



International Society for Photogrammetry and Remote Sensing

[Home](#) [The Society](#) [Members](#) [Commissions](#) [Documents](#) [Publications](#) [Education](#) [Calendar](#) [Links](#) [News](#)



Volume XL-1/W1

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-1/W1, 393-397, 2013
www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-1-W1/393/2013/
doi: 10.5194/isprsarchives-XL-1-W1-393-2013
© Author(s) 2013. This work is distributed
under the Creative Commons Attribution 3.0 License.

ENHANCED COMPONENT DETECTION ALGORITHM OF FULL-WAVEFORM LIDAR DATA

M. Zhou, M. H. Liu, Z. Zhang, and J. H. Wang
Key Laboratory of Quantitative Remote Sensing Information Technology, Academy of Opto-Electronics, Chinese Academy of Sciences, Beijing, China

Keywords: Full-waveform LIDAR, Component detection, Waveform decomposition, LM, FMM

Abstract. When full-waveform LIDAR (FW-LIDAR) data are applied to extract the component feature information of interest targets, there exist a problem of components lost during the waveform decomposition procedure, which severely constrains the performance of subsequent targets information extraction. Focusing on the problem above, an enhance component detection algorithm, which combines Finite Mixed Method (FMM), Levenberg-Marquardt (LM) algorithm and Penalized Minimum Matching Distance (PMMD), is proposed in this paper. All of the algorithms for parameters initialization, waveform decomposition and missing component detection have been improved, which greatly increase the precision of component detection, and guarantee the precision of waveform decomposition that could help the weak information extraction of interest targets. The effectiveness of this method is verified by the experimental results of simulation and measured data.

[Conference Paper](#) (PDF, 380 KB)

Citation: Zhou, M., Liu, M. H., Zhang, Z., and Wang, J. H.: ENHANCED COMPONENT DETECTION ALGORITHM OF FULL-WAVEFORM LIDAR DATA, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-1/W1, 393-397, doi:10.5194/isprsarchives-XL-1-W1-393-2013, 2013.

[Bibtex](#) [EndNote](#) [Reference Manager](#) [XML](#)

