

# ReSTIR

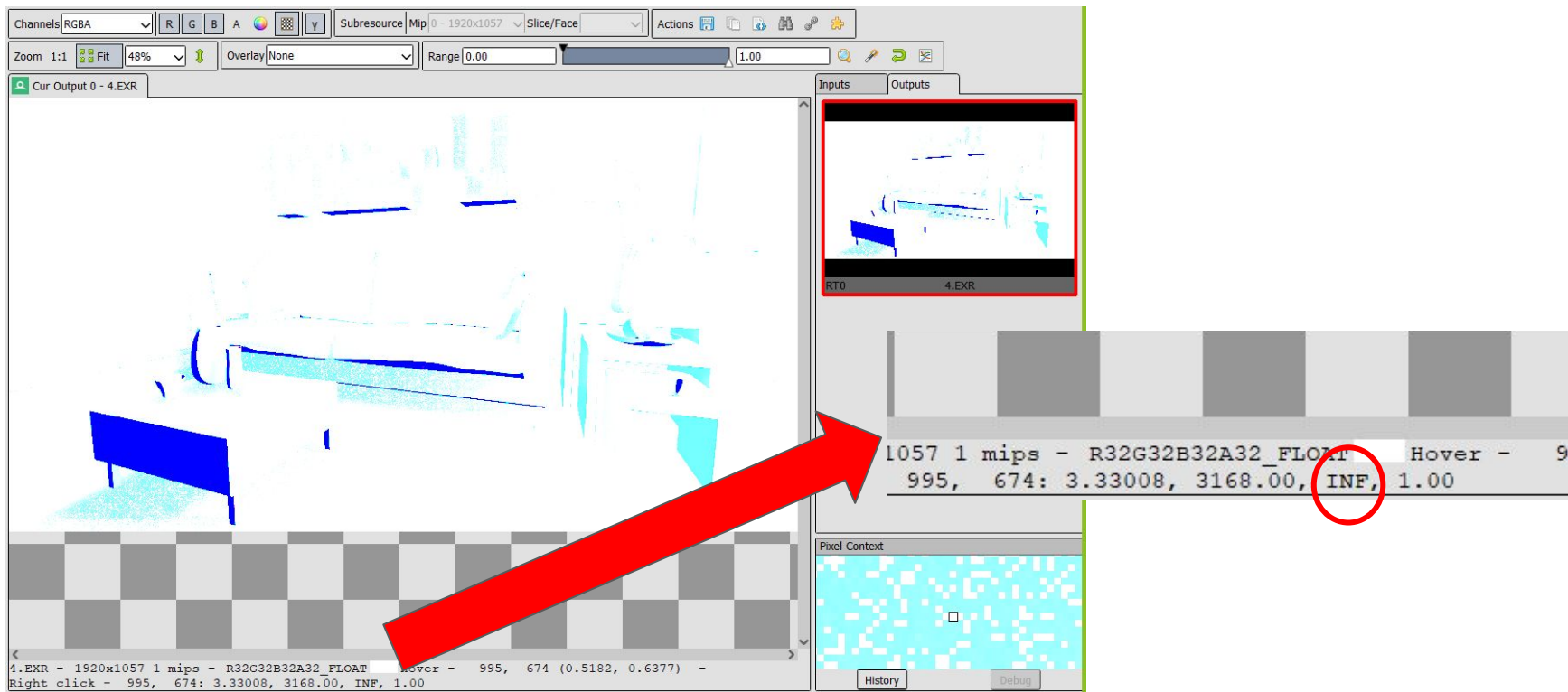
In D3D12

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# Milestone 3

1. Fixed several bugs in our previous ReSTIR implementation
  - a. We have found a great way to debug the shader by exporting the buffer and utilizing RenderDoc.
  - b. We have reduced the amount of buffers.
2. Added more lights to our scene
3. Added environment map for better visual effects

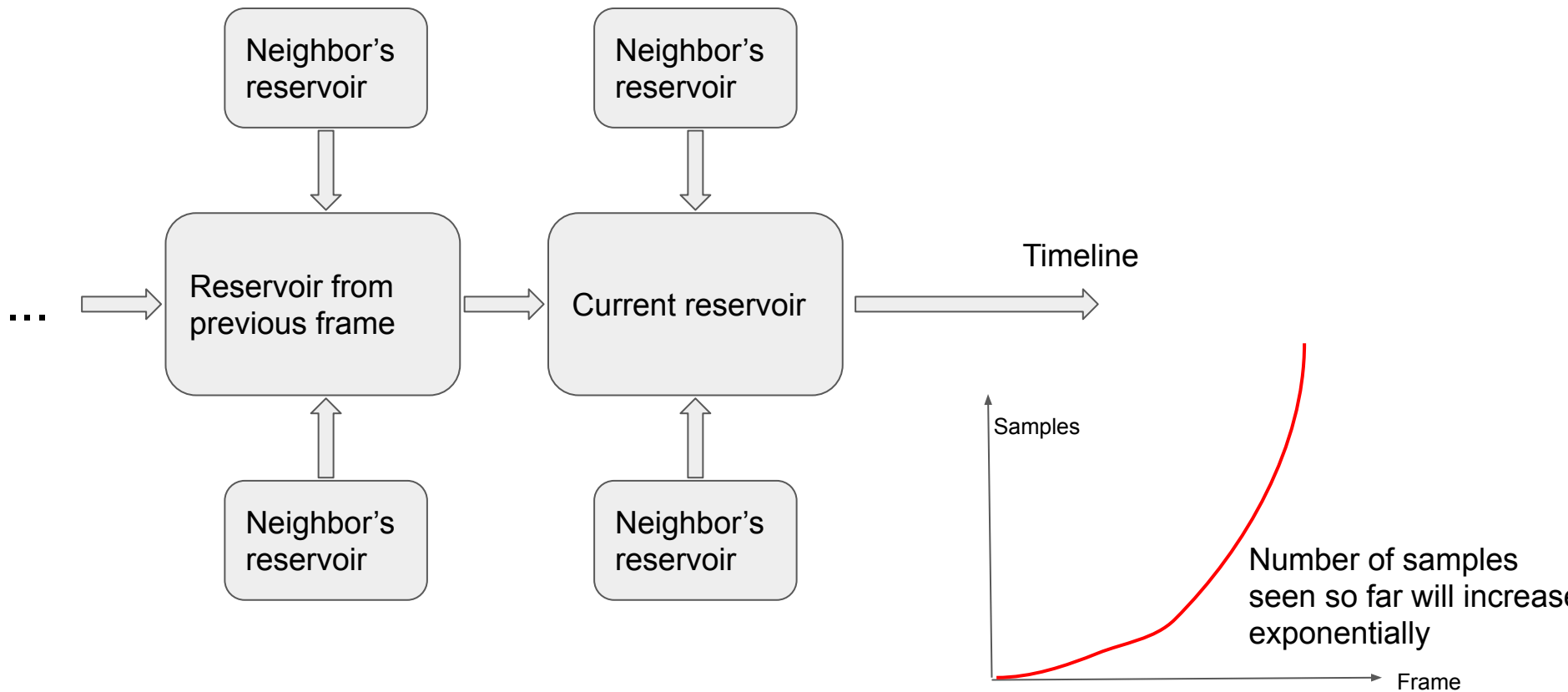
# Debug tricks and tools



# Bloopers: Spreading shadows....

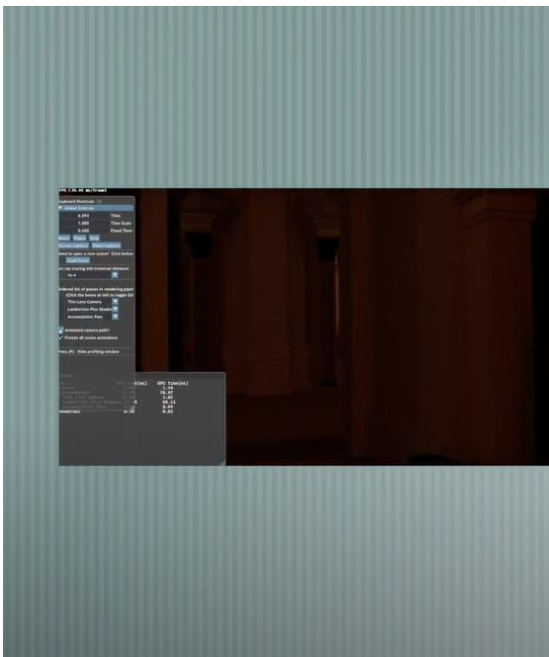


# Dealing with unbounded reservoir sample count



# Adding more lights to the scene

Reference



Random  
Selection



Ours

# Pink Room(3 lights) vs New Sun Temple(79 lights)

Reference

Ours

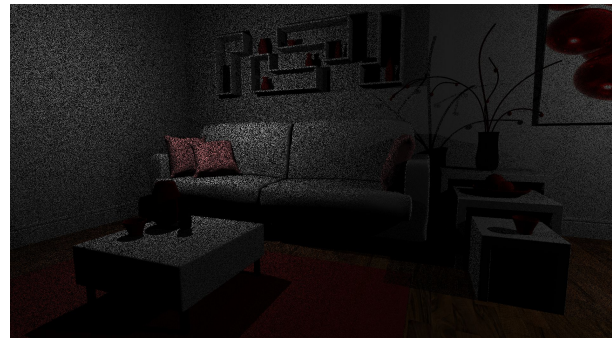
Random



~20ms/frame



~20ms/frame



~19ms/frame



~72ms/frame



~27ms/frame



~19ms/frame

# Pink Room(3 lights) vs New Sun Temple(79 lights)

Reference

Ours(denoised)

Random(denoised)



~20ms/frame



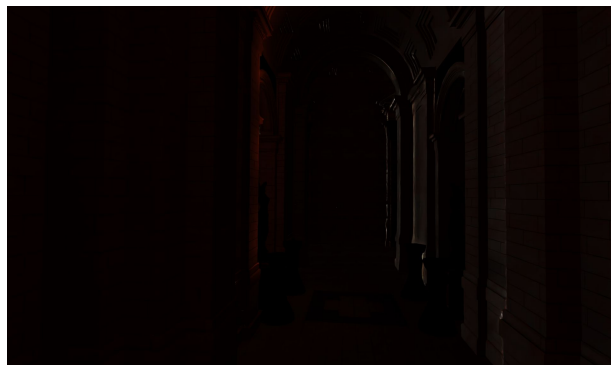
~20ms/frame + ~10ms/frame



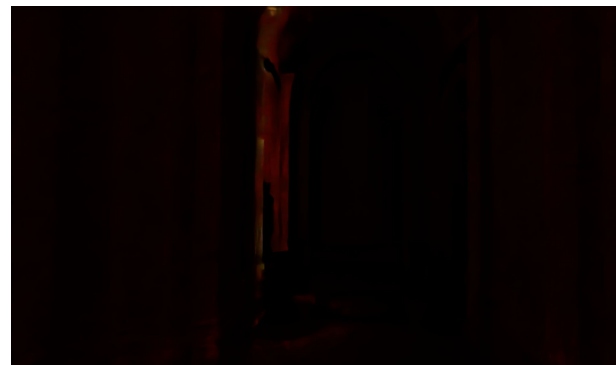
~19ms/frame + ~10ms/frame



~72ms/frame



~27ms/frame + ~10ms/frame



~19ms/frame + ~10ms/frame



## Next ...

1. Add our custom scene to make it look unique.
2. Add a denoiser pass.

# Live Demo



Questions?