Preprocess Far-field GT Distance-Aware Masks Mono-Depth Monocular Depth Maps Estimator Depth-and-Density Guided Dropout Near-field Middle-field Calculate Far-field Depth Score **Global:** Percentile-Distance-Aware based Bins B_i Fidelity Enhancement $L_1 + \lambda_{SSIM} L_{SSIM} + \lambda_{DAFE} L_{DAFE}$ Sparse Views **Local:** Depth-and-**Density Aware** Far-field RGB Probabilistic and **SfM** Scores S_i Progressive Dropout Calculate For every $P_i = f(B_i, S_i, t)$ 3D Gaussian **Density Score** Drop **Initial Gaussians**

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