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Compressed Geometric Arrays for Point Cloud Processing

With the increasing demand for 3D modeling by the emerging immersive applications, the 3D point cloud has become an essential representation format for processing 3D images and video. Because of the inherent sparsity in 3D data and the significant memory requirements for representing points, point cloud processing is a challenging task. We want to discuss about a novel data structure, called compressed geometric arrays (CGA) for representing point clouds with a reduced memory requirement and a faster lookup than the state-of-the-art formats. The proposed format is examined for various point cloud processes. Using CGA for point cloud operations achieves 998x speed up, 410x better bandwidth utilization, and 58% reduction in the volume of transferred data as compared to the state-of-the-art tree-based format from point cloud library (PCL)

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