

Lighting in Motion: Spatiotemporal HDR Lighting Estimation

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eyeline-labs.github.io/LiMo

Lighting Properties

Accurate HDR lighting estimation must capture all of these characteristics:

Varies in space

Varies in time

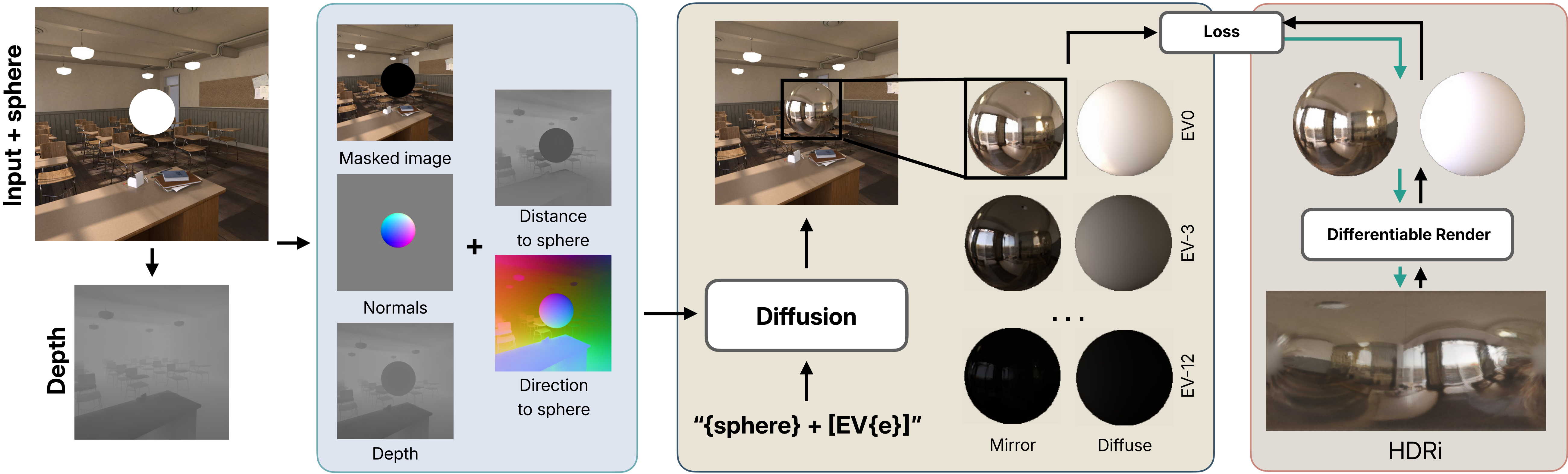
Has high dynamic range

Can be indoor or outdoor

Has textured details

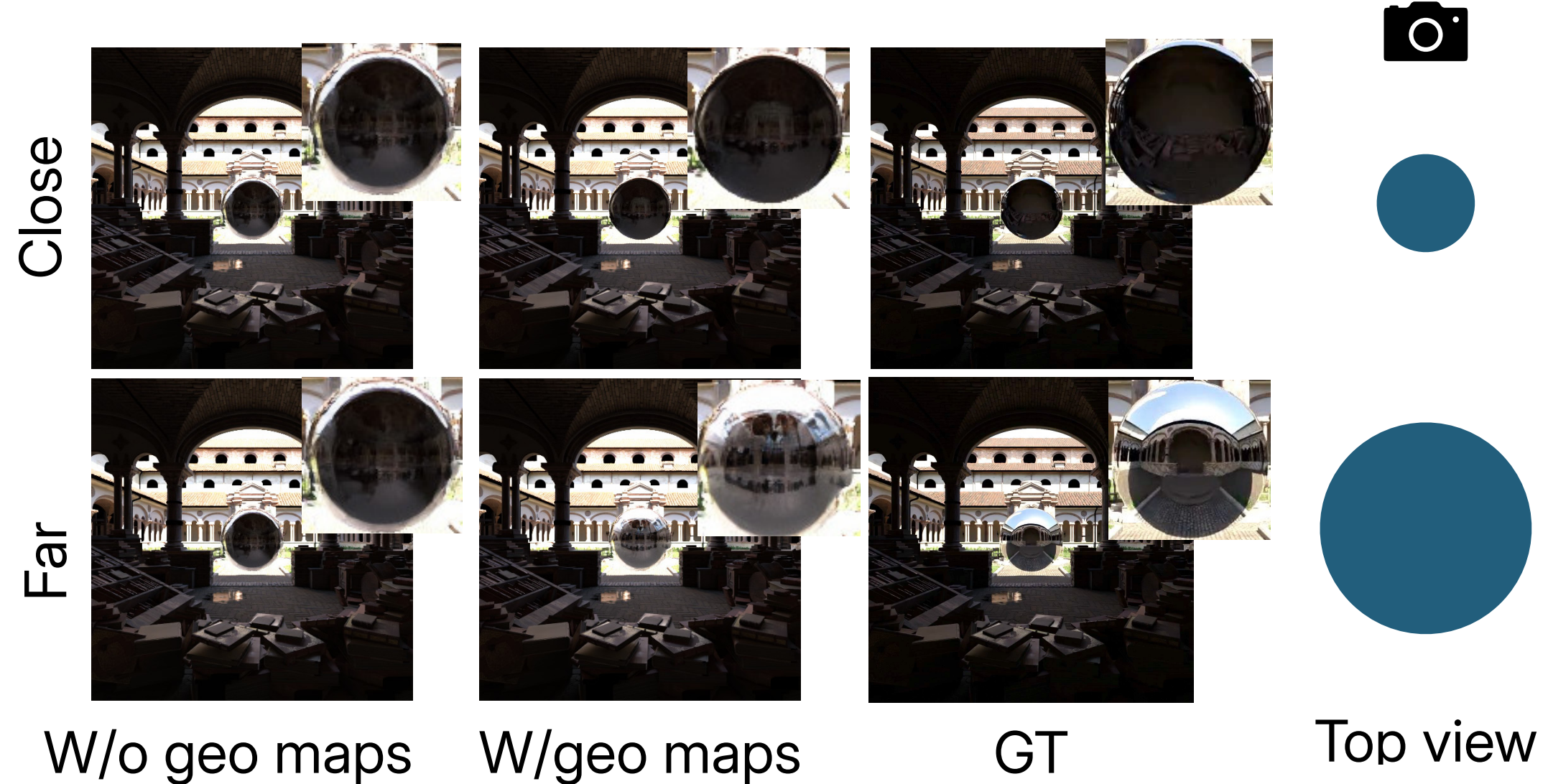
Method Overview

We use video diffusion to inpaint mirror and diffuse spheres at different EVs to estimate lighting at a given point



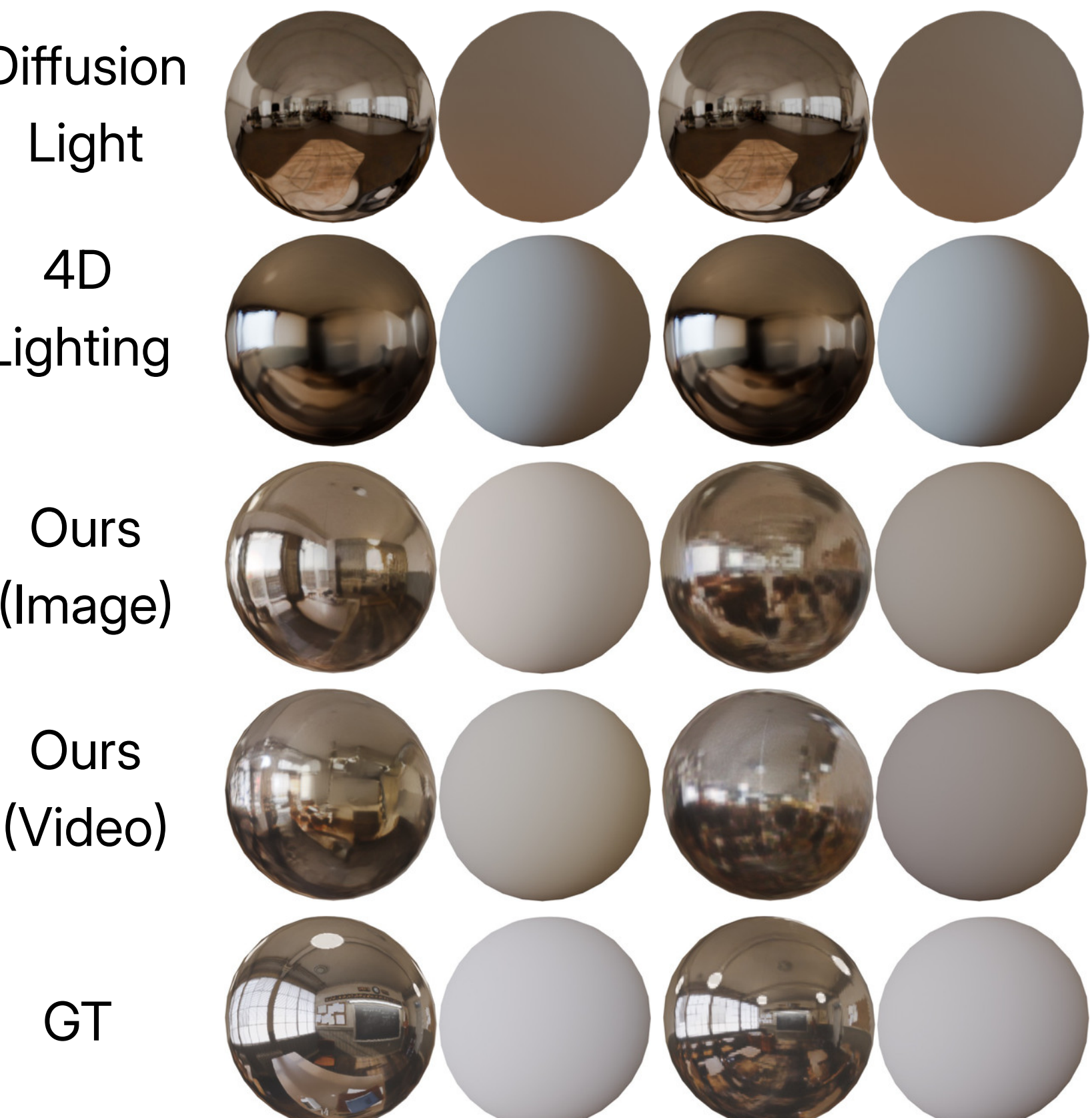
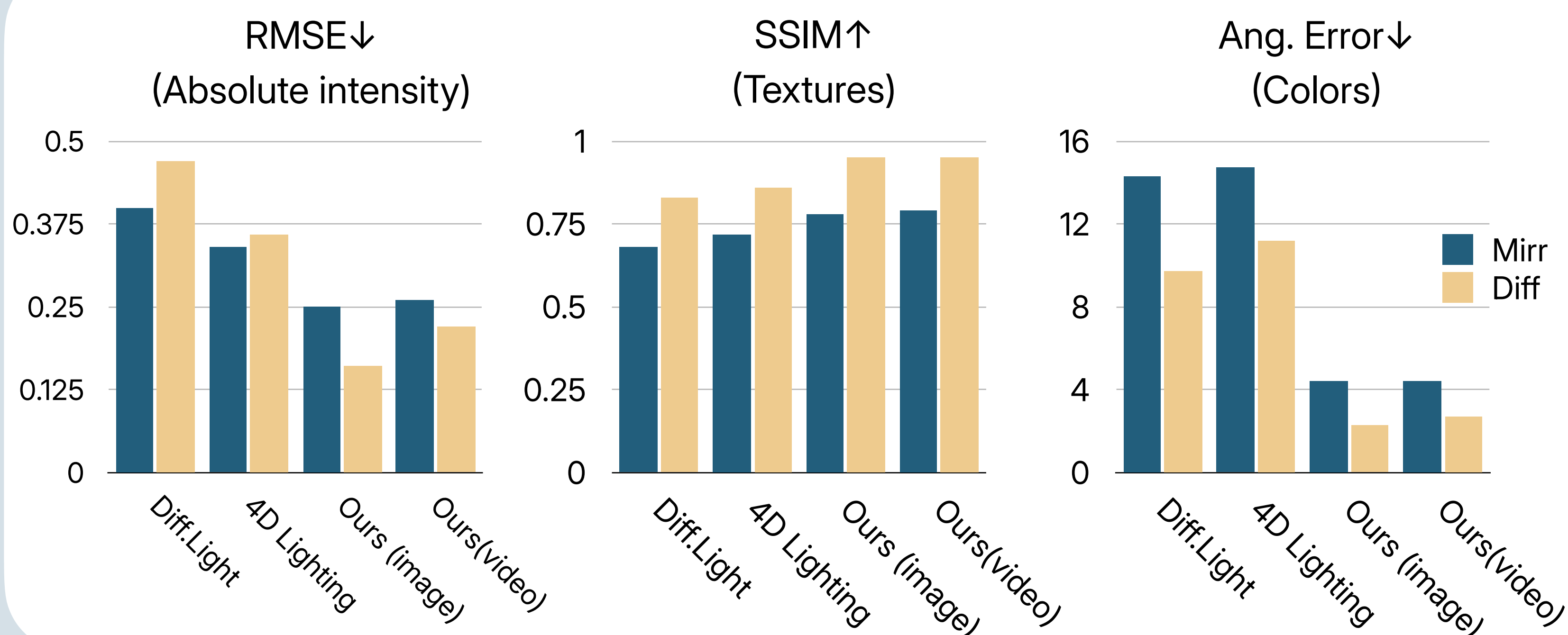
Geometric Maps Ablation

Direction and distance to the sphere allow spatial grounding



Prior Work Comparison

Our method better reconstructs HDR intensity, colors, textures, and spatial variations



Predicted lighting enables coherent insertion in images and video sequences



Predicted HDRI can be used in light stages, lighting live actors in background environment

