

KAIXUAN ZHOU

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EDUCATION

Delft University of Technology, Netherlands PhD candidate in Geoscience and Remote Sensing	<i>January 2016–Present</i>
Delft University of Technology, Netherlands Master in Geomatics	<i>September 2013–July 2015</i>
Central South University, China Bachelor in Geomatics Engineering	<i>September 2009–July 2013</i>

RESEARCH EXPERIENCE

PhD student, Delft University of Technology, Netherlands	<i>January 2016–Present</i>
<ul style="list-style-type: none">Extended the LiDAR-guided edge-aware dense matching (E-LEAD-Matching) to integrate airborne LiDAR data with multi-view images obtain an accurate, dense and textured point cloud. The planimetric accuracy of buildings extracted from the fused result is improved to meet requirements of large scale maps.Designed LEAD-Matching to integrate airborne LiDAR data with a stereo pair to integrate the complementary information for 3D building change detection and updating. The method successfully verifies all unchanged buildings with a minimum detectable change of 2m*2m*2m.Designed a machine learning approach to detect shadows from a single image using shadow reconstructed from LiDAR data as training samples.Applied deep learning to segment buildings from airborne images focusing on small building detection and edges.	
Visiting PhD student, University of New South Wales, Australia	<i>July 2018-September 2018</i>
<ul style="list-style-type: none">Designed and implemented LEAD-Matching on an airborne stereo pair.Hosted by Geospatial Research Innovation Development (GRID) group.	
Exchange student, Wuhan University, China	<i>February 2015-March 2015</i>
<ul style="list-style-type: none">Designed an approach to identify and apply common features, regularity, shared by objects in the façade, to improve quality of façade reconstruction from terrestrial point cloud.Hosted by School of Remote Sensing and Information Engineering.	

WORKING EXPERIENCE

Intern, 3D Building Reconstruction using Point Clouds Obtained from Panoramic Images, Cyclomedia, the Netherlands	<i>July 2014–August 2014</i>
<ul style="list-style-type: none">Designed a procedure for automated 3D building reconstruction (LoD2) based on the point cloud from panoramic images	

TEACHING EXPERIENCE

Teaching assistant, bachelor course, Geostatistics & Remote Sensing, TU Delft	<i>2016-2018</i>
<ul style="list-style-type: none">Assisted and supported 40 students using QGIS and programming to explore geostatistics from remote sensing data.	

Teaching assistant, master course, 3D surveying, TU Delft*February 2018 -May 2018*

- Designed and assessed a **camera calibration assignment** for 20 students
- Supervised a group projects to co-register LiDAR with multi-view images for road detection.

Supervision, bachelor thesis, TU Delft*May 2019 - June 2019*

- Supervised a bachelor project on fusion airborne LiDAR data and airborne images to detect the surface permeability

OTHER EXPERIENCE

Commissioner of Education, student association for GRS, TU Delft*2016-2017*

- Responsible for communication between the students and the teachers and organizing excursion to companies and research institutes

Awards

Best Poster Award

ISPRS TC-IV Symposium, 2018

Best Youth Oral Paper Award.

*ISPRS Geospatial Week, 2017***TECHNICAL SKILLS**

Language and environment : C++, Python, matlab , Opencv, Tensorflow

Courses

TU Delft master course: Pattern Recognition, Machine learning, Deep learning, Computer vision**Summer school:** the 6th Lisbon Machine Learning School in 2016**Journal Publications**

[1] **Zhou, K.**, Gorte, B., Smal, I., & Lindenbergh, R. E-LEAD-Matching— Integrating Airborne LiDAR Data and VHR Multi-view Images for Improving the Planimetric Accuracy of Building Extraction. IEEE Transactions on Geoscience and Remote Sensing, under review.

[2] **Zhou, K.**, Lindenbergh, R., Gorte, B., & Zlatanova, S. LiDAR-guided dense matching for detecting changes and updating of 3D buildings in LiDAR data. ISPRS Journal of Photogrammetry and Remote Sensing, in-press.

[3] **Zhou, K.**, Lindenbergh, R., & Gorte, B. (2019). Automatic Shadow Detection in Urban Very-High-Resolution Images Using Existing 3D Models for Free Training. Remote Sensing, 11(1), 72.

Conference Publications (selected)

[4] **Zhou, K.**, Chen, Y., Smal, I., Lindenbergh, R. (2019). Building segmentation from airborne vhr images using mask r-cnn. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, 42(2/W13).

[5] Chen, Y., Gao, W., Widyaningrum, E., Zheng, M., & **Zhou, K.** (2018). Building classification of VHR airborne stereo images using fully convolutional networks and free training samples. International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences, 42(4). (**Best Poster Award, corresponding author**)

[6] **Zhou, K.**, & Gorte, B. (2017). Shadow detection from VHR aerial images in urban area by using 3d city models and a decision fusion approach. International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences, 42. (**Best Youth Oral Paper Award.**)