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**Information technology - Technical specification for multi-view
image-based 3D reconstruction systems for large-scale scenes**

信息技术 大规模场景多视图三维重建系统技术规范

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Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions	1
5 System Framework	3
6 Functional Modules	3
6.1 Sparse Map Reconstruction	3
6.2 Dense Model Reconstruction	4
6.3 Model Texture Reconstruction	4
6.4 Model Visualization	4
6.5 Reconstruction of Neural Radiation Field	5
6.6 Three-dimensional Gaussian Reconstruction	5
6.7 Dense Model Simplification	5
6.8 Construction of Multi-Level-of-Detail Models	5
7 Technical Requirements	5
7.1 Functional Requirements	5
7.2 Performance Requirements	7
8.2 Functional Testing	8
8.3 Performance Testing	10

Foreword

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1 Scope

GB/T 47022-2026 is the Chinese national standard covering building a three-dimensional model of a city block or a construction site from photographs - the image capture and overlap required, the camera pose estimation, the dense reconstruction and meshing, and the accuracy and completeness the result must reach. First edition. It was issued on 28 January 2026 and has been in force since 1 August 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document defines the system framework for a large-scale scene multi-view 3D reconstruction system, specifying functional modules, functional requirements, and performance requirements. The question describes the corresponding testing methods. This document applies to the design, development, application, and maintenance of multi-view 3D reconstruction systems for large-scale scenes captured by digital cameras.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 38247-2019 Terminology for Augmented Reality in Information Technology

3 Terms and Definitions

The terms and definitions defined in GB/T 38247-2019, as well as the following terms and definitions, apply to this document.

3.1 3D Reconstruction The process of reconstructing three-dimensional information using the projection of an object onto several two-dimensional images or other depth information of the object. [Source: GB/T 38247-2019, 2.2.48]

3.2 large-scale scene A three-dimensional spatial environment covering an area ranging

from hundreds of square meters to several square kilometers.

Note. This type of scenario includes enclosed indoor spaces such as multiple rooms and corridors inside buildings, as well as open outdoor areas such as urban blocks and road networks.

3.3 By using a collection of two-dimensional images acquired from two or more different perspectives, three-dimensional spatial information can be recovered and a geometric model reconstructed through computation. The process of texturing.

3.4 camera parameters A set of parameters describing camera imaging properties and spatial location, covering camera intrinsic and extrinsic parameters. Note

1.Camera intrinsic parameters determine the camera's internal imaging properties, such as optical center, focal length, and image sensor; camera extrinsic parameters determine the camera's position in the world coordinate system. and orientation. Note

2.The position and orientation described by camera extrinsic parameters are often collectively referred to as "pose". This concept is used to express the external orientation information of the camera.

3.5 Simultaneously infer camera parameters and sparse 3D structure of the target scene for each image from multi-view image sequences or video data.