

LLM-based Methodology for Expanding 3D Metadata in Point Cloud

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Abstract— This paper proposes a method for expanding the metadata of three-dimensional point cloud data using Large Language Models (LLMs). Currently, point cloud data plays a crucial role in various fields such as autonomous driving and medical image reconstruction, necessitating the expansion of metadata for efficient processing. Traditionally, metadata construction has relied on manual input, which is prone to errors. In this study, we propose a method that utilizes LLMs, particularly the Llama 3.1 model, to extract the center points of each class in the point cloud data and expand the metadata by adding these center points to the annotation files. By using center points, computational costs are reduced, and the performance of segmentation and detection models based on this data is improved.

Keyword— Point Cloud, Large Language Models (LLM), 3D Metadata Expansion, Attention Mechanism, Data Preprocessing



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