

Advancing Horizons: Standardized Future Trends in LiDAR and Remote Sensing Technologies

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Abstract : Rapid advancements in LiDAR (Light Detection and Ranging) technology, coupled with the synergy of remote sensing, have revolutionized Earth observation methodologies. This paper delves into the transformative impact of integrated LiDAR and remote sensing systems. Focusing on miniaturization, cost reduction, and improved resolution, the study explores the evolving landscape of terrestrial and aquatic environmental monitoring. The integration of multi-wavelength and dual-mode LiDAR systems, alongside collaborative efforts with other remote sensing technologies, presents a comprehensive approach. The paper highlights the pivotal role of LiDAR in environmental assessment, urban planning, and infrastructure development. As the amalgamation of LiDAR and remote sensing reshapes Earth observation, this research anticipates a paradigm shift in our understanding of dynamic planetary processes.

Keywords : LiDAR, remote sensing, earth observation, advancements, integration, environmental monitoring, multi-wavelength, dual-mode, technology, urban planning, infrastructure, resolution, miniaturization

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