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## Automated Extraction of 3D Trees from Mobile LiDAR Point Clouds

Y. Yu<sup>1</sup>, J. Li<sup>2,3</sup>, H. Guan<sup>3</sup>, D. Zai<sup>1</sup>, and C. Wang<sup>1</sup>

<sup>1</sup>Department of Computer Science, Xiamen University, 422 Siming Road South, Xiamen, FJ 361005, China

<sup>2</sup>Key Laboratory of Underwater Acoustic Communication and Marine Information Technology (MOE), Xiamen University, 422 Siming Road South, Xiamen, FJ 361005, China

<sup>3</sup>Department of Geography and Environmental Management, University of Waterloo, 200 University Avenue West, Waterloo, ON N2L 3G1, Canada

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**Abstract.** This paper presents an automated algorithm for extracting 3D trees directly from 3D mobile light detection and ranging (LiDAR) data. To reduce both computational and spatial complexities, ground points are first filtered out from a raw 3D point cloud via blockbased elevation filtering. Off-ground points are then grouped into clusters representing individual objects through Euclidean distance clustering and voxel-based normalized cut segmentation. Finally, a model-driven method is proposed to achieve the extraction of 3D trees based on a pairwise 3D shape descriptor. The proposed algorithm is tested using a set of mobile LiDAR point clouds acquired by a RIEGL VMX-450 system. The results demonstrate the feasibility and effectiveness of the proposed algorithm.

[Conference Paper](#) (PDF, 885 KB)

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