

Yijie WU

PERSONAL INFORMATION

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EDUCATION

CURRENT JULY 2021	Ph.D. student of Construction Management Department of Real Estate and Construction The University of Hong Kong, HKU Supervisor: Dr. Fan (Frank) XUE, Prof. Anthony GO YEH (Co) Topic: A building skeleton theory for compact building reconstruction and 3D urban morphology abstraction from urban-scale reality capture data
JUNE 2019 SEPT. 2016	Master of Cartography and Geographic Information Engineering School of Geography and Information Engineering China University of Geosciences (Wuhan), CUG Supervisor: Prof. Jianga SHANG Thesis: Indoor mapping and modeling by parsing floor plans GPA: 91.2/100 (ranked 1/43) in the first academic years that 90% courses have been completed)
JUNE 2016 SEPT. 2012	Bachelor of GEOGRAPHIC INFORMATION SYSTEM <i>School of Geography</i> South China Normal University, SCNU Thesis: Web 3D Visualization of Campus Supervisor: Prof. Yuqin SHU GPA: 86.1/100 (85.5/100 ranked 1/46) in the first 3 academic years)

RESEARCH INTERESTS

- Building/City Information Modeling (BIM/CIM), digital twin buildings/cities
- Point cloud and mesh processing
- Building morphology
- Optimization and deep learning
- Raster and vector building drawing parsing

PUBLICATIONS

- **Yijie Wu**, Fan Xue*, Maosu Li, and Sou-Han Chen. A novel Building Section Skeleton for compact 3D reconstruction from point clouds: A study of high-density urban scenes. *ISPRS Journal of Photogrammetry and Remote Sensing* (Under review).
- **Yijie Wu**, Maosu Li and Fan Xue. Towards fully automatic Scan-to-BIM: A prototype method integrating deep neural networks and architectonic grammar. *Proceedings of the 2023 European Conference on Computing in Construction and the 40th International CIB W78 Conference* (2023). DOI: [10.35490/EC3.2023.257](https://doi.org/10.35490/EC3.2023.257).
- Fan Xue, Wenjin Zhang, Guangji Xu, Qianyun Zhou, and **Yijie Wu**. Surface or skeleton? Automatic hierarchical clustering of 3D point clouds of bronze frog drums for heritage digital twins. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences* (2023). DOI: [10.5194/isprs-annals-X-M-1-2023-293-2023](https://doi.org/10.5194/isprs-annals-X-M-1-2023-293-2023), 2023.
- Maosu Li, Fan Xue*, **Yijie Wu**, Anthony GO Yeh. A room with a view: Automatic assessment of window views for high-rise high-density areas using City Information Models and deep transfer learning. *Landscape and Urban Planning* (2022). DOI: [10.1016/j.landurbplan.2022.104505](https://doi.org/10.1016/j.landurbplan.2022.104505).
- Junjie Chen, Weisheng Lu*, Liang Yuan, **Yijie Wu**, Fan Xue. Estimating construction waste truck payload volume using monocular vision. *Resources, Conservation and Recycling* (2022). DOI: [10.1016/j.resconrec.2021.106013](https://doi.org/10.1016/j.resconrec.2021.106013).

- Jici Xing, Qian Luo, **Yijie Wu**, Jianga Shang*. Self-Optimization for Parsing Floor Plans. *Journal of Computing in Civil Engineering* (2022). DOI: [10.1061/\(ASCE\)CP:1943-5487.0001048](https://doi.org/10.1061/(ASCE)CP:1943-5487.0001048).
- **Yijie Wu**, Jianga Shang, and Fan Xue*. RegARD: Symmetry-Based Coarse Registration of Smartphone's Colorful Point Clouds with CAD Drawings for Low-Cost Digital Twin Buildings. *Remote Sensing* (2021). DOI: [10.3390/rs13101882](https://doi.org/10.3390/rs13101882).
- Jing Zhang, Maosu Li, Wenjing Zhang, **Yijie Wu**, and Fan Xue*. Prospect of Architectonic Grammar Reconstruction from Dense 3D Point Clouds: Historical Building Information Modeling (HBIM) of Guangdong Cultural Heritage. *Proceedings of the 25th International Symposium on Advancement of Construction Management and Real Estate (CRIOCM 2020)*. Merit Paper Award. In press. [PDF](#).
- **Yijie Wu**, Jianga Shang*, Pan Chen, Sisi Zlatanova, Xuke Hu, Zhiyong Zhou. Indoor mapping and modeling by parsing floor plan images. *International Journal of Geographical Information Science* (2020). DOI: [10.1080/13658816.2020.1781130](https://doi.org/10.1080/13658816.2020.1781130).
- Pengyuan Wang, Jianga Shang*, Zhiyong Zhou, **Yijie Wu**, and Weixin Sun. The automatic generation of an adaptive navigation model for indoor map matching. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* (2019). DOI: [10.5194/isprs-archives-XLII-2-W13-895-2019](https://doi.org/10.5194/isprs-archives-XLII-2-W13-895-2019).
- **Yijie Wu**, Jianga Shang*, Xuke Hu, and Zhiyong Zhou. Extended maptree: A representation of fine-grained topology and spatial hierarchy of BIM. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* (2017). DOI: [10.5194/isprs-archives-XLII-2-W7-409-2017](https://doi.org/10.5194/isprs-archives-XLII-2-W7-409-2017).

PATENTS

- Fan Xue, Anthony G.O. Yeh, **Yijie Wu**, and Zhe Chen. Indoor 3D barrier-free mapping based on LiDAR point cloud and BIM clash simulation. *Chinese Patent*. No.: 2019106575541. Public stage. *PCT patent*. No.: PCT/CN2022/084953.
- Fan Xue, Anthony G.O. Yeh, **Yijie Wu**, and Zhongze Yang. An analytics system for museum touring based on BIM and surveillance videos. *Chinese Patent*. No. 2019106575541. Public stage.
- Jianga Shang, **Yijie Wu**, and Pan Chen. A method of automatically indoor mapping and modeling based on floor plan images. *Chinese Patent*. No. 2019106575541. Public stage.
- Jianga Shang, **Yijie Wu**, and Pan Chen. A method of vectorizing the walls on floor plan images into rectangle instances. *Chinese Patent*. No. 201910656988X. Public stage.
- Jianga Shang and **Yijie Wu**. An optimization method of repairing the inconsistencies of indoor boundary elements. *Chinese Patent*. No. 2019106569733. Public stage.
- Jianga Shang and **Yijie Wu**. A method of identifying the shared edges of the adjacent rectangles on indoor maps. *Chinese Patent*. No. 201910656982.2.
- Jianga Shang and **Yijie Wu**. A method of detecting the long and thin walls on floor plan images. *Chinese Patent*. No. 201910657553.7.

WORK EXPERIENCE

JUNE 2021 SEPT. 2020	DEPT. OF REAL ESTATE AND CONSTRUCTION, THE UNIVERSITY OF HONG KONG Research assistant, supervised by Dr. Fan Xue Researching on automatic reconstruction of 3D digital twin buildings
JULY 2019 JAN 2020	SHENZHEN HAYLION TECHNOLOGY Junior product manager Designed and managed the delivery of "Mobility as a Service" products
AUG. 2015 JULY 2015	R & D CENTER, AUGUR INTELLIGENCE TECHNOLOGY Internship Programmed for a WebGIS-based smart municipal system

AWARDS

JULY 2023	First Prize of 3D Building Model Reconstruction track of Scan-to-BIM Challenge, awarded by 3 rd WORKSHOP OF COMPUTER VISION IN THE BUILT ENVIRONMENT AT IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION (CVPR) 2023
JULY 2023	Second Prize of Floorplan Reconstruction track of Scan-to-BIM Challenge, awarded by 3 rd WORKSHOP OF COMPUTER VISION IN THE BUILT ENVIRONMENT AT IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION (CVPR) 2023
JULY 2022	Third Prize of Floorplan Reconstruction track of Scan-to-BIM Challenge, awarded by 2 nd WORKSHOP OF COMPUTER VISION IN THE BUILT ENVIRONMENT AT IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION (CVPR) 2022
JULY 2022	Second Prize of 3D Building Model Reconstruction track of Scan-to-BIM Challenge, awarded by 2 nd WORKSHOP OF COMPUTER VISION IN THE BUILT ENVIRONMENT AT IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION (CVPR) 2022
APRIL 2022	Merit Award of Research , awarded by THE HONG KONG OPENBIM / OPENGIS AWARDS 2022
JULY 2021	Thrid Prize of Floorplan Reconstruction track of Scan-to-BIM Challenge, awarded by 1 st WORKSHOP OF COMPUTER VISION IN THE BUILT ENVIRONMENT AT IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION (CVPR) 2021
NOV. 2018	Second Prize of Scientific Paper Report 2018, awarded by CUG
SEPT. 2018	Second-class academic scholarship , awarded by CUG
SEPT. 2017	First-class academic scholarship , awarded by CUG
NOV. 2016	Silver Medal of China College Students' Entrepreneurship Competition
SEPT. 2016	First-class academic scholarship , awarded by CUG
DEC. 2015	Second Prize of Geographical science skill competition 2015, awarded by SCNU
DEC. 2014	First Prize of Geographical science skill competition 2014, awarded by SCNU
DEC. 2013	Merit student , awarded by SCNU

RELATED SKILLS AND ENGLISH LEVEL

Programming:	Python, C++, LINUX, \LaTeX
GIS Software:	QGIS, ArcGIS
Point cloud and mesh Software:	CloudCompare, MeshLab
TOEFL@JUNE 2020:	108 (R:29; L:29; S: 23; W: 27)
GRE@MAY. 2018:	325 (QUANTITATIVE:166; VERBAL:159) ; ANALYTICAL WRITING: 3.5