

A Expanded Results

This appendix expands on the results from Section 3.2; we include each of the scenes in Table 1 here except for *CORRIDOR*, which instead is shown in Figure 1.

Production shots are typically rendered in separate passes (volumes, characters, environments, etc.), which are then recombined through compositing, making the final noise a weighted sum of the noise of the input passes. To better reflect how noise is judged by artists in production, we present final efficiency improvement ratios ΔEff as an *aggregate* value, which we calculate by processing noisy renders through the production compositing graph and compare against the production final frame. This allows us to estimate aggregate variance from the composite result and determine aggregate cost by summing the costs of all input passes. We then plug these values into the ΔEff calculation described in Section 2.1.

For an aggregate efficiency estimate, we average the estimates calculated for all input passes. We find that this approach generally allows us to accurately predict the impact of path guiding on the final composited result.

Except for *SNAKEVISION*, where path guiding was applied only to the volumetrics pass, we present aggregate metrics for all shots to reflect the standard shot-finaling process.



Figure 3: *MARSH* scene from "Zootopia 2": an outdoor scene with strong directional lighting in volumetric atmospherics. From left to right: reference, 32 SPP with path guiding, and 32 SPP with path tracing. Our efficiency metric measures that path guiding is 2.37x more efficient than path tracing for this scene. © 2025 Disney

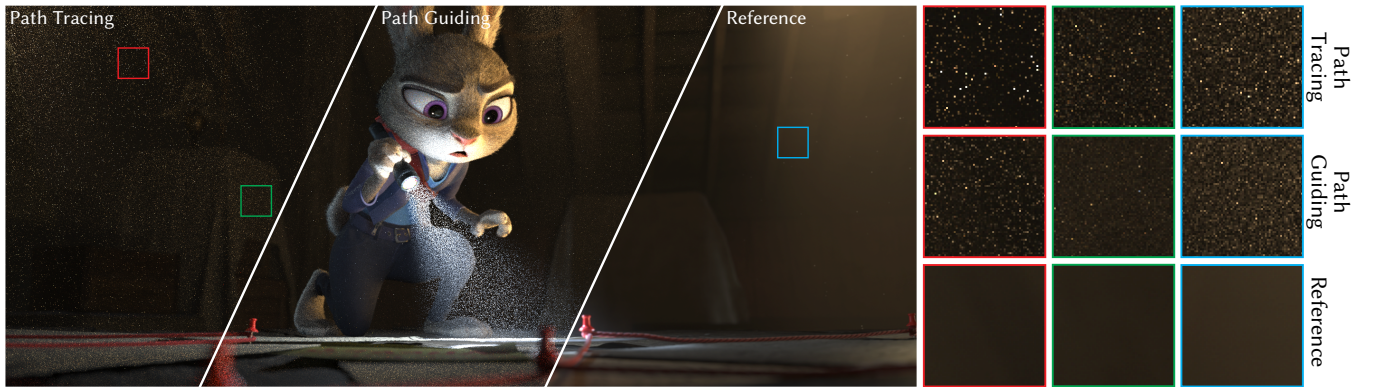


Figure 4: *FLASHLIGHT* scene from "Zootopia 2": an indoor scene lit almost entirely using bounce from a very small bright light source. From left to right: 32 SPP with path tracing, 32 SPP with path guiding, and reference. Our efficiency metric measures that path guiding is 2.14x more efficient than path tracing for this scene. This figure is exposed up two stops from the raw renders for improved readability. © 2025 Disney



Figure 5: *DE SNAKE HOME* scene from "Zootopia 2": an indoor scene with strong bounce lighting. From left to right: reference, 32 SPP with path guiding, and 32 SPP with path tracing. Our efficiency metric measures that path guiding is 2.53x more efficient than path tracing for this scene. © 2025 Disney

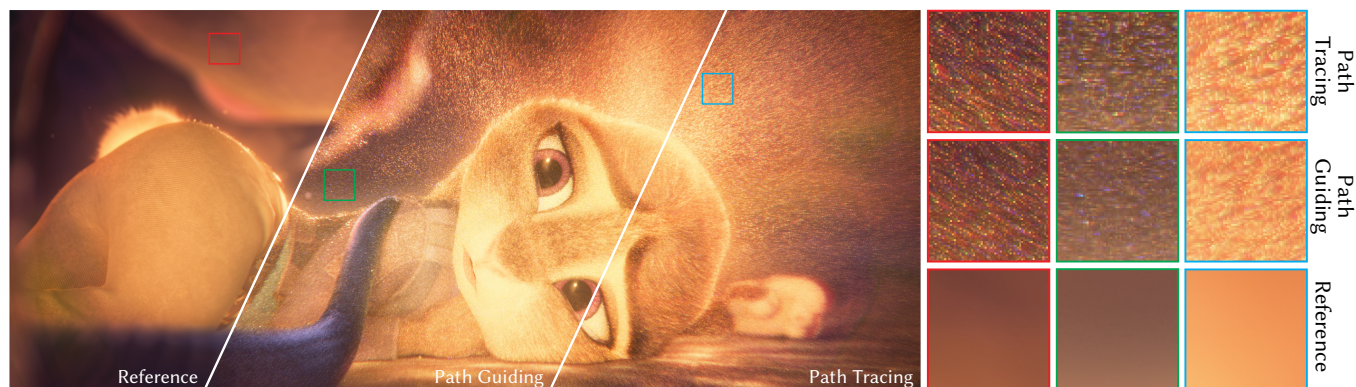


Figure 6: *SNAKEVISION* scene from "Zootopia 2": a scene with complex volumetrics. From left to right: reference, 32 SPP with path guiding, and 32 SPP with path tracing. Path guiding was only used on the volumetrics pass for this shot. Our efficiency metric measures that path guiding is 4.83x more efficient than path tracing for the volumetrics pass in this scene. © 2025 Disney



Figure 7: *GALA* scene from "Zootopia 2": an indoor scene with complex indoor lighting and lots of subsurface scattering (ice) and curves (animal fur) that our path tracing implementation currently does not guide for (see Section 3.2). From left to right: 32 SPP with path tracing, 32 SPP with path guiding, and reference. Our efficiency metric measures that path guiding is only 0.88x as efficient as path tracing for this scene. © 2025 Disney