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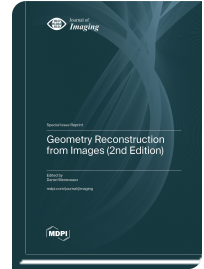
Special Issue Reprint

Geometry Reconstruction from Images (2nd Edition)

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Recovering 3D content from images has been a tremendous source of research advances, with many different focuses, targeted applications, needs, or scientific starting points. A wide range of existing approaches nowadays are employed in the industry for many considerations, including, for instance, quality in engineering production, video-based security, or 3D modeling in gaming applications or movies. Yet, reconstructing a representation of a scene observed through a camera remains a challenging aspect in general, and the specific question of producing a (static or dynamic) geometric model has led to decades of research and still corresponds to a very active scientific domain. Sensors are continuously evolving, bringing more and more accuracy, resolution, and new opportunities for reconstructing objects' shapes and/or detailed geometric variations.

This second issue is dedicated to 3D reconstruction from images, for which machine learning has brought interesting reconstruction methods, with approaches such as NeRFs or Gaussian splatting. Some specific aspects are also addressed, with in-depth fundamental research, such as the management of specular surfaces or accuracy issues in underwater environments. The 11 articles published in this second edition tackle several very interesting challenges: reconstructions of objects known for their complexity, underwater environments where distortions make depth estimation difficult, interactive systems and dynamic scenes, analyses of existing reconstruction techniques, and deep learning approaches.



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