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Exploring novel sampling ideas in NeRF

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Representing scenes as neural radiance fields (NeRF) for view synthesis has taken the world of computer vision by storm. Unlike traditional approaches, NeRF learns to directly encode 3D scenes within neural networks, enabling seamless generation of novel views with high quality. Its efficiency in synthesizing new views from a limited set of input images showcases its potential to revolutionize various applications in computer vision and graphics. Ray tracing in NeRF involves casting rays from camera positions and then using networks to estimate the color and opacity of objects along these rays. Originally this is done by taking initial points throughout the rays, to gather information for second, more precise sampling. This two-stage approach is effective, but slow. Proposed possible improvements include a novel sampling network that takes advantage of extra data, such as camera origins and view directions, via an MLP for direct sample generation on rays. This and other ideas are broad and exciting.

Field

Computer science

Length

Quick 10 min

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