







Special Issue Reprint

Intelligent Point Cloud Processing, Sensing and Understanding (Volume II)

www.mdpi.com/books/reprint/11247

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ISBN 978-3-7258-4687-0 (Hardback) ISBN 978-3-7258-4688-7 (PDF)



Point clouds serve as a fundamental representation of the 3D digital world despite their inherently irregular topologies. Recent advances in sensor technology have significantly improved the acquisition of point cloud data, enabling flexible and scalable geometric representations. These developments have catalyzed new methodologies and solutions across a wide range of remote sensing applications. State-of-the-art sensors can generate dense point clouds from diverse platforms—including aerial and UAV systems and vehicle-mounted, backpack, handheld, and static terrestrial scanners—capturing objects from multiple perspectives (nadir, oblique, and side views) and spectral bands (e.g., multispectral imaging). Additionally, variations in point density and completeness contribute to different levels of granularity in 3D reconstructions. The applications of point cloud processing continue to expand beyond traditional geospatial analysis, encompassing fields such as manufacturing, civil and mechanical engineering, construction, transportation, ecology, and forestry. This collection of contributions highlights the latest innovations in point cloud registration, compression, and perception, offering insights into existing challenges and paving the way for novel 3D applications.





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