NeRF Technology: An Economic Approach to 3D Scanning

Sun, Chan I (School: Instituto Salesiano)
Chang, Seng Chon (School: Instituto Salesiano)
Ho, Man Kin (School: Instituto Salesiano)

The integration of Neural Radiance Fields (NeRF) technology with 3D scanning systems has significantly advanced the reconstruction of high-fidelity 3D models. In this essay, we explore the history of 3D scanning technologies, the application of neural networks in 3D reconstruction, and the challenges and limitations of NeRF technology. It identifies the gap in integrating NeRF with existing 3D scanning hardware and emphasizes the need for more accessible, affordable, and portable 3D scanning solutions. We also present a methodology and result for data collection, preprocessing, NeRF implementation, and geometric mesh reconstruction. It also discusses the selection of optimal training methods and the determination of ideal types of input data for NeRF training.

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