → Share knowledge with other artists



Conclusion

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Thanks for listening!

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