

# Supplementary Material: Compatibility-Guided Neighbor Selection for ReSTIR

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This document provides additional information we could not fit into the main paper.

In particular, [Section S1](#) discusses the per-scene error vs. spatial covariance Pareto frontiers (main paper Figure 3) for the four test scenes. We use the prefix *S* to distinguish supplementary figures and sections from those in the main paper.

## S1 Error vs. Spatial Covariance

The main paper shows the error vs. spatial covariance Pareto frontier on [EMERALD SQUARE](#) (Figure 3). [Figure S1](#) reports the same analysis on all four test scenes. Across all scenes, we improve the Pareto frontier of the error-correlation tradeoff: for any given spatial covariance, our method achieves lower SMAPE than the baseline. Reductions are generally proportional to the scene complexity: we observe the largest reductions in [EMERALD SQUARE](#) (dominated by detailed geometry) and the smallest reductions in [VEACH AJAR](#) (dominated by simple geometry), with moderate reductions in [BISTRO EXTERIOR](#) and [SUN TEMPLE](#).

## References

- Benedikt Bitterli, Chris Wyman, Matt Pharr, Peter Shirley, Aaron Lefohn, and Wojciech Jarosz. 2020. Spatiotemporal reservoir resampling for real-time ray tracing with dynamic direct lighting. *ACM Transactions on Graphics* 39, 4 (Aug. 2020). [doi:10.1145/3386569.3392481](https://doi.org/10.1145/3386569.3392481)
- Daqi Lin, Markus Kettunen, Benedikt Bitterli, Jacopo Pantaleoni, Cem Yuksel, and Chris Wyman. 2022. Generalized resampled importance sampling: foundations of ReSTIR. *ACM Transactions on Graphics* 41, 4 (July 2022), 1–23. [doi:10.1145/3528223.3530158](https://doi.org/10.1145/3528223.3530158)

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### Error vs. Spatial Covariance

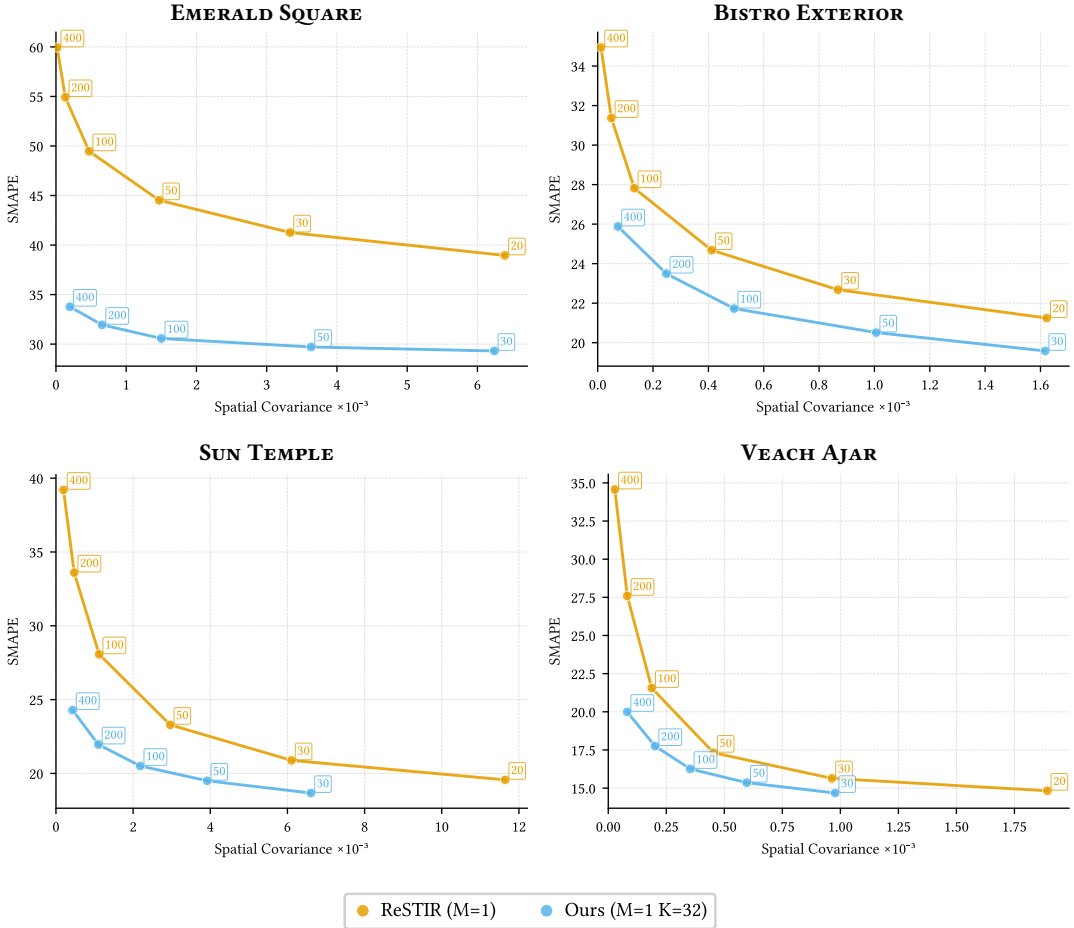


Fig. S1. Error vs. spatial covariance at different reuse radii across all four test scenes. Floating labels at points denote reuse radius. Our compatibility-guided neighbor selection improves the Pareto frontier on every scene relative to ReSTIR PT [Lin et al. 2022] with Bitterli et al.'s [2020] neighbor rejection.