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A DATA MANAGEMENT METHOD FOR EFFICIENT SEARCH AND RENDERING OF MULTIPLE LARGE SCALE POINT CLOUDS

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Abstract. Recently, with the progress of laser scanning technology, it has become possible to scan several environments such as buildings, roads, and cities easily and at a low cost. There are typically three scanning methods: TLS (Terrestrial Laser Scanning), MMS (Mobile Mapping System), and ALS (Airborne Laser Scanning), and the environments are scanned for measurement, modelling, and simulation etc. Therefore, an efficient and comprehensive data management method, which can handle these point clouds in various applications is strongly required. In this paper, we describe a method of data management for efficient search and rendering of multiple large scale point clouds. First, we define a general point cloud file format including the octree and the quantization structure. Next, the data management method enabling an efficient search and rendering of the point clouds is proposed. Finally, the effectiveness of our method is verified using several actual data sets.

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