

NAADF: Globally Illuminated Voxel Worlds Accelerated with Nested Axis-Aligned Distance Fields (Supplementary Material)

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Voxels Ours

Triangles Path Tracing



Figure 1: Comparison between SAN MIGUEL [Lla09] voxelized and non-voxelized using our approach and a path tracer, respectively. Note that due to the voxelizer removing specular materials, we have also removed these for the triangle version.

1. Introduction

The scene seen in Figure 2 displays the IVONIA [Ladnd] voxel model and Figure 3 displays MATTUPOLIS [matnd]. We have first converted these minecraft maps into a Magicavoxel [ephnd] .vox format with the Avoyd [enknnd] editor. Each minecraft block is converted into a solid voxel. Palette compression is applied so that up to 255 types remain, as more are not supported from the .vox format. The final file is then imported into our engine.

A comparison of our rendering approach using a voxel model and a path traced triangle scene can be seen in Figure 1. The discretization errors are particularly visible in fine details, such as the roses and general vegetation, as well as in the resulting shadows and indirect illumination.

References

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- [Lla09] LLAGUNO, GUILLERMO M. LEAL. *San Miguel Scene*. <https://casual-effects.com/data>. Accessed: 2025-07-12. 2009 1.
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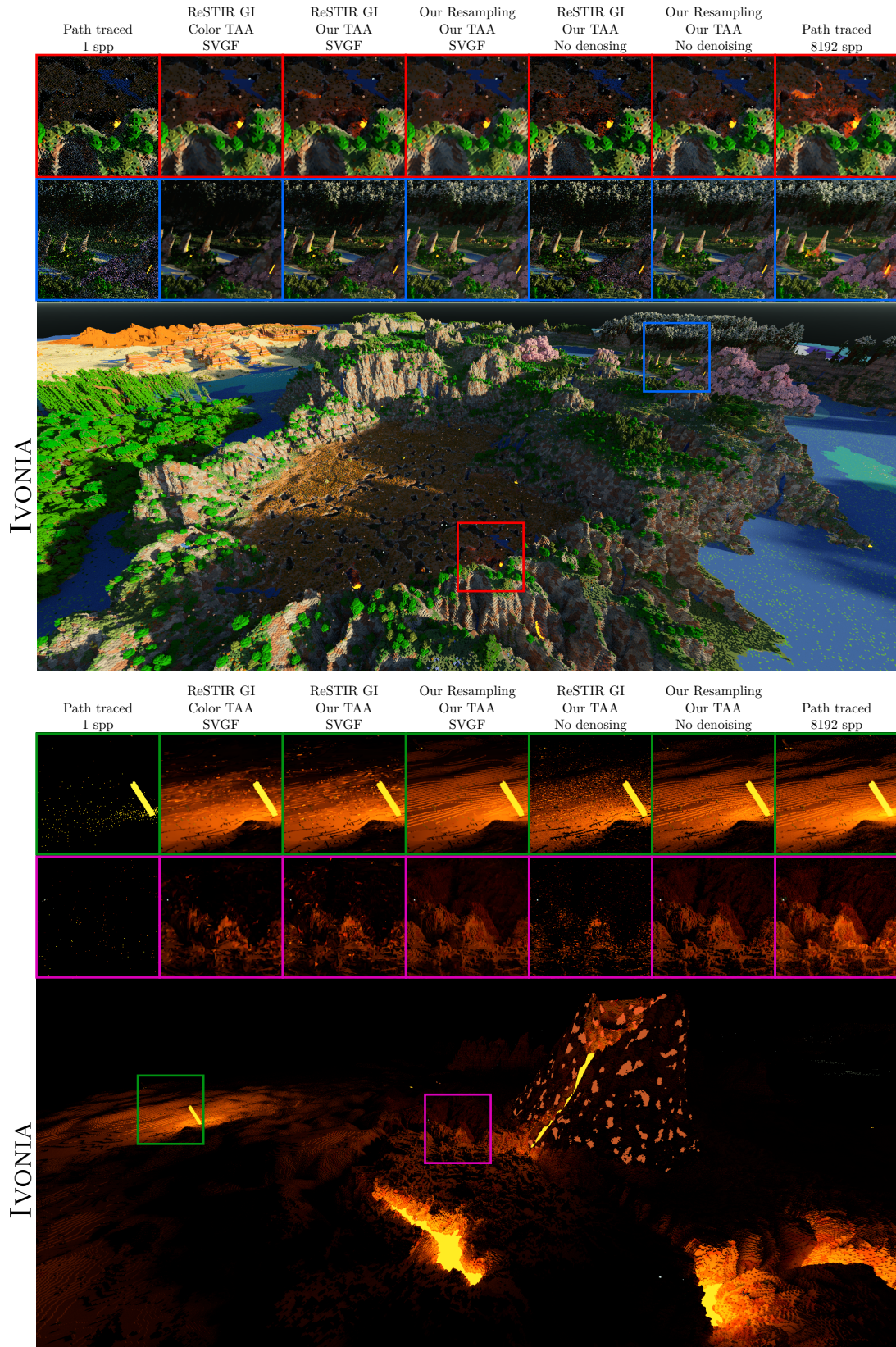


Figure 2: Final comparison between different combinations of our resampling, our TAA, ReSTIR GI, TAA with color clamping, and SVGF. All images are taken with a stationary camera at 1440p.

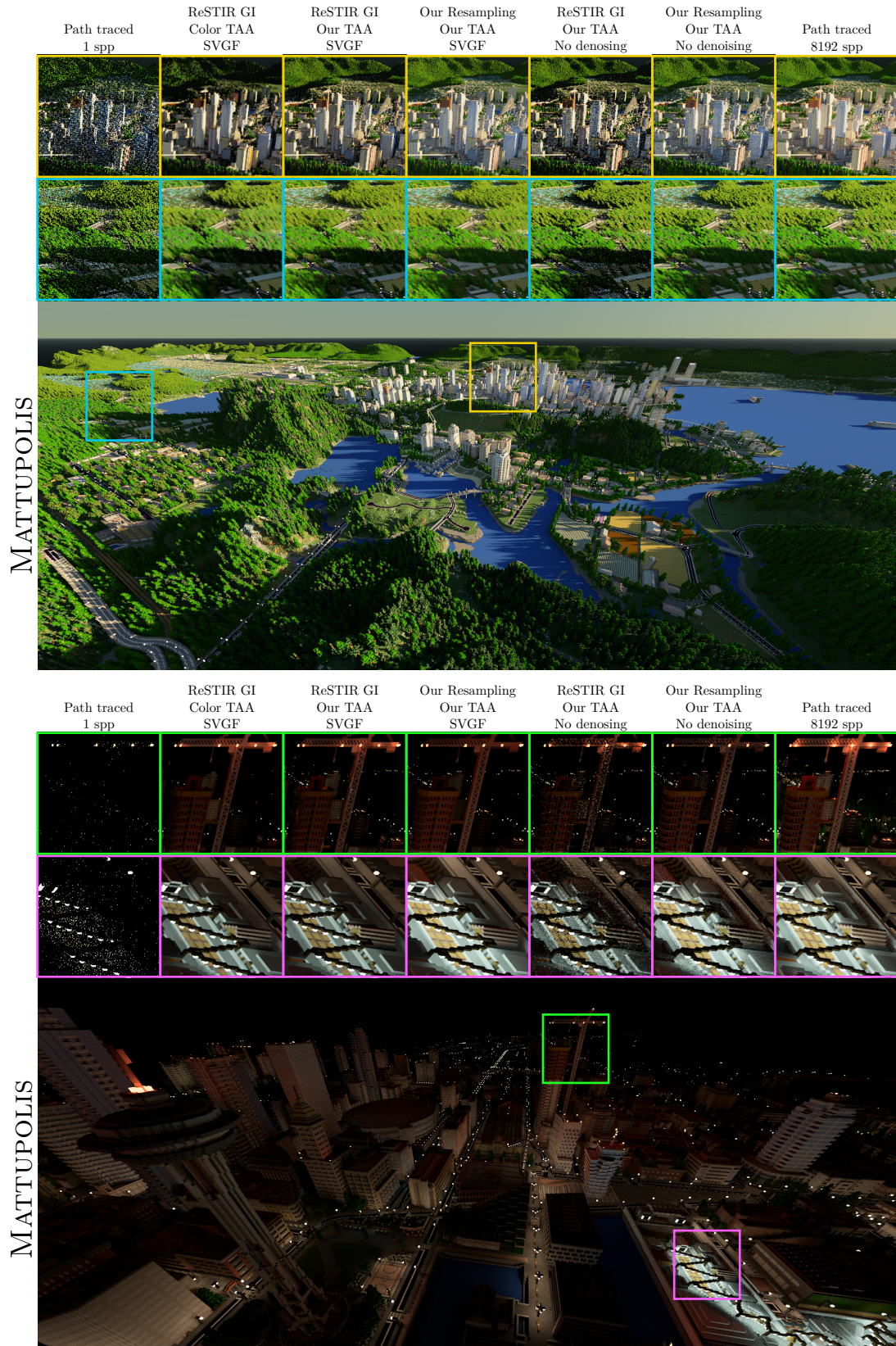


Figure 3: Final comparison between different combinations of our resampling, our TAA, ReSTIR GI, TAA with color clamping, and SVGF. All images are taken with a stationary camera at 1440p.