

Jinhu Wang

Curriculum Vitae

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Employment

- 12.2018–now **Research Associate**, *Quantitative and fine information extraction from LiDAR and image data*, Key Laboratory of Quantitative Remote Sensing Information Technology, Chinese Academy of Sciences(CAS), Beijing, China.
I devote myself to quantitative and fine information extraction using novel algorithms and techniques from heterogeneous datasets, such as 3D point clouds, images and hyper-spectral LiDAR data. Meanwhile, I design data processing and visualization software for the novel sensors developed in the lab. I am also supervising two M.Sc. students at the University of Chinese Academy of Sciences.
- 09.2017–11.2018 **Postdoc Researcher**, *Automatic information extraction from large scale mobile laser scanning data*, Delft University of Technology, Delft, The Netherlands.
In cooperation with Fugro, I was dedicated to designing efficient algorithms to automatically identify road markings, recognize roadside objects and create highly accurate 3D map of road environments using point cloud and image data.
- 09.2016–11.2018 **Algorithm&Software Engineer**, *High definition 3D map generation and updating from point cloud data obtained by mobile laser scanning*, Regional Innovation Center Europe, Fugro, Leidschendam, The Netherlands.
I focused on developing algorithms and software to create high-definition 3D map and updating the existing topographic maps using huge point cloud data and images obtained by mobile laser scanning.

Education

- 09.2012–07.2017 **Ph.D.**, *Laser and Optical Remote Sensing*, Delft University of Technology, Delft, The Netherlands.
- 09.2009–07.2012 **M.Sc.**, *Signal and Information Processing*, Academy of Opto-Electronics, Chinese Academy of Sciences, Beijing, China.
- 09.2005–07.2009 **B.Eng.**, *Geomatics (Surveying and Mapping)*, China University of Geosciences, Beijing, China.

Awards

- 2019 **E H Thompson Award**, *Wiley and The British Remote Sensing and Photogrammetry Society*, UK.
- 2018 **Best Paper Award**, *Department of Geoscience & Engineering and Geoscience & Remote Sensing*, TU Delft.
- 2016 **Best Poster Paper Award**, *The XXIII Congress of International Society of Photogrammetry and Remote Sensing*, 2016 July, Prague, Czech Republic.

Ph.D. Thesis

Title	Scalable information extraction from point cloud data obtained by mobile laser scanner
Supervisors	Prof. Massimo Menenti & Associate Prof. Roderik Lindenbergh
Summary	The thesis explored scalable processing strategies for point cloud data obtained by mobile laser scanners. Innovative algorithms on estimating excavation volume, individual tree delineation and roadside objects recognition from point cloud data were proposed.

Publications

Lele Zhang, Jinhu Wang, Yueqian Shen, Jian Liang, Yuyu Chen, Linsheng Chen, and Mei Zhou. A deep learning based method for railway overhead wire reconstruction from airborne lidar data. *Remote Sensing*, 14(20), 2022.

Guangpeng Fan, Zhenyu Xu, Jinhu Wang, Liangliang Nan, Huijie Xiao, Zhiming Xin, and Feixiang Chen. Plot-level reconstruction of 3d tree models for aboveground biomass estimation. *Ecological Indicators*, 142:109211, 2022.

Roderik Lindenbergh, Sylvie Soudarissanane, Jinhu Wang, Abdul Nurunnabi, Adriaan van Natijne, and Cserép Máté. *Laser Scanning : An Emerging Technology in Structural Engineering*, chapter Laser scanning for operational multiscale structural monitoring, page 14. CRC Press, 1st edition, 2019 (Book chapter).

Jinhu Wang and Roderik Lindenbergh. Validating a workflow for tree inventory updating with 3d point clouds obtained by mobile laser scanning. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLII-2:1163–1168, 2018.

Jinhu Wang, Roderik Lindenbergh, and Massimo Menenti. Scalable individual tree delineation in 3d point clouds. *The Photogrammetric Record*, 33(163):315–340, 2018 (E H Thompson Award).

Xinlian Liang, Juha Hyypä, Harri Kaartinen, Matti Lehtomäki, Jiri Pyörälä, Norbert Pfeifer, Markus Holopainen, Gábor Brolly, Pirotti Francesco, Jan Hackenberg, Huabing Huang, Hyun-Woo Jo, Masato Katoh, Luxia Liu, Martin Mokroš, Jules Morel, Kenneth Olofsson, Jose Poveda-Lopez, Jan Trochta, Di Wang, Jinhu Wang, Zhouxi Xi, Bisheng Yang, Guang Zheng, Ville Kankare, Ville Luoma, Xiaowei Yu, Liang Chen, Mikko Vastaranta, Ninni Saarinen, and Yunsheng Wang. International benchmarking of terrestrial laser scanning approaches for forest inventories. *ISPRS Journal of Photogrammetry and Remote Sensing*, 144:137–179, 2018.

Jinhu Wang, Roderik Lindenbergh, and Massimo Menenti. Sigvox - a 3d feature matching algorithm for automatic street object recognition in mobile laser scanning point clouds. *ISPRS Journal of Photogrammetry and Remote Sensing*, 128:111 – 129, 2017 (Best paper award at Dept. GRS/GSE research day, TU Delft).

Yueqian Shen, Roderik Lindenbergh, and Jinhu Wang. Change analysis in structural laser scanning point clouds: The baseline method. *Sensors*, 17(1), 2017.

Jinhu Wang, Roderik Lindenbergh, Yueqian Shen, and Massimo Menenti. Coarse point cloud registration by egi matching of voxel clusters. *ISPRS Annals of Pho-*

togrammetry, *Remote Sensing and Spatial Information Sciences*, III-5:97–103, 2016 (Best poster paper award at the XXIII ISPRS congress).

Mengshi Yang, Prabu Dheenathayalan, Ling Chang, Jinhu Wang, Roderik C. Lindenbergh, Mingsheng Liao, and Ramon F. Hanssen. High-precision 3d geolocation of persistent scatterers with one single-epoch gcp and lidar dsm data. In L. Ouwehand, editor, *Proceedings of Living Planet Symposium 2016*, volume SP-740 of *European Space Agency (ESA-SP)*, pages 398–398, Netherlands, August 2016. European Space Agency. European Space Agency Living Planet Symposium 2016 ; Conference date: 09-05-2016 Through 13-05-2016.

Chuanrong Li, Mei Zhou, Menghua Liu, Lian Ma, and Jinhu Wang. A Concealed Car Extraction Method Based on Full-Waveform LiDAR Data. *Mobile Information Systems*, 2016.

Roderik Lindenbergh, Ditmar Berthold, Beril Sirmacek, Monica Herrero-Huerta, Jinhu Wang, and D. Ebersbach. Automated large scale parameter extraction of road-side trees sampled by a laser mobile mapping system. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XL-3/W3:589–594, 2015.

Jinhu Wang, Roderik Lindenbergh, and Massimo Menenti. Evaluating voxel enabled scalable intersection of large point clouds. *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences*, II-3/W5:25–31, 2015.

Ben Gorte, Sander Oude Elberink, Beril Sirmacek, and Jinhu Wang. Iqpc 2015 track: Tree separation and classification in mobile mapping lidar data. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XL-3/W3:607–612, 2015.

Jinhu Wang, Higinio González-Jorge, Roderik Lindenbergh, Pedro Arias-Sánchez, and Massimo Menenti. Geometric road runoff estimation from laser mobile mapping data. *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences*, II-5:385–391, 2014.

Jinhu Wang, Higinio González-Jorge, Roderik Lindenbergh, Pedro Arias-Sánchez, and Massimo Menenti. Automatic estimation of excavation volume from laser mobile mapping data for mountain road widening. *Remote Sensing*, 5(9):4629–4651, 2013.

Jinhu Wang, Chuanrong Li, Lingli Tang, Mei Zhou, and Jingmei Li. A comparison of two different approaches of point cloud classification based on full-waveform lidar data. *ISPRS - International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XXXIX-B3:179–182, 2012.

Student Supervision

- 09.2020–07.2023 **Lele Zhang**, *M.Sc.*, Works on fine information extraction using deep learning from MLS data sets., University of Chinese Academy of Sciences.
- 09.2021–07.2024 **Yuyu Chen**, *M.Sc.*, Works on scalable reconstruction of road surfaces using point clouds and images obtained by MLS., University of Chinese Academy of Sciences.

Programming Skills

Languages **C, C++, Python, MATLAB**

Proficient

Tools **Qt, MFC, OpenGL, OpenCV, PyTorch, PCL**

Proficient

CUDA, Open MPI, CGAL

Intermediate

Languages

Mothertongue **Chinese**

Read, Write and Speak

Fluent **English**

Read, Write and Speak

Basic **Dutch**

Words and phrases only