Ying Li
200 University Avenue West, Waterloo, Ontario N2L 3G1
Phone: +1 5197291679
Email: y2424li@uwaterloo.ca

EDUCATION

Geography, University of Waterloo, Canada	**Ph.D.**	2021(expected)
Surveying and Mapping, Wuhan University, China	**M.E.**	2017
Surveying and Mapping, Hefei University of Technology, China	**B.E.**	2014

RESEARCH INTERESTS

My research interests focus on mobile laser scanning, point cloud processing, autonomous driving, geometric and semantic modelling, high-definition map, with application on the following topics:

- **Point cloud segmentation**: predict per-point semantic label for large scale point cloud data, including indoor and outdoor environments; study graph-based deep neural networks to hierarchically leverage geometric feature from point sets
- **Object detection from point cloud**: detect or locate the instances of predefined categories with the geometric location and their orientation for point clouds; learn geometric graph CNN to learn object-based features
- **Multi-sensor object localization and detection**: detect and localize road objects using fused LiDAR and camera data; learn the skill of 2D and 3D data fusion in different level; master and utilize the merits of different sensor data to locate and detect road objects accurately and effectively

PUBLICATIONS AND PAPERS

Journal Papers

[1] Ma, L., **Li, Y.**, Li, J., Wang, C., Wang, R. and Chapman, M.A. Mobile laser scanned point-clouds for road object detection and extraction: A review. Remote Sensing, 10(10), pp.1531, 2018. **(first co-author)**

[2] Ma, L., **Li, Y.**, Li, J., Zhong, Z. and Chapman, M.A. Generation of horizontally curved driving lines in HD maps using mobile laser scanning point clouds. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 12(5), pp.1572-1586, 2019.

Journal Papers under Review

[1] **Li, Y.**, Ma, L., Zhong, Z., Liu, F., Cao, D. and Li, J. Deep Learning for LiDAR Point Clouds in Autonomous Driving: A Review. Submitted to: IEEE Transactions on Neural Networks and Learning Systems, 2019.

[2] **Li, Y.**, Ma, L., Zhong, Z., Cao, D. and Li, J. TGNet: Geometric Graph CNN on 3D Point Cloud Segmentation. Submitted to: IEEE Transactions on Geoscience and Remote Sensing, minor revision, 2019.

Conference Papers

[1] **Li, Y.**, Ma, L., Huang, Y. and Li, J. Segment-Based Traffic Sign Detection from Mobile Laser Scanning Data. IEEE International Geoscience and Remote Sensing Symposium, pp. 4607-4610, 2018.

[2] **Li, Y.**, Fan, J., Huang, Y. and Chen, Z., 2016. LiDAR-incorporated Traffic Sign Detection from Video Log Images of Mobile Mapping System. International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences, pp:41, 2016.

[3] Wang, Y., **Li, Y.**, Zhang, L. and Huang, Y. Vehicle Detection from Very-High-Resolution (VHR) Aerial Imagery Using Attribute Belief Propagation (ABP), SPIE Remote Sensing, pp: 100080Y, 2016.

[4] Wang, Y., Wang, G., **Li, Y.** and Huang, Y. Vehicle Detection of Aerial Image Using TV-L1 Texture Decomposition. ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences, pp: 481-488, 2016.

RESEARCH EXPERIENCE

Title: Towards a software system for 3D modeling of the urban road environment using mobile laser scanning data

Main participator 2017-2018

Skills: Learn how to process point cloud data captured by mobile laser scanning system; use expert knowledge and geometric information to segment road and non-road data to extract road objects; master the coding skill to produce an effective software

➢ **Title**: Vehicle detection using remote sensing data Participator 2015-2017

Skills: Utilize probability theory and fuzzy mathematics to construct suited model; analysis different kinds of features and attributes of vehicles and roads

➢ **Title**: Traffic sign detection from video log images using Mobile Mapping System Participator 2016-2017

Skills: Get familiar with Mobile Mapping System and know how to deal with the data collected by different devices equipped on vehicles; combine the point cloud data and image together to enhance our method; apply machine learning methods to solve the detection and classification problem; develop automatic methods to predict the position of interest in video log images

RESEARCH EXPERIENCE

Peer-Review Service

- IEEE Transactions on Intelligent Transportation Systems
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Conference Presentation

- LiDAR-incorporated Traffic Sign Detection from Video Log Images of Mobile Mapping System. 2016 International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences, July 2017, Prague, Czech Republic.

AWARDS

- Academic Scholarship of Hefei University of Technology, First prize (2011), Third prize (2010, 2012)
- Merit Student of Hefei University of Technology 2010,2011
- Outstanding Graduates of Hefei University of Technology (2014)
- Graduate Academic Scholarships, First Prize, 2015,2016