Refine3DNet: Scaling Precision in 3D Object Reconstruction from Multi-View RGB Images using Attention

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A SHAPENET DATASET

Figure 1: ShapeNetCore Dataset:Multi-view 2D images on the left side and ground-truth 3D object on the right. Each image has $137 * 137 * 3$ size and each 3D model has a size of 32^3. The dataset is used to train and evaluate the performance of 3D reconstruction models.

B QUALITATIVE RESULTS: SINGLE VIEW RECONSTRUCTION

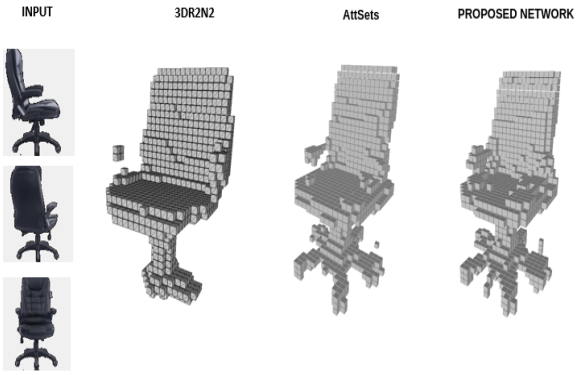

Figure 2: In single-view 3D reconstruction, the proposed network outperformed other state-of-the-art models by 4.2%. Despite having only one input view, it effectively reconstructs detailed and accurate 3D shapes, indicating its robustness in capturing essential features from limited information.

C QUALITATIVE RESULTS: MULTI-VIEW RECONSTRUCTION

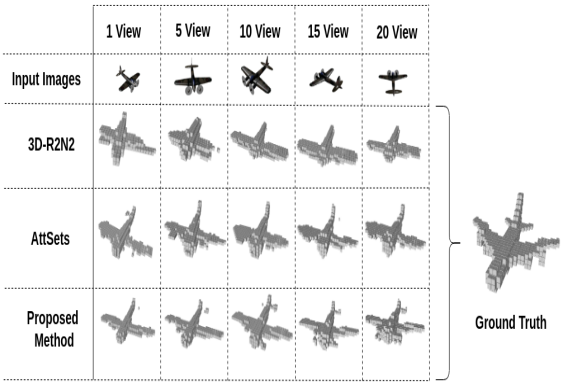

Figure 3: The multi-view reconstruction results demonstrate the network's robustness and ability to handle multiple input images, resulting in more accurate and detailed 3D models. The architecture, especially its attention mechanisms, allows it to outperform other models by effectively synthesizing information from various angles. This leads to enhanced accuracy and detail, with consistent performance across different input orders.

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