Han Hu

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EDUCATION

Ph.D. LIESMARS, Wuhan University, Wuhan, 2015.

B.Eng. School of Remote Sensing and Information Engineering, Wuhan University, 2010.

ACADEMIC APPOINTMENTS

2019– Yang Hua Young Distinguished Professor, Faculty of Geosciences and Engineering, Southwest Jiaotong University

2020–24 Associate Department Director, Faculty of Geosciences and Engineering, Southwest Jiaotong University

2015–19 Postdoctoral Fellow, Department of Land Surveying and Geo-Information, The Hong Kong Polytechnic University

2011–13 Research Assistant, Department of Land Surveying and Geo-Information, The Hong Kong Polytechnic University

RESEARCH AREAS

Oblique photogrammetry

3D Geographic Information Systems

MAJOR ACADEMIC CONTRIBUTIONS

Han Hu is a Yang Hua Young Distinguished Professor and Ph.D. supervisor at Southwest Jiaotong University. His research focuses on theories, methods, and key technologies for oblique photogrammetry and 3D Geographic Information Systems. He serves as Associate Editor of *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, International Editorial Board Member of *The Photogrammetric Record*, and Editorial Board Member of *Engineering of Surveying and Mapping*. He has received 13 domestic and international awards, including the State Science and Technology Progress Award of China, Second Class (2021, Rank 3), the ASPRS Talbert Abrams Award

(2016), and the Gold Medal of the Geneva International Exhibition of Inventions (2016). His research has directly supported major national engineering projects in China: (1) he independently developed the Link series of global DEM filtering software, filling a gap in intelligent DSM filtering for dense matching of satellite images; Link has been operationally deployed by all global DEM production units in China; (2) he independently developed OSketch, a fine 3D modeling software for oblique photogrammetry, which has been widely used in digital twin city construction in China; (3) he independently developed Planetary3D, a planetary mapping software package that supports high-resolution lunar and Martian stereo satellite images acquired worldwide and provided strong technical support for the landing-site selection of Chang'E-3 and Chang'E-4.

FUNDING

Research Grants

2026–28 Real-scene 3D and digital twins for rail transit, Innovation Research Group, Sichuan Natural Science Foundation, 2026NSFSCZY0054, Jan. 2026–Dec. 2028, CNY 500,000, PI

2026–29 Real-time photogrammetric theory and methods for emergency surveying of geological hazards in complex mountainous areas, **NSFC Regional Joint Key Program**, U25A20772, Jan. 2026–Dec. 2029, CNY 2,570,000, PI

2022–25 Development of portable color 3D scanning hardware and software for cultural heritage, **National Key R&D Program of China**, 2022YFF0904401, Nov. 2022–Oct. 2025, CNY 2,600,000, Task PI

2023–27 Intelligent updating of fine 3D city models through multi-source data fusion, **NSFC Key Program**, 42230102, Jan. 2023–Dec. 2027, CNY 2,740,000, Deputy Lead

2021–24 Extraction and updating of multi-element, multi-scale real-scene 3D change information in complex dynamic scenes, National Key R&D Program subproject, Dec. 2021–Nov. 2024, CNY 5,000,000, Subproject PI

2021–26 Matching fund for the National Overseas Young Talent Program, Southwest Jiaotong University, 2021–2026, CNY 2,000,000, PI

2021–24 Binary integer programming for structured reconstruction of buildings in complex environments, National Natural Science Foundation of China, Jan. 2021–Dec. 2024, CNY 560,000, PI

2021–23 InSAR terrain filtering for cloudy and rainy regions in Southwest China, Basic Research Incubation Program, Southwest Jiaotong University, 2021–2023, CNY 150,000, PI

2021–22 Intelligent point-cloud filtering for rapid reconstruction of high-precision coastal terrain overseas, Open Innovative Fund of Marine Environment Guarantee, HHB002, Jan. 2021–Dec. 2022, CNY 100,000, PI

2019–22 Multi-source emergency surveying and mapping technology based on millimeter-wave InSAR, National Key R&D Program subproject, 2018YF-C0825803, Jan. 2019–Dec. 2022, CNY 550,000, PI

2019–21 Start-up research fund, Southwest Jiaotong University, CNY 300,000, PI

2017–19 Neighborhood-information-supervised metric learning for efficient matching of oblique

images, National Natural Science Foundation of China Young Scientists Fund, 61602392, Jan. 2017–Dec. 2019, CNY 210,000, PI

2016–18 Multi-level-of-detail 3D building reconstruction from oblique images, Key Laboratory of Urban Land Resources Monitoring and Simulation, Ministry of Land and Resources, KF-2016-02-022, Jul. 2016–Dec. 2017, CNY 200,000, PI

2017–21 Theory and methods of oblique photogrammetry for refined building modeling, NSFC Key Program, 41631174, Jan. 2017–Dec. 2021, CNY 3,000,000, Deputy Lead

Talent Programs

2026– **Chinese Distinguished Professor**

2021–24 **National Young Talent Program**, CNY 2,000,000

2022–24 Rongpiao Program, Chengdu, CNY 600,000

2020–22 Sichuan Young Thousand Talents Program, CNY 500,000

2020–22 Chuying Scholars Program, Southwest Jiaotong University, CNY 300,000

Research and Development Contracts

2025 Research and system development for intelligent perception, warning, and decision support for railway line foreign-object intrusion, CHN Energy Xinshuo Railway Co., Ltd., CNY 2,486,000

2025 Development of a sleeper-level data map system, CHN Energy Shuohuang Railway Development Co., Ltd., CNY 657,000

2025 Low-altitude UAV emergency survey and intelligent analysis technology for highway rescue scenarios, Sichuan Highway Research Institute, CNY 350,000

2024 Ground real-scene 3D reconstruction and 3D model quality assessment technology, China Academy of Space Technology, CNY 200,000

2024 XX 3D reconstruction technology research, XX Academy, CNY 396,500

2024 Data processing service for tunnel face and support recognition data models, China Academy of Railway Sciences, CNY 298,000

2024 Subgrade adaptability for 450 km/h high-speed railway speed-up, China Academy of Railway Sciences, CNY 250,000

2024 XX data processing research project, Shaanxi Tianrun, CNY 2,000,000

2023 XX filtering system, GEOVIS, CNY 1,120,000

2022 XX pre-research filtering system, GEOVIS, CNY 300,000

2021 Automatic DSM filtering, Land Satellite Remote Sensing Application Center, Ministry of Natural Resources, CNY 300,000

2020 Airborne millimeter-wave InSAR DSM filtering, Beijing Institute of Radio Measurement, CNY 100,000

2020 InSAR DSM filtering and editing system, National Geomatics Center of China, CNY 495,000

AWARDS

2024 2023 Best Paper Award, *Precision Terrain Modeling Approach in Complex Mountainous Areas Based on Compact UAV Ka-InSAR Data*, IEEE J-MASS, Rank 5

2024 Key technologies and applications of 3D intelligent survey for railways and highways in difficult mountainous areas, Natural Resources Science and Technology Progress Award, Second Class, Rank 1 [Web]

2024 Esri Award for Best Scientific Paper in GIS, Rank 3

2023 8th China Innovation Challenge (Xi'an), Hard-Tech Development Special Competition, Excellence Award (First Place), Rank 1

2022 Teaching Achievement Award for surveying and mapping innovation training, University GIS Forum, Rank 1

2021 Surveying and Mapping Science and Technology Award of China, Second Class, Rank 1 [Web]

2021 ASPRS Esri Award for Best Scientific Paper, Rank 3 [Web]

2021 National Railway Youth Innovation Award, China Railway Society

2021 **State Science and Technology Progress Award of China, Second Class, State Council, Rank 3** [Web]

2020 Science and Technology Award of Chongqing, Second Class, Rank 3 [Web]

2019 Geographic Information Science and Technology Progress Award of China, First Class, Rank 3 [Web]

2019 National Land Resources Science and Technology Award of China, Second Class, Rank 2 [Web]

2019 Surveying and Mapping Science and Technology Progress Award of China, Second Class, Rank 3 [Web]

2018 Geographic Information Science and Technology Progress Award of China, First Class, Rank 2 [Web]

2018 Emerging Star Award of GIS, University GIS Forum

2016 Geneva International Exhibition of Inventions, Gold Medal

2016 Geneva International Exhibition of Inventions, Special Merit Award

2016 ASPRS Talbert Abrams Award, Second Honorable Mention [Web]

2014 ASPRS John I. Davidson President Award, Third Place [Web]

PUBLICATIONS

First/Corresponding-Author SCI Journal Articles

J1 Gu, P., Jiang, Y., Lin, G., **Hu, H.***, Jia, Y., Xiang, B., Liu, F., Chen, L., Ding, Y., Zhu, Q., 2026. Detect-Cluster-Reconstruct: Three-Act On-Board UAV Landslide 3D Modeling with Multi-Constraint Clustering. *IEEE Journal on Miniaturization for Air and Space Systems.*

J2 **Hu, H.**, Li, C., Xu, B.*, Chen, M., Zhu, Q., Han, Z., Ning, X., Fu, X., 2025. Joint Detection and Parameters Regression of Detailed Windows based on Facade Textures via an Adaptive Soft Teacher. *Photogrammetric Engineering & Remote Sensing*, 91(12), 763–775.

J3 **Hu, H.**, Jiang, Y., Dai, Z., Hao, R., Fan, W., Zhang, L., Ge, X., Xu, B.*, Zhu, Q., 2025. Online calibration of LiDAR-camera extrinsic parameters of tunnel mapping system with depth-constrained vibration compensation. *International Journal of Applied Earth Observation and Geoinformation* 139, 104556.

J4 Ge, X., Wu, C., Chen, M., Xu, B., Zhu, Q., **Hu, H.***, 2025. Texture-Semantic Point: Registration for Point Clouds of Porcelain Relics. *Photogrammetric Engineering & Remote Sensing* 91(6), 347–360.

J5 Wang, L., **Hu, H.***, Yu, H., Zhu, Q., 2025. SemanticMesh: parameterized fusion of semantic components for photogrammetric meshes. *Geo-spatial Information Science*, 8(4), 1668–1683.

J6 Wang, L., **Hu, H.***, Shang, Q., Zeng, H., Zhu, Q., 2024. StructuredMesh: 3-D Structured Optimization of Facade Components on Photogrammetric Mesh Models Using Binary Integer Programming. *IEEE Transactions on Geoscience and Remote Sensing* 62, 1–12.

J7 Huang, S., **Hu, H.***, Zhu, Q., 2024. I2-FacadeNet: An Illumination-invariant Facade Recognition Network Leveraging Sparsely Gated Mixture of Multi-color Space Experts for Aerial Oblique Imagery. *Photogrammetric Engineering & Remote Sensing* 90(1), 21–31.

J8 Shang, Q., **Hu, H.***, Yu, H., Xu, B., Wang, L., Zhu, Q., 2024. Semantic Image Translation for Repairing the Texture Defects of Building Models. *IEEE Transactions on Geoscience and Remote Sensing* 62, 1–20.

J9 Yu, H., **Hu, H.***, Xu, B., Shang, Q., Wang, Z., Zhu, Q., 2023. SuperpixelGraph: Semi-automatic generation of building footprint through semantic-sensitive superpixel and neural graph networks. *International Journal of Applied Earth Observation and Geoinformation* 125, 103556.

J10 Cheng, L., Hao, R., Cheng, Z., Li, T., Wang, T., Lu, W., Ding, Y., **Hu, H.***, 2023. Modeling the global relationship via the point cloud transformer for the terrain filtering of airborne LiDAR data. *Remote Sensing* 15(23), 5453.

J11 Liao, C., **Hu, H.***, Yuan, X., Li, H., Liu, C., Liu, C., Fu, G., Ding, Y., Zhu, Q., 2023. BCE-Net: Reliable Building Footprints Change Extraction based on Historical Map and Up-To-Date Images using Contrastive Learning. *ISPRS Journal of Photogrammetry and Remote Sensing* 201, 138–152.

J12 Si, S., **Hu, H.***, Ding, Y., Yuan, X., Jiang, Y., Jin, Y., Ge, X., Zhang, Y., Chen, J., Guo, X., 2023. Multiscale Feature Fusion for the Multistage Denoising of Airborne Single Photon LiDAR. *Remote Sensing* 15, 269.

J13 Jiang, Y., **Hu, H.***, Si, S., Zhang, Y., Chen, J., Guo, X., Ding, Y., Zhong, R., Zhu, Q., 2023. A flexible calibration method with multi-stage optimization for the axial error of mobile mapping systems. *International Journal of Applied Earth Observation and Geoinformation* 118, 103240.

J14 **Hu, H.***, Su, L., Mao, S., Chen, M., Pan, G., Xu, B., Zhu, Q., 2023. Adaptive region aggregation for multi-view stereo matching using deformable convolutional networks. *The Photogrammetric Record* 38, 430–449.

J15 **Hu, H.***, Hou, Y., Ding, Y., Pan, G., Chen, M., Ge, X., 2023. V2PNet: Voxel-to-Point Feature Propagation and Fusion that Improves Feature Representation for Point Cloud Registration. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* 16, 5077–5088.

J16 **Hu, H.**, Liang, X., Ding, Y.*, Yuan, X., Shang, Q., Xu, B., Ge, X., Chen, M., Zhong, R., Zhu, Q., 2022. Semi-supervised adversarial recognition of refined window structures for inverse procedural facade modelling. *ISPRS Journal of Photogrammetry and Remote Sensing* 192, 215–231.

J17 **Hu, H.**, Feng, B., Xu, B.*, Zhu, Q., Ge, X., Chen, M., 2022. Efficient Procedural Modelling of Building Facades Based on Windows from Sketches. *The Photogrammetric Record* 37, 333–353.

J18 Zhu, Q., Shang, Q., **Hu, H.***, Yu, H., Zhong, R., 2021. Structure-aware completion of photogrammetric meshes in urban road environment. *ISPRS Journal of Photogrammetry and Remote Sensing* 175, 56–70.

J19 Liao, C., **Hu, H.***, Li, H., Ge, X., Chen, M., Li, C., Zhu, Q., 2021. Joint learning of contour and structure for boundary-preserved building extraction. *Remote Sensing* 13, 1–19.

J20 Zhu, Q., Huang, S., **Hu, H.***, Li, H., Chen, M., Zhong, R., 2021. Depth-enhanced feature pyramid network for occlusion-aware verification of buildings from oblique images. *ISPRS Journal of Photogrammetry and Remote Sensing* 174, 105–116.

J21 Wang, F., **Hu, H.***, Ge, X., Xu, B., Zhong, R., Ding, Y., Xie, X., Zhu, Q.*, 2021. Multientity Registration of Point Clouds for Dynamic Objects on Complex Floating Platform Using Object Silhouettes. *IEEE Transactions on Geoscience and Remote Sensing*, 59(1), 769–783.

J22 Zhu, Q., Wang, Z., **Hu, H.***, Xie, L., Ge, X., Zhang, Y., 2020. Leveraging photogrammetric mesh models for aerial-ground feature point matching toward integrated 3D reconstruction. *ISPRS Journal of Photogrammetry and Remote Sensing* 166, 26–40.

J23 Zhu, Q., Chen, L.*, **Hu, H.***, Pirasteh, S., Li, H., Xie, X., 2020. Unsupervised feature learning to improve transferability of landslide susceptibility representations. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 13, 3917–3930.

J24 Zhu, Q., Zhang, M., **Hu, H.***, Wang, F., 2020. Interactive correction of a distorted street-view panorama for efficient 3-D facade modeling. *IEEE Geoscience and Remote Sensing Letters*, 17(12), 2125–2129.

J25 Ge, X., **Hu, H.***, 2020. Object-based incremental registration of terrestrial point clouds in an urban environment. *ISPRS Journal of Photogrammetry and Remote Sensing* 161, 218–232.

J26 Ge, X., **Hu, H.***, Wu, B., 2019. Image-Guided Registration of Unordered Terrestrial Laser Scanning Point Clouds for Urban Scenes. *IEEE Transactions on Geoscience and Remote Sensing* 57(11), 9264–9276.

J27 **Hu, H.**, Wu, B.*, Chen, L., 2019. Color balancing and geometrical registration of high-resolution planetary imagery for improved orthographic image mosaicking. *Planetary and Space Science* 178.

J28 **Hu, H.**, Wu, B.*, 2018. Block adjustment and coupled epipolar rectification of LROC NAC images for precision lunar topographic mapping. *Planetary and Space Science* 160, 26–38.

J29 Zhu, Q., Wang, F.*, **Hu, H.***, Ding, Y., Xie, J., Wang, W., Zhong, R., 2018. Intact Planar Abstraction of Buildings via Global Normal Refinement from Noisy Oblique Photogrammetric Point Clouds. *ISPRS International Journal of Geo-Information* 7(11), 431–452.

J30 Xie, L., Zhu, Q.*, **Hu, H.***, Wu, B., Li, Y., Zhang, Y., Zhong, R., 2018. Hierarchical Regularization of Building Boundaries in Noisy Aerial Laser Scanning and Photogrammetric Point Clouds. *Remote Sensing* 10(12), 1996.

J31 Zhu, Q., Li, Y., **Hu, H.***, Wu, B., 2017. Robust point cloud classification based on multi-level semantic relationships for urban scenes. *ISPRS Journal of Photogrammetry and Remote Sensing* 129, 86–102.

J32 **Hu, H.**, Wu, B.*, 2017. Bound-Constrained Multiple-Image Least-Squares Matching for Multiple-Resolution Images. *Photogrammetric Engineering and Remote Sensing* 83(10), 667–677.

J33 Xie, L., **Hu, H.***, Wang, J., Zhu, Q., Chen, M., 2016. An asymmetric re-weighting method for the combined bundle adjustment of aerial oblique images. *ISPRS Journal of Photogrammetry and Remote Sensing* 117, 92–107.

J34 **Hu, H.**, Ding, Y.*, Zhu, Q., Wu, B., Xie, L., Chen, M., 2016. Stable least-squares matching for oblique images using bound constrained optimization and a robust loss function. *ISPRS Journal of Photogrammetry and Remote Sensing* 118, 53–67.

J35 **Hu, H.***, Zhu, Q., Du, Z., Zhang, Y., Ding, Y., 2015. Reliable spatial relationship constrained feature point matching of oblique aerial images. *Photogrammetric Engineering and Remote Sensing* 81(1), 49–58.

J36 **Hu, H.**, Ding, Y.*, Zhu, Q., Wu, B., Lin, H., Du, Z., Zhang, Y., Zhang, Y., 2014. An adaptive surface filter for airborne laser scanning point clouds by means of regularization and bending energy. *ISPRS Journal of Photogrammetry and Remote Sensing* 92, 98–111.

J37 Wu, B., **Hu, H.***, Guo, J., 2014. Integration of Chang'E-2 imagery and LRO laser altimeter data with a combined block adjustment for precision lunar topographic modeling. *Earth and Planetary Science Letters* 391, 1–15.

J1 Ma, R., Zhu, Q., Ge, X., Jia, X., **Hu, H.**, Liu, T., 2024. Precision Inverse Modeling of Highway Pavements Based on Standardized Alignment. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.

J2 Chen, M., Li, W., Fang, T., Zhu, Q., Xu, B., **Hu, H.**, Ge, X., 2023. An adaptive feature region-based line segment matching method for viewpoint-changed images with discontinuous parallax and poor textures. *International Journal of Applied Earth Observation and Geoinformation* 117, 103209.

J3 Fang, T., Chen, M., **Hu, H.**, Li, W., Ge, X., Zhu, Q., Xu, B., 2023. 3D Line Segment Reconstruction with Depth Maps for Photogrammetric Mesh Refinement in Man-Made Environments. *IEEE Transactions on Geoscience and Remote Sensing* 1–1.

J4 Zhang, D., Xu, B., **Hu, H.**, Zhu, Q., Wang, Q., Ge, X., Chen, M., Zhou, Y., 2023. Spherical Hough Transform for Robust Line Detection Toward a 2D–3D Integrated Mobile Mapping System. *Photogrammetric Engineering & Remote Sensing* 89, 311–320.

J5 Zhang, L., Zeng, H., Ding, Y., **Hu, H.**, Chen, L., Zhang, J., Zhou, Y., 2023. Geo-environment-aware adversarial transfer learning method for landslide susceptibility evaluation of complex mountainous areas. *Transactions in GIS*.

J6 Ge, X., Fang, Y., Zhu, Q., Wu, B., Xu, B., **Hu, H.**, Chen, M., 2022. Semantic maps for cross-view relocalization of terrestrial to UAV point clouds. *International Journal of Applied Earth Observation and Geoinformation* 114.

J7 Zeng, H., Zhu, Q., Ding, Y., **Hu, H.**, Chen, L., Xie, X., Chen, M., Yao, Y., 2022. Graph neural networks with constraints of environmental consistency for landslide susceptibility evaluation. *International Journal of Geographical Information Science*.

J8 Li, S., Liao, C., Ding, Y., **Hu, H.**, Jia, Y., Chen, M., Xu, B., Ge, X., Liu, T., Wu, D., 2022. Cascaded Residual Attention Enhanced Road Extraction from Remote Sensing Images. *ISPRS International Journal of Geo-Information* 11, 9.

J9 Chen, L., Ding, Y., Pirasteh, S., **Hu, H.**, Zhu, Q., Ge, X., Zeng, H., Yu, H., Shang, Q., Song, Y., 2022. Meta-learning an intermediate representation for few-shot prediction of landslide susceptibility in large areas. *International Journal of Applied Earth Observation and Geoinformation* 110, 102807.

J10 Xu, B., **Hu, H.**, Zhu, Q.*, Ge, X., Jin, Y., Yu, H., Zhong, R., 2021. Efficient interactions for reconstructing complex buildings via joint photometric and geometric saliency segmentation. *ISPRS Journal of Photogrammetry and Remote Sensing* 175, 416–430.

J11 Xie, L., **Hu, H.**, Zhu, Q., Li, X., Tang, S., Li, Y., Guo, R., Zhang, Y., Wang, W.*, 2021. Combined Rule-Based and Hypothesis-Based Method for Building Model Reconstruction from Photogrammetric Point Clouds. *Remote Sensing* 13(6).

J12 Li, S.[†], Ge, X.[†], **Hu, H.**, Zhu, Q.*, 2021. Laplacian fusion approach of multi-source point clouds for detail enhancement. *ISPRS Journal of Photogrammetry and Remote Sensing* 171, 385–396.

J13 Wu, B.*, Li, F., **Hu, H.**, Zhao, Y., Wang, Y., Xiao, P., Li, Y., Liu, W.C., Chen, L., Ge, X., 2020. Topographic and Geomorphological Mapping and Analysis of the Chang'E-4 Landing Site on the Far Side of the Moon. *Photogrammetric Engineering & Remote Sensing* 86(4), 247–258.

J14 Ge, X., Wu, B.*, Li, Y., **Hu, H.**, 2019. A Multi-Primitive-Based Hierarchical Optimal Approach for Semantic Labeling of ALS Point Clouds. *Remote Sensing* 11(10), 1243.

J15 Wu, B.*, Wang, Y., Lin, T.J., **Hu, H.**, Werner, S.C., 2019. Impact cratering in and around the Orientale Basin: Results from recent high-resolution remote sensing datasets. *Icarus* 333, 343–355.

J16 Wu, B.*, Zeng, H., **Hu, H.**, 2018. Illumination invariant feature point matching for high-resolution planetary remote sensing images. *Planetary and Space Science* 152, 45–54.

J17 Wu, B.*, Xie, L., **Hu, H.**, Zhu, Q., Yau, E., 2018. Integration of aerial oblique imagery and terrestrial imagery for optimized 3D modeling in urban areas. *ISPRS Journal of Photogrammetry and Remote Sensing* 139, 119–132.

J18 Tang, S., Chen, W., Wang, W., Li, X., Darwish, W., Li, W., Huang, Z., **Hu, H.**, Guo, R.*, 2018. Geometric Integration of Hybrid Correspondences for RGB-D Unidirectional Tracking. *Sensors* 18(5).

J19 Chen, L., Zhu, Q.*, Xie, X.*, **Hu, H.**, Zeng, H., 2018. Road Extraction from VHR Remote-Sensing Imagery via Object Segmentation Constrained by Gabor Features. *ISPRS International Journal of Geo-Information* 7(9), 362.

J20 He, M., Zhu, Q., Du, Z.*, **Hu, H.**, Ding, Y., Chen, M., 2016. A 3D Shape Descriptor Based on Contour Clusters for Damaged Roof Detection Using Airborne LiDAR Point Clouds. *Remote Sensing* 8(3), 189.

J21 Tang, S., Zhu, Q.*, Chen, W., Darwish, W., Wu, B., **Hu, H.**, Chen, M., 2016. Enhanced RGB-D Mapping Method for Detailed 3D Indoor and Outdoor Modeling. *Sensors* 16(10), 1589.

J22 Wu, B.*, Tang, S., Zhu, Q., Tong, K., **Hu, H.**, Li, G., 2015. Geometric integration of high-resolution satellite imagery and airborne LiDAR data for improved geopositioning accuracy in metropolitan areas. *ISPRS Journal of Photogrammetry and Remote Sensing* 109, 139–151.

J23 Wu, B.*, Guo, J., Hu, H., Li, Z., Chen, Y., 2013. Co-registration of lunar topographic models derived from Chang'E-1, SELENE, and LRO laser altimeter data based on a novel surface matching method. *Earth and Planetary Science Letters* 364, 68–84.

J24 Wu, B.*, **Hu, H.**, Zhu, Q., Zhang, Y., 2013. A flexible method for zoom lens calibration and modeling using a planar checkerboard. *Photogrammetric Engineering and Remote Sensing* 79(6), 555–571.

J25 Li, X., Xu, W., Zhu, Q., Hu, J., **Hu, H.**, Zhang, Y., 2012. A Multi-Level Cache Approach for Realtime Visualization of Massive 3D GIS Data. *International Journal of 3-D Information Modeling* 1(3), 37–48.

Conference Proceedings

C1 **Hu, H.***, Wang, L., Zhang, M., Ding, Y., Zhu, Q., 2020. Fast and regularized reconstruction of building facades from street-view images using binary integer programming. *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences* V-2-2020, 365–371.

C2 **Hu, H.**, Wu, B.*, 2019. Planetary3D: A photogrammetric tool for 3D topographic mapping of planetary bodies. *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences* IV-2/W5, 519–526.

C3 **Hu, H.**, Wu, B.*, 2017. Precision 3D surface reconstruction from LRO NAC images using semi-global matching with coupled epipolar rectification. *International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences* 42.

C4 **Hu, H.***, Chen, C., Wu, B., Yang, X., Zhu, Q., Ding, Y., 2016. Texture-Aware Dense Image Matching using Ternary Census Transform. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences* III-3, 59–66.

C5 Gerke, M., Nex, F., Remondino, F., Jacobsen, K., Kremer, J., Karel, W., **Hu, H.**, Ostrowski, W., 2016. Orientation of Oblique Airborne Image Sets: Experiences from the ISPRS EuroSDR Benchmark on Multi-Platform Photogrammetry. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* XLI-B1, 185–191.

C6 Xie, L.*, **Hu, H.**, Zhu, Q., Wu, B., Zhang, Y., 2017. Hierarchical Regularization of Polygons for Photogrammetric Point Clouds of Oblique Images. *International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences* XLII(1-W1), 35–40.

C7 Chen, M., Zhu, Q., Huang, S., **Hu, H.**, Wang, J., 2016. Robust Low-Altitude Image Matching Based on Local Region Constraint and Feature Similarity Confidence. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences* III-3, 19–26.

C8 Tang, S., Zhu, Q., Chen, W., Darwish, W., Wu, B., **Hu, H.**, Chen, M., 2016. Enhanced RGB-D Mapping Method for Detailed 3D Modeling of Large Indoor Environments. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences* III-1, 151–158.

Book Chapters

B1 Wu, B., **Hu, H.**, Liu, W.C., 2018. Photogrammetric processing of LROC NAC images for precision lunar topographic mapping. In *Planetary Remote Sensing and Mapping*. CRC Press, pp. 143–166.

B2 Wu, B., Guo, J., **Hu, H.**, 2014. Integration and Coregistration of Multisource Lunar Topographic Data Sets for Synergistic Use. In: Jin, S. (Ed.), *Planetary Geodesy and Remote Sensing*. Taylor & Francis Group/CRC Press, Boca Raton, FL, USA, pp. 99–120.

Chinese Journal Articles

J1 **Hu, H.**, Guo, X., Xiong, L., Ge, X.*, Zeng, H., Zhu, Q., 2025. A geometric-image differentiable rendering method for close-range photogrammetric reconstruction of non-Lambertian materials. *Acta Geodaetica et Cartographica Sinica* 54, 736–748.

J2 **Hu, H.***, Ding, Y., Zhu, Q., Jiang, J., Wen, X., Zhang, L., Tang, W., Yang, J., Zhong, R., 2019. Intelligent point-cloud filtering and Poisson DEM editing for global DEM production. *Acta Geodaetica et Cartographica Sinica*.

J3 Zhu, Q., Chen, C., **Hu, H.***, Ding, Y., 2017. An adaptive dense matching method for airborne images using texture information. *Acta Geodaetica et Cartographica Sinica* 46, 62–72.

J4 Wang, L., **Hu, H.***, Zhu, Q., 2020. A semantic enhancement method for photorealistic mesh models based on local surface parameterization. *Acta Geodaetica et Cartographica Sinica* 49, 225–234.

J5 Zhu, Q., Shang, Q., **Hu, H.***, Yu, H., Zhong, R., Ding, Y., 2021. Feature line extraction from 3D mesh models based on multi-objective weighted shortest paths. *Journal of Southwest Jiaotong University* 56, 116–122.

J6 Zhu, Q., Zhang, L., **Hu, H.***, Weng, Q., Ding, Y., Li, Y., Zhang, Y., 2021. Two-dimensional packing for optimizing fragmented textures of fine building models. *Journal of Southwest Jiaotong University* 56, 306–313.

J7 Zhu, Q., Li, S., **Hu, H.***, Zhong, R., Wu, B., Xie, L., 2018. Review of multi-point-cloud data fusion methods for 3D city modeling. *Geomatics and Information Science of Wuhan University* 43, 1962–1971.

J8 Zhu, Q., Weng, Q., **Hu, H.***, Wang, F., Wang, W., Yang, W., Zhang, P., 2019. Frame-buffer-based precise texture mapping from multi-angle images. *Journal of Southwest Jiaotong University* 54, 269–277.

J9 Li, Y., **Hu, H.***, Xie, J., Zhu, Q., Zhang, Y., Du, Z., Peng, M., Gao, S., 2016. Texture mapping for 3D models with local surface consistency constraints. *Geomatics and Information Science of Wuhan University* 41, 1599–1604.

J10 **Hu, H.***, 2016. A supervised metric learning approach for efficient multi-view oblique image matching using neighborhood information. *Acta Geodaetica et Cartographica Sinica* I0001–I0001.

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J13 Zhu, Q., Zhang, L., Ding, Y., **Hu, H.**, Ge, X., Liu, M., Wang, W., 2022. From real-scene 3D modeling to digital twin modeling. *Acta Geodaetica et Cartographica Sinica* 51(6), 1040–1049.

J14 Zhu, Q., Wang, D., Wang, F., Xie, X., **Hu, H.**, Huang, S., 2020. Automatic volume calculation system for sand and gravel carried by ships based on LiDAR point clouds. *Journal of Southwest Jiaotong University* 55, 1199–1206.

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J16 Wang, J., Zhu, Q., Zhang, Y., **Hu, H.**, 2015. Phase-grouping line extraction algorithm using overlapped partitions. *Acta Geodaetica et Cartographica Sinica* 44, 768.

J17 Xiao, X., Guo, B., Li, D., Zhao, X., Jiang, W., **Hu, H.**, Zhang, C., 2015. A fast affine-invariant matching method for oblique images. *Acta Geodaetica et Cartographica Sinica* 44, 414–421.

J18 Zhao, X., Zhu, Q., Xiao, X., Li, D., Guo, B., Zhang, P., **Hu, H.**, Ding, Y., 2015. Automatic matching of aerial oblique images based on homographic transformation. *Journal of Computer Applications* 35, 1720–1725.

J19 Chen, K., **Hu, H.**, Ding, Y., Li, X., Bian, Y., 2019. Object-based 3D building change detection using contour features. *Geomatics World* 17.

J20 Huang, M., Du, Z., Zhu, Q., Zhang, Y., **Hu, H.**, 2014. 3D building roof and facade extraction using pixel height maps. *Geomatics and Information Science of Wuhan University* 39, 1221–1224.

Patents

P1 Ding, Y., **Hu, H.**, Wu, T., Zhu, Q., Wang, W., Lu, W., Chen, J., Xie, Y., Guo, X., Bao, L., Hao, R., Wang, J., 2026a. Primitive-library-driven method, system, and apparatus for reverse modeling of bridge BIM. CN115859422B.

P2 Ding, Y., **Hu, H.**, Chen, L., Ma, Y., Zhu, Q., 2026b. Deep-learning-based lightweight sensing system, equipment, and platform for slope hazards. CN116385906B.

P3 Xiang, B., Jia, Y., **Hu, H.**, Luo, W., Wang, Z., Yuan, Q., Liu, D., Liu, Z., Ye, P., 2026. Landslide modeling method and system based on UAV imagery and multimodal feature fusion. CN121280657B.

P4 Liao, C., **Hu, H.**, Ding, Y., Zhu, Q., 2025. Efficient retrieval and assisted identification method and system for a remote-sensing monitoring knowledge base of non-agricultural land conversion. CN117076697B.

P5 Xu, B., **Hu, H.**, Zhu, Q., 2022. Rapid 3D building reconstruction method based on 2D vector maps and sparse elevation points. CN110517353B.

P6 Zhu, Q., Zhang, L., **Hu, H.**, Ding, Y., 2023. Texture merging method and related apparatus for 3D model data. CN110782516B.

P7 **Hu, H.**, Ding, Y., 2022. Semantic processing method, system, device, and computer medium for 3D maps. CN110675323B.

P8 **Hu, H.**, Ding, Y., Zhu, Q., Qi, H., 2018. Adaptive point-cloud filtering method for complex terrain structures. CN105118090B.

P9 **Hu, H.**, Jiang, Y., Ding, Y., 2025. Control-free self-calibration method, apparatus, and medium for a mobile mapping system using forward and reverse survey runs. CN116203544B.

P10 **Hu, H.**, Zhu, Q., Ding, Y., Wang, Z., 2024. Model acquisition method, apparatus, device, and storage medium based on aerial-ground imagery. CN112002007B.

P11 Jia, Y., Xiang, B., **Hu, H.**, Wang, Z., Luo, W., Ye, P., Liu, Z., Yuan, Q., Du, Z., 2026. UAV landslide imagery clustering method and apparatus for emergency monitoring. CN121280756B.

P12 Jia, X., Zhu, Q., Ma, R., Ge, X., **Hu, H.**, 2024. High-precision guardrail deformation detection method, apparatus, device, medium, and product. CN118129633B.

P13 Ma, R., Zhu, Q., Jia, X., Ge, X., **Hu, H.**, 2024. Highway reverse modeling method, apparatus, device, medium, and product. CN118135123B.

P14 Ma, R., Zhu, Q., Jia, X., Ge, X., **Hu, H.**, Liu, T., 2025. Highway road marking extraction method, apparatus, device, medium, and product. CN118658065B.

ACADEMIC TALKS

Invited Talks

2026 "Automatic terrain-unit partitioning and directional DSM filtering/editing from multi-source data", 2nd Academic Symposium on Radar Interferometry, Invited Session Talk, May 15–17, Chengdu, China

2026 "Realistic optical material reconstruction for complex non-Lambertian cultural relics", Boya Forum, Yunnan Normal University, Apr. 10, Kunming, China

2025 "Oblique photogrammetry and real-scene 3D", Annual Conference of Photogrammetry and Remote Sensing, CSGPC, Plenary Talk, Jul. 28–30, Kunming, China

2025 "Realistic 3D modeling via geometric-image differentiable rendering", Wuhan Remote Sensing Week, Real-Scene 3D Modeling Session, Oct. 17–19, Wuhan, China

2025 "Realistic reconstruction of oblique photogrammetric geometric images via differentiable rendering", 9th National LiDAR Conference, Real-Scene 3D Session, Sept. 26–28, Wuhan, China

2024 "Key technologies and applications of multi-level real-scene 3D modeling", Sichuan GIS Society Annual Meeting, Dec. 18, Chengdu, China

2024 "Key technologies and applications of spaceborne 3D modeling", Master Lecture, School of Surveying and Mapping, Lanzhou Jiaotong University, Nov. 21, Lanzhou, China

2023 "Efficient DEM acquisition at broad scales", First National Information Geography Conference, Geomorphological Remote Sensing Session, Nov. 17–19, Suzhou, China

2023 "Efficient DEM acquisition at broad scales", 6th National Symposium on Land Subsidence Prevention and Control, Nov. 8–10, Beijing, China

2023 "Generative LOD Building Modeling", 2nd International Workshop on Advanced Remote Sensing, Oct. 13–15, Wuhan, China

2023 "Efficient refined real-scene 3D model reconstruction in complex environments", Annual Meeting of the Cartography and GIS Committee, Sichuan Society for Surveying, Mapping and Geoinformation, Sept. 7, Dujiangyan, China

2023 Fifth Remote Sensing Application Conference, Chengdu University of Technology, May 6–8, Chengdu, China

2023 Science and Technology Week, Sixth Topographic Surveying Team, Ministry of Natural Resources and Sichuan Bureau of Surveying, Mapping and Geoinformation, Apr. 28, Chengdu, China

2023 Chongqing Aerospace Information Industry Development Forum, Natural Resources Applications Session, Invited Talk, Apr. 8, Chongqing, China

2023 "Efficient refined real-scene 3D model reconstruction in complex environments", Jan. 11, Chengdu, China

2022 "Efficient fine 3D terrain reconstruction for complex mountainous areas", International Mountain Day Mountain Science Forum, Dec. 10, Chengdu, China

2022 "Intelligent building reconstruction methods", National Conference on Virtual Geographic Environments, Jul. 26–29, Ganzhou, China

2021 "InSAR terrain modeling for the next generation of national fundamental surveying and mapping products", Conference on Radar and Signal Processing Technology and Applications, Jul. 27–30, Xi'an, China

2020 "Real-scene 3D terrain processing for airborne point clouds", 7th China LiDAR Conference, Nov. 20–22, Beijing, China

2020 "Global-scale terrain modeling using stereo optical satellite imagery", 6th Annual Conference of High Resolution Observation, Nov. 17–19, Changsha, China

2020 "Real-scene 3D modeling methods for complex urban street environments", 3rd Urban Remote Sensing Conference, Oct. 31, Shanghai, China

2020 "Real-scene 3D modeling for smart cities", China Geo-Informatics Congress, Oct. 23–24, Nanning, China

2020 "Aerial-ground integrated oblique photogrammetric fine 3D reconstruction", Open Forum of the Key Laboratory of Urban Land Resources Monitoring and Simulation, Jun. 30, Shenzhen, China

2019 "Aerial-ground integrated oblique photogrammetric fine 3D reconstruction", Annual Meeting of the Photogrammetry and Remote Sensing Committee, CSGPC, Dec. 6–8, Beijing, China

2019 "Refined building reconstruction by oblique photogrammetry", Geospatial Modeling and Visualization Doctoral Student Forum, Nov. 29–Dec. 1, Wuhan, China

2019 "Real-scene 3D management of natural resources", Geographic Information Science Youth Forum, Sept. 28, Chongqing, China

2019 "Large-scale urban 3D modeling with oblique photogrammetry", National Forum on Government Big Data, Oct. 25–27, Xiangxi, China

2018 "LOD building modeling from aerial oblique images", CLOUD EXPO ASIA, May 17, Hong Kong, China

2017 "Automatic 3D building reconstruction from oblique photogrammetry", Annual Conference of CSGPC, Ubiquitous Positioning and Artificial Intelligence Forum, Nov. 11, Nanjing, China

2016 "Sketch-based building reconstruction from oblique photogrammetry", Annual Meeting of the Photogrammetry and Remote Sensing Committee, CSGPC, Nov. 10, Nanning, China

Oral Presentations

2020 "Fast and regularized reconstruction of building facades from street-view images using binary integer programming", ISPRS Congress, Aug. 31–Sept. 2, Nice, France (online)

2019 "Planetary3D: A photogrammetric tool for 3D topographic mapping of planetary bodies", Geospatial Week, Jun. 10–14, Enschede, Netherlands

2017 "Precision 3D surface reconstruction from LRO NAC images using semi-global matching with coupled epipolar rectification", ISPRS PRSM, Aug. 13–16, Hong Kong, China

2016 "Texture-Aware Dense Image Matching with Ternary Census Transform"
ISPRS Congress, Jul. 12–19, Prague, Czech Republic

Campus Talks

2022 "Graduate entrance examination matters for surveying and mapping disciplines", Career Planning Lecture, Faculty of Geosciences and Environmental Engineering, Nov. 12, Chengdu, China

2020 "Graduate school applications: matters and techniques", Career Development Lecture Series, Southwest Jiaotong University, Nov. 23, Chengdu, China

2020 "Recruitment seminar for overseas professionals in Singapore by Southwest Jiaotong University", Oct. 6, Chengdu, China

2020 "Recruitment seminar for overseas professionals in North America by Southwest Jiaotong University", Jun. 10, Chengdu, China

PROFESSIONAL ACTIVITIES

Editorial Service and Professional Memberships

2024– International Editorial Board Member, *The Photogrammetric Record*

2022–24 Junior International Editorial Board Member, *The Photogrammetric Record*

2022– Committee Member, CSGPC Working Group on Deep Space Exploration Remote Sensing Mapping

2022– Committee Member, CSGPC Working Group on Real-Scene 3D

2022– Committee Member, CSGPC Technical Committee of Photogrammetry and Remote Sensing

2022– Committee Member, General Drafting Group for Real-Scene 3D China Standards

2021– Associate Editor, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* [Web]

2021– Editorial Board Member, *Engineering of Surveying and Mapping* [Web]

2019– Editorial Board Member, *Journal of Smart Cities* [Web]

2019–23 Committee Member, ISDE Chinese Committee on Virtual Geographic Environments

2021– IEEE Member

2016– ASPRS Member

Conference Organization

2025 "Real-Scene 3D Session", Annual Meeting of the Photogrammetry and Remote Sensing Committee, CSGPC, Session Chair, Jul. 28–30, Kunming, China

2024 "Real-Scene 3D Special Software Evaluation", Review Committee Member, Nov. 6–10, Beijing, China

2024 China Conference on Geography, Session Chair, Sept. 26–28, Nanjing, China

2024 Annual Meeting of the Chinese National Committee for the International Society for Digital Earth, Session Chair, May 31–Jun. 1, Suzhou, China

2023 "Oblique Photogrammetry and Real-Scene 3D", Annual Meeting of the Photogrammetry and Remote Sensing Committee, CSGPC, Session Chair, Nov. 3–5, Shanghai, China

2023 "Real-Scene 3D Special Software Evaluation", Review Committee Member, Oct. 23–Nov. 2, Beijing, China

2023 2023 International Workshop on National 3D Mapping and 8th International Workshop on Dynamic and Multi-dimensional GIS, Organizing Committee Secretary, Oct. 16–18, Chengdu, China

2023 "Applications of Oblique Photogrammetry Systems in Transportation", International Symposium on Transportation Geomatics and Intelligent Sensing and the 10th National Symposium on Transportation Engineering Surveying, Session Co-Chair, May 26–28, Chengdu, China

2023 "Real-Scene 3D China Construction", 5th Remote Sensing Application Conference, Session Chair, May 6–8, Chengdu, China

2022 "Virtual Geographic Environments and Real-Scene 3D Modeling", China Virtual Geographic Environment Conference, Session Chair, Apr. 17–19, Ganzhou, China

2021 "Oblique Photogrammetry and Real-Scene 3D Modeling", Annual Meeting of the Photogrammetry and Remote Sensing Committee, CSGPC, Session Convener, Oct. 29–31, Shanghai, China

2021 "Remote Sensing Applications", China Remote Sensing and Geography Forum, Program Committee Member, Sept. 25–26 (online)

2021 "InSAR Mapping and Applications", 2021 Radar and Signal Processing Symposium, Program Committee Member, Jul. 28–30, Xi'an, China

2020 "Point Cloud Fusion and Registration", 7th China LiDAR Conference, Session Co-Chair, Nov. 20–22, Beijing, China

2020 "Digital Twin and General Geospatial Intelligence", China Geo-Informatics Congress, Session Chair, Oct. 23–24, Nanning, China

2019 "Analysis and Simulation of Geographic Phenomena and Processes", China Virtual Geographic Environment Conference, Session Chair, Oct. 30–Nov. 1, Fuzhou, China

Organizing Committee

2017 Member, ISPRS International Symposium on Planetary Remote Sensing and Mapping, Aug. 13–16, Hong Kong, China

2011 Member, ISPRS Joint Workshop on 3D City Modeling & Applications and the 6th 3D GeoInfo Conference, Jun. 26–28, Wuhan, China

TEACHING EXPERIENCE

Southwest Jiaotong University

2021– Research and Engineering Ethics, Graduate Students, 2 credits

2021– Photogrammetric Computer Vision, Graduate Students, 3 credits

2021– Fundamentals of Computer Graphics, Undergraduate Students, 2 credits [Code]

2020– Fundamentals of Photogrammetry, Undergraduate Students, 3 credits [Video][Code]

2021 Digital Elevation Model, Graduate Students, 2 credits

The Hong Kong Polytechnic University

GIS Applications (TA)

STUDENT SUPERVISION

Current Graduate Students

2023– Ying Jiang, M.S./Ph.D. student, MMS processing

2024– Yiyang Ma, M.S./Ph.D. student, real-time UAV landslide detection

2024– Tong Wu, M.S./Ph.D. student, railway BIM modeling

2024– Liupeng Su, M.S./Ph.D. student, satellite image modeling

2025– Xuming Zhang, M.S./Ph.D. student, cross-view texture generation

2025– Zhihao Jia, Ph.D. student, foundation models for 3D vision

2026– Junfan Wang, M.S./Ph.D. student, differentiable rendering

2026– Zhaoxuan Zhou, Ph.D. student, close-range photogrammetry

2024– Jiahao Zhou, M.S. student, pose graph optimization

2024– Guozhong Lin, M.S. student, landslide detection

2024– Pengxin Gu, M.S. student, lightweight hardware integration

2024– Ruohao Yi, M.S. student, terrain feature analysis

2024– Qiang Wang, M.S. student, GNSS-constrained pose graph optimization

2025– Yuhao Ye, M.S. student

2025– Xi Zhang, M.S. student

2025– Fuhao Zhang, M.S. student

2025– Guangwei Zhao, M.S. student

2025– Kunyang Xie, M.S. student

2026– Hengyuan Tu, M.S. student

2026– Yinuo Wang, M.S. student

2026– Hao Ding, M.S. student

2026– Anqi Hu, M.S. student

2026– Yang Zhang, M.S. student

Graduated Graduate Students

2022–26 Libo Cheng, Ph.D., "Area-Boundary-Corner Integrated Approach for Automatic Topological Reconstruction and Generative Editing of Vectorized Building Outlines", Xi'an North Electro-Optic Science and Technology Defense Co., Ltd.

2023–26 Kelin Chen, M.S., "Multi-source Data Fusion-driven Automatic Segmentation of DSM Terrain Units and Efficient Filtering Method", Southwest Jiaotong University, Research Assistant

2023–26 Xiaolin Guo, M.S., "Differentiable Reconstruction of Subsurface Scattering Textured Materials for Translucent Surface Mesh Models", China General Nuclear Power Group

2023–26 Fan Wang, M.S., "Design and Development of a Handheld Colored 3D Scanner with Precision Camera-LiDAR Synchronization", Chengdu Yunda Technology Co., Ltd.

2023–26 Hongyu Xie, M.S., "A Parametric Modeling Method for Railway Bridge Point Clouds Combining Model-Driven Real Scene Simulation and Data-Driven Precise Recognition", Shudao Investment Group Co.,Ltd.

2023–26 Lihan Zheng, M.S., "Automatic Semantic Segmentation and Efficient Interactive Editing for Large Scale Point Clouds Based on the Superpoint Graph", PowerChina Chengdu Engineering Corporation

2022–25 Shuming Si, academic M.S., “Model-data collaborative precise segmentation of mobile mapping point clouds in railway engineering environments”, Ph.D. position in France

2022–25 Lang Xiong, professional M.S., “A geometric-image differentiable rendering method for close-range photogrammetric reconstruction of non-Lambertian materials”, China Railway First Survey and Design Institute

2022–25 Yuanhui Zhang, professional M.S., “Real-time UAV 3D point-cloud reconstruction method with GNSS factor graph optimization”, China Ordnance Industries

2022–25 Xiang Zeng, academic M.S., “High-precision recovery of orientation parameters for handheld scanning systems through image-point-cloud fusion”, Chengdu Railway Bureau

2021–24 Chengwei Li, academic M.S., “End-to-end semi-supervised structure extraction and fine modeling of building facade windows”, China Satellite Network Group

2021–24 Xuekun Yuan, professional M.S., “Self-supervised profile-sampling method for 3D point-cloud building segmentation”, Changan Automobile

2021–24 Mengqi Fu, professional M.S., “Construction and calibration of a lightweight multi-payload UAV mobile mapping system”, Aerospace Information Research Institute, Jinan

2021–24 Bin Zhang, professional M.S., “Development of a lightweight low-cost handheld LiDAR 3D point-cloud scanning system”, Beijing Railway Bureau

2021–24 Feng Luo, part-time professional M.S., “Real-scene 3D survey technology for large railway bridges in complex mountainous areas”, China Railway Eryuan Engineering Group

2020–23 Shunfu Mao, M.Eng. in Surveying and Mapping Engineering, “Adaptive matching-window deformable convolutional networks for dense matching of multi-view images”, China Southern Power Grid

2020–23 Jiangyong Han, M.Eng. in Surveying and Mapping Engineering, “B/S-architecture multi-user collaborative airborne millimeter-wave InSAR DSM filtering and precise directional editing”, China Railway First Survey and Design Institute

2020–23 Yongkuo Hou, M.Eng. in Surveying and Mapping Engineering, “Mobile mapping point-cloud feature matching through fusion of point and voxel structural features”, Suzhou Institute, Aerospace Information Research Institute, Chinese Academy of Sciences

2020–23 Xiaoyu Huang, M.Eng. in Surveying and Mapping Engineering, “ABCNet: building vector extraction by fusing multiple geometric primitives”, Chongqing Geomatics Center

2020–23 Yigao Jin, M.S. in Photogrammetry and Remote Sensing, “GPU-driven efficient rendering and real-time interactive editing and analysis of large-scale point clouds”, H3C

2019–22 Xinrong Liang, academic M.S., refined semi-supervised recognition and inverse procedural reconstruction of building facade window structures, Qianxun SI

2019–22 Bo Feng, academic M.S., attention-enhanced recognition of interactive building-window sketches and 3D modeling, H3C

Current Co-Supervised Students

2018– Zhendong Wang, Ph.D. student, MMS trajectory optimization

2018– Haojia Yu, Ph.D. student, building vector extraction

Graduated Co-Supervised Students

2019–25 Daiwei Zhang, Southwest Jiaotong University, Ph.D.

2017–25 Lin Chen, Ph.D., "Lightweight UAV sensing system for landslide disaster monitoring", PowerChina Chengdu Engineering Corporation

2020–24 Libin Wang, Southwest Jiaotong University, Ph.D., "Fine reconstruction of semantic building facade models from oblique photogrammetry", Zhejiang Institute of Surveying and Mapping Science and Technology

2020–24 Cheng Liao, Southwest Jiaotong University, Ph.D., "Reliable building change detection by graph-image matching", China Railway First Survey and Design Institute

2019–24 Qisen Shang, Southwest Jiaotong University, Ph.D., "Generative reconstruction methods for building facade textures", Jinniu District Housing, Urban-Rural Development and Transportation Bureau

2016–23 Shengzhi Huang, Southwest Jiaotong University, Ph.D., "Multi-view 3D change verification of urban buildings by fusing oblique images and mesh models", Shenzhen University

2017–23 Haowei Zeng, Southwest Jiaotong University, Ph.D., "Reliable graph neural network evaluation of landslide susceptibility constrained by environmental similarity", PowerChina Chengdu Engineering Corporation

2018–22 Li Chen, Southwest Jiaotong University, Ph.D., "Accurate broad-area landslide susceptibility analysis based on representation learning", Chengdu University of Technology

2017–21 Shiming Li, Southwest Jiaotong University, Ph.D., "Laplacian fusion method for LiDAR and photogrammetric point clouds", North China University of Water Resources and Electric Power

2016–20 Feng Wang, Southwest Jiaotong University, Ph.D., "LOD-2 building model reconstruction from oblique photogrammetry using contour-feature constraints", Guilin University of Technology

2015–19 Linfu Xie, Wuhan University and The Hong Kong Polytechnic University, Ph.D., "Integration of aerial and ground data for optimized 3D modeling in urban areas", Shenzhen University

2016–19 Dengxing Wang, Southwest Jiaotong University, M.S., "High-precision localization of street-view panoramas based on oblique images"

2016–19 Tong Kuai, Southwest Jiaotong University, M.S., "Contour-constrained optimization of real-scene 3D building facade models"

2016–19 Mier Zhang, Southwest Jiaotong University, M.S., "Facade texture optimization for street-view images considering rigid deformation"

2016–19 Bohang Chen, Southwest Jiaotong University, M.S., "Global DEM accuracy evaluation based on GLAS laser altimetry data"

2016–19 Linlin Zhang, Southwest Jiaotong University, M.S., "Packaging fragmented textures of detailed building models for high-performance visualization"

2015–18 Qiqiang Weng, Southwest Jiaotong University, M.S., "Automatic texture mapping of 3D building models based on oblique photogrammetry"

2015–18 Tao Zhang, Southwest Jiaotong University, M.S., "Oblique image feature matching based on parallax-relaxation propagation constraints"

2014–17 Chongtai Chen, Southwest Jiaotong University, M.S., "Texture-aware adaptive dense matching for oblique images"

2013–16 Yuan Li, Wuhan University, M.S., "Point-cloud segmentation with multi-level semantic relationships"

Student Awards

2025 Liupeng Su, Third Prize, Jilin-1 Cup Satellite Remote Sensing Application Innovation and Entrepreneurship Competition

2025 Ying Jiang, Excellent Presentation Award, Annual Meeting of the Photogrammetry and Remote Sensing Committee, CSGPC

2024 Libin Wang, Excellent Presentation Award, Annual Meeting of the Chinese National Committee for the International Society for Digital Earth

2023 Jinghan Dong et al., Second Prize, 9th National College BIM Graduation Design Innovation Competition

2023 Cheng Liao, Runner-Up, Entity Change Detection Track, Remote Sensing Competition, **CNY 30,000**

2022 Qisen Shang, Excellent Young Paper Award, China Virtual Geographic Environment Conference

2022 Tao Li, National Second Prize, China Service Outsourcing Innovation and Entrepreneurship Competition

2021 Liupeng Su, National Second Prize, China Service Outsourcing Innovation and Entrepreneurship Competition

2020 Cheng Liao, Lin Chen, Haojia Yu, **Champion (CNY 100,000), Huawei Cloud AI+ Competition, Huawei** [Web]

2020 Lin Chen, Cheng Liao, Haojia Yu, **Runner-Up (CNY 100,000), Digital China Innovation Contest, Digital Government Track, Alibaba Cloud** [Web]

2020 Lin Chen, Gold Medal, Sichuan Internet+ Competition

2019 Mier Zhang, Best Young Paper Award, China Virtual Geographic Environment Conference

2018 Linlin Zhang, Best Young Paper Award, First Class, Annual Conference of CSGPC

2018 Shiming Li, Best Young Paper Award, Second Class, Annual Conference of CSGPC

2014 Yuan Li, Best Young Paper Award, Annual Conference of CSGPC

SERVICE

Academic Journal Peer Review

Acta Geodaetica et Cartographica Sinica

Engineering of Surveying and Mapping

Geomatics and Information Science of Wuhan University
Advances in Space Research
Geo-spatial Information Science
Geosciences
IEEE Geoscience and Remote Sensing Letters
International Journal of Applied Earth Observation and Geoinformation
IEEE Journal of Biomedical and Health Informatics
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
IEEE Transactions on Geoscience and Remote Sensing
IEEE Transactions on Industrial Informatics
International Journal of Geographical Information Science
International Journal of Remote Sensing
International Journal of Digital Earth
ISPRS Journal of Geo-Information
ISPRS Journal of Photogrammetry and Remote Sensing
Journal of Geovisualization and Spatial Analysis
Measurements
Photogrammetric Engineering & Remote Sensing
Photogrammetric Record
Remote Sensing Letters
Remote Sensing
Sensors
Transactions in GIS
Computers & Graphics
Building Simulation
Tunneling in Soft Soil
European Journal of Remote Sensing

MEDIA COVERAGE

2024 Digital Earth Ecology Lecture Series, "Spaceborne real-scene 3D modeling technologies and development" [Web]

2021 *Hi-Target Positioning*, "Real-scene 3D is indispensable for digital twin city construction", Jan. 8 [PDF][Web]

2020 *Southwest Jiaotong University*, "VGE team finished in second place at the Innovative Application Competition of Digital China Innovation Contest 2020: Digital Government", Jul. 13 [Web]

2020 *36Kr*, "Development of high-precision 3D geographic models for new infrastructure", Apr. 17 [Web]