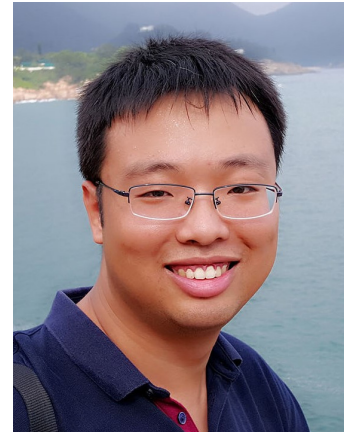


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EDUCATION

Ph.D. LIESMARS, Wuhan University, Wuhan, 2015.
B.Eng. School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, 2010

ACADEMIC APPOINTMENTS

2019– Southwest Jiaotong University
Professor, Faculty of Geosciences and Environmental Engineering
2015–19 The Hong Kong Polytechnic University
Postdoctoral Fellow, Department of Land Surveying and Geo-Information
2011–13 The Hong Kong Polytechnic University
Research Assistant, Department of Land Surveying and Geo-Information

RESEARCH AREAS

Photogrammetry and Computer Vision
Digital Elevation Models
Planetary Mapping

RESEARCH HIGHLIGHTS

Link His research in point clouds processing has been integrated to the topographic modeling software. Currently, it has been successfully used for Global Digital Elevation Model construction, lead by the National Geomatic Center of China (NGCC), using point clouds generated by stereo satellite (ZY-3 and TH-1) images and InSAR (TanDEM-X, TH-2 and airborne Ka-InSAR system) data. Link has been adopted by all the production

data centers in China, which accounts for more than 1,000 seats. Related outputs based on this research was awarded State Science and Technology Award of China, Second Class (2020).

- OSketch His research in the photogrammetric processing system for airborne oblique imagery and point clouds, has been turned into a 3D modeling software for urban environment. The software has been successfully used for cadastral management of metropolitan cities (Shenzhen and Chongqing), digital county management and digital heritage protection, etc.. Related projects have been awarded the Geographic Information Science Award of China (First Class) twice in 2018-19. It has promoted sold to more than 300 suites.
- Planetary3D During his working experiences in the Hong Kong Polytechnic University as research staffs, he had developed new approaches for image matching and bundle adjustment for the integrated use of planetary satellite images and laser altimeter data. The research outputs have been bundled into the software suites, Planetary3D, which can produce high resolution terrain models from stereo satellite images for the Lunar and Mars surface. His work produced high resolution terrain at 20 meters in Lunar Sinus Iridium for the first time, which supported the soft landing of Chang'E-3; related work (as corresponding author) has been highlighted by [Nature Index](#) as “landmark paper on lunar topographic models”. Planetary3D was also used in the topographic modelling and analyses of the Lunar Crater Von Kármán; the landing location of Yutu-2 Rover, which successfully landed on the far side of the moon for the first time, was determined by findings by Planetary3D.

FUNDING

Grants

- 2021–24 Rapid acquisition technology of geographic realistic 3D spatial information in extremely complex and difficult mountainous areas, National Key R&D Program, Part of project, ¥5,000,000, PI.
- 2021–26 Research fund for excellent overseas professionals, Southwest Jiaotong University, ¥4,000,000, PI.
- 2021–24 Binary programming for structured reconstruction of buildings in complex urban environment, National Natural Science Foundation of China, ¥560,000, PI.
- 2021–23 InSAR terrain mapping of southwest areas, Basic Research Incubation Support Program, Southwest Jiaotong University, ¥150,000, PI.
- 2021–22 Point cloud filtering for precision coastal terrain reconstruction, Open Innovative Fund of Marine Environment Guarantee, ¥100,000, PI
- 2019–22 Emergency surveying and mapping using Ka-InSAR, National Key Research and Development Program of China, ¥550,000, PI.
- 2019–21 Start-up research fund program, Southwest Jiaotong University, ¥300,000, PI.
- 2017–19 Metric learning for efficient feature matching of aerial oblique images, National Natural Science Foundation of China, ¥210,000, PI.

- 2016–18 LOD modeling of urban buildings using aerial oblique images, Laboratory of Urban Land Resources Monitoring and Simulation, ¥200,000, PI.
- 2017–21 Theory of oblique photogrammetry for LOD modeling of buildings, National Natural Science Foundation of China, ¥3,000,000, Co-I.

Fellowships

- 2022–24 Rongpiao Program, Chengdu, ¥1,200,000
- 2020–22 Qingcheng Program, Sichuan, ¥500,000
- 2020–22 Chuying Scholars Program, Southwest Jiaotong University, ¥300,000

Contracts

- 2021 Automatic DSM filtering, Land Satellite Remote Sensing Application Center, MNR, ¥300,000
- 2020 DEM Reconstruction in Urban Environment, Wuhan University, ¥120,000
- 2020 InSAR DSM Filtering and Editing System, National Geomatics Center of China, ¥495,000

AWARDS

- 2021 Survey and Mapping Science and Technology Award of China, Second Class (Rank 1st.) [\[WEB\]](#)
- 2021 ASPRS Esri Award for Best Scientific Paper, First Place. [\[WEB\]](#)
- 2021 National Railway Youth Science and Technology Award
- 2020 **State Science and Technology Award of China, Second Class** (Rank 3rd.) [\[WEB\]](#)
- 2020 Science and Technology Award of Chongqing, Second Class (Rank 3rd.) [\[WEB\]](#)
- 2019 Geographic Information Science Award of China, First Class (Rank 3rd.) [\[WEB\]](#)
- 2019 National Land Resources Science and Technology Award of China, Second Class (Rank 2nd.) [\[WEB\]](#)
- 2019 Survey and Mapping Science and Technology Award of China, Second Class (Rank 3rd.) [\[WEB\]](#)
- 2018 Geographic Information Science Award of China, First Class (Rank 2nd.) [\[WEB\]](#)
- 2018 The Emerging Star Award of GIS
- 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

Authored Articles in Peer-Reviewed Journals

- J1** 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.

- J2** 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.
- J3** 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.
- J4** 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.
- J5** 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.
- J6** 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.
- J7** Zhu, Q., Zhang, M., **Hu, H.***, Wang, F., 2020. Interactive correction of a distorted street-view panorama for efficient 3-D façade modeling. *IEEE Geoscience and Remote Sensing Letters*, 17(12), 2125–2129.
- J8** 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.
- J9** 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.
- J10** **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.
- J11** **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.
- J12** 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.
- J13** 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.
- J14** 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.

- J15** **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.
- J16** 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.
- J17** **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.
- J18** **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.
- J19** **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,
- J20** 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.

Co-Authored Articles in Peer-Reviewed Journals

- J1** 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.
- J2** Xie, L.; **Hu, H.**; Zhu, Q.; Li, X.; Tang, S.; Li, Y.; Guo, R.; Zhang, Y.; Wang, W*. Combined Rule-Based and Hypothesis-Based Method for Building Model Reconstruction from Photogrammetric Point Clouds. *Remote Sensing* 2021, 13 (6).
- J3** 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.
- J4** Wu, B.* Li, F., **Hu, H.**, Zhao, Y., Wang, Y., Xiao, P., Li, Y., Liu, W.C., Chen, L., Ge, X., Others, 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.
- J5** 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.
- J6** 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.

- J7** 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.
- J8** 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.
- J9** 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 (Basel, Switzerland)* 18 (5).
- J10** 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.
- J11** 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.
- J12** 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.
- J13** 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.
- J14** 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.
- J15** 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.
- J16** 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 façades 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., *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. (Eds.), *Planetary Geodesy and Remote Sensing*. Taylor & Francis Group/CRC Press, Boca Raton, FL, USA, pp. 99-120.

Articles in Peer-Reviewed Journals in Chinese

- J1** ZHU Qing, ZHANG Linlin, **HU Han**, WENG Qiqiang, DING Yulin, LI Yun, ZHANG Yeting. 2D Bin Packing Method for Fragmented Textures Optimization of Detailed Building Model. *Journal of Southwest JiaoTong University*, 2021, 56(2): 306-313.
- J2** ZHU Qing, SHANG Qisen, **HU Han***, YU Haojia, ZHONG Ruofei, DING Yulin. Feature Line Extraction from 3D Model of Oblique Photogrammetry Based on Multi-Objective Weighted Shortest Path. *Journal of Southwest Jiaotong University*. 2021;56(1):116-122.
- J3** WANG Libin, **HU Han***, ZHU Qing, DING Yulin, CHEN Min. A semantic enhancement method for photorealistic mesh model based on local parameterization[J]. *Acta Geodaetica et Cartographica Sinica*, 2020, 49(2): 225-234.

- J4** **HU Han**, DING Yulin*, ZHU Qing, et al. Precision global DEM generation based on adaptive surface filter and Poisson terrain editing[J]. *Acta Geodaetica et Cartographica Sinica*, 2019, 48(3): 374-383. DOI: 10.11947/j.AGCS.2019.20180010
- J5** ZHU Qing, WENG Qiqiang, **HU Han***, WANG Feng, WANG Weixi, YANG Weijun, ZHANG Pengcheng. Multi-View Image Precise Texture Mapping Method Based on Frame Buffer. *Journal of SouthWest JiaoTong University*, 2019, 54(2): 269-277.
- J6** ZHU Qing, LI Shiming, **HU Han***, ZHONG Ruofei, WU Bo, XIE Linfu. Multiple Point Clouds Data Fusion Method for 3D City Modeling[J]. *Geomatics and Information Science of Wuhan University*, 2018, 43(12): 1962-1971.
- J7** ZHU Qing, CHEN Chongtai, **HU Han***, DING Yulin. An Adaptive Dense Matching Method for Airborne Images Using Texture Information[J]. *Acta Geodaetica et Cartographica Sinica*, 2017, 46(1): 62-72.
- J8** **HU Han***. A Supervised Metric Learning Approach for Efficient Aerial Oblique Image Matching Using Neighborhood Information[J]. *Acta Geodaetica et Cartographica Sinica*, 2016, 45(2): 250-250.
- J9** LI Yuan, **HU Han***, XIE Jinhua, ZHU Qing, ZHANG Yeting, DU Zhiqiang, PENG Mingjun, GAO Shan . An Automatic Texture Mapping Method Using Local Surface Consistency Constraint[J]. *GEOMATICS AND INFORMATION SCIENCE OF WUHAN UNIVERS*, 2016, 41(12): 1599-1604.
- J10** ZHU Qing, WANG Dengxing, WANG Feng, XIE Xiao, **HU Han**, HUANG Shuang. Automatic Volume Calculation System for Sand and Gravel Carried by Ship Based on LiDAR Point Cloud. *Journal of SouthWest JiaoTong University*, 2020, 55(6): 1199-1206.
- J11** CHEN Kuiyi, **HU Han**, DING Yulin, LI Xiaoming, BIAN Yufan, 2019, Object-based 3D building change detection using contour information, *Geomatics World*, 2019(5).
- J12** ZHU Qing, ZENG Haowei, DING Yulin, XIE Xiao, LIU Fei, ZHANG Liguang, LI Haifeng, **HU Han**, ZHANG Junxiao, CHEN Li, CHEN Lin, ZHANG Pengcheng, HE Huagui. A review of major potential landslide hazards analysis[J]. *Acta Geodaetica et Cartographica Sinica*, 2019, 48(12): 1551-1561.
- J13** WANG Weixi, DU Jing, LI Xiaoming, **HU Han**, XU Wenbo, GUO Han, DING Yulin. A Grid Filling Based Rectangular Building Outlines Regularization Method[J]. *Geomatics and Information Science of Wuhan University*, 2018, 43(2): 318-324.
- J14** WANG Jingxue, ZHU Qing, ZHANG Yunsheng, **HU Han**. Phase Grouping Line Extraction Algorithm Using Overlapped Partition[J]. *Acta Geodaetica et Cartographica Sinica*, 2015, 44(7): 768-774.
- J15** ZHANG Tao, DING Yulin, HU Han, WANG Weixi, 2018. Feature matching of oblique images using loose epipolar constraints, *Geomatics World*. 2018(5).

- J16** XIAO Xiongwu, GUO Bingxuan, LI Deren, ZHAO Xia, JIANG Wanshou, **HU Han**, ZHANG Chunsen. A Quick and Affine Invariance Matching Method for Oblique Images[J]. *Acta Geodaetica et Cartographica Sinica*, 2015, 44(4): 414-421.
- J17** HE Meizhang, ZHU Qing, DU Zhiqiang, ZHANG Yeting, **HU Han**, LIN Yueguan, QI Hua. Contour Cluster Shape Analysis for Building Damage Detection from Post-earthquake Airborne LiDAR[J]. *Acta Geodaetica et Cartographica Sinica*, 2015, 44(4): 407-413.
- J18** HUANG Miner, DU Zhiqiang, ZHU Qing, ZHANG Yeting, **HU Han**. 3D Building Façades and Roofs Objects Extraction from Pixel Height Map[J]. *Geomatics and Information Science of Wuhan University*, 2014, 39(10): 1221-1224.

Patents

- P1** **Han Hu**, Yulin Ding, Qing Zhu, Hua Qi, 2018. *Adaptive point-cloud filtering method for complex terrain structure*, CN105118090A.

ACADEMIC TALKS

Invited Talks

- 2021 “InSAR Terrain Modeling for the Next Generation Terrain Surveying and Mapping Mission of China”, Conference of Radar and Signal Processing Technology and Applications, Jul. 27–30, Xi’an, China.
- 2020 “Terrain modeling using new generation aerial point clouds data”, 7th China LiDAR Conference, Nov. 20–22, Beijing, China.
- 2020 “Global scale terrain modeling using stereo satellite images”, 6th Annual Conference of High Resolution Observation, Nov.17–19, Changsha, China.
- 2020 “3D Modeling of Complex Urban Street Environments”, 3rd Urban Remote Sensing Conference, Oct. 31, Shanghai, China.
- 2020 “Aerial-ground integrated LOD modeling of buildings”, China Geo-Informatics Congress, Oct. 23–24, Nanning, China.
- 2020 “Aerial-ground integrated 3D modeling of urban environment”, Key Laboratory of Land Resources Monitoring and Simulation, Jun. 30, Shenzhen, China.
- 2019 “Refined building reconstruction and mesh editing through oblique photogrammetry”, Annual Meeting of Photogrammetry Committee of CSGPC, Dec. 6–8, Beijing, China.
- 2019 “An integrated approach for building reconstruction from aerial oblique images and street-view images”, Geospatial Modeling and Visualization Doctoral Student Forum, Nov. 29–Dec.1, Wuhan, China.
- 2019 “Natural resources management in 3D GIS”, Geographic Information Science Youth Forum, Sept. 28, Chongqing, China.
- 2019 “Oblique photogrammetry for large scale urban modeling”, Seminar on Big Data Public Services for Government Affairs, Oct. 25–27, Xiangxi State, China

- 2018 “LOD building modeling from aerial oblique images”, CLOUD EXPO ASIA, May 17, Hong Kong, China
- 2017 “Comparison of LOD modeling approaches in urban environment”, Annual Conference of China Society for Geodesy, Photogrammetry and Cartography, Nov., Nanjing, China
- 2016 “An efficient and interactive approach for building reconstruction for complex buildings”, Annual Conference of China Society for Geodesy, Photogrammetry and Cartography, Nov., Nanning, China

Oral Presentations

- 2020 “Fast and regularized reconstruction of building façades 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
- 2016 “Texture-Aware Dense Image Matching using Ternary Census Transform”, ISPRS Congress, Jul. 12–19, Prague, Czech

Campus Talks

- 2020 “How to apply and prepare for graduate study”, Series Lectures on Career Development, Southwest Jiaotong University, Nov. 23, Chengdu, China.
- 2020 “Seminars on recruitment of overseas professionals in Singapore by Southwest Jiaotong University”, Oct. 6, Chengdu, China.
- 2020 “Seminars on recruitment of overseas professionals in North America by Southwest Jiaotong University”, Jun. 10, Chengdu, China.

PROFESSIONAL ACTIVITIES

Editorial Service and Professional Memberships

- 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 Geographical Environment
- 2021– IEEE Member
- 2016– ASPRS Member

Session Chair/Discussant

- 2022 “Virtual Geographic Environment and Photo-Realistic Photogrammetry”, Session Chair, China Virtual Geographic Environment Conference (CVGE2021), Apr. 17–19, Ganzhou, China.

- 2021 “Application of Oblique Photogrammetry for Traffic Engineering”, Session Chair, The International Conference of Transportation Geomatics and Intelligent Sensing (TGIS2021), Nov. 5–7, Chengdu, China
- 2021 “Oblique Photogrammetry and Photo-realistic Modeling”, Program Committee Member, Annual Conference of Photogrammetry and Remote Sensing Commission, CSGPC, 2021, Oct. 29–31, Shanghai, China
- 2021 “Applications on Remote Sensing”, Program Committee Member, China Remote Sensing and Geography Forum, Sept. 25–26 (online).
- 2021 “InSAR Mapping and Applications”, Program Committee Member, 2021 Radar and Signal Processing Technology and Applications Conference, Jul. 28–30, Xi’an, China
- 2020 “Point Clouds Fusion and Registration”, Co-Chair, 7th China LiDAR Conference. Nov. 20–22, Beijing, China.
- 2020 “Digital Twin and General Geospatial Intelligence”, Chair, China Geo-Informatics Congress, Oct. 23–24, Nanning, China .
- 2019 “Methods of analysis and simulation of geographic phenomena and processes”, Chair, 7th Virtual Geographical Environment Conference of China. 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

Invited Panelist and Symposia

- 2021 “Specification for airborne and spaceborne remote sensing data achievements of natural resources”. Panelist invited by Beijing Municipal Commission of Planning and Natural Resources, Oct. 20, Beijing, China (online).
- 2021 “The 2021 International Student Competition on Architectural Design and Digital Modelling.” Panelist invited by Beijing University of Civil Engineering and Architecture, Jul, Beijing, China. [[Web](#)]
- 2021 “Highways construction and maintenance based on GIS BIM and IoT.” Panelist invited by Sichuan Expressway Construction and Development Group Co., LTD, Apr 23, Chengdu, China.
- 2020 “Development of mapping systems with satellite L-SAR data.” Symposium held by Land Satellite Remote Sensing Application Center, Ministry of Natural Resources, Oct. 12, Xian, China.
- 2020 “Preliminary experimental results of terrain modeling from satellite SAR data”. Symposium held by Heilongjiang Bureau of Surveying, Mapping and Geomatics, Ministry of Natural Resources, Sept. 28, Harbin, China.
- 2020 “Standards on construction and maintenance of global geographic information resources using satellite SAR data.” Panelist invited by National Geomatics Center of China, Jul. 6, Beijing, China.

- 2020 “Terrain modeling and mapping using satellite SAR data”. Symposium held by National Geomatics Center of China, Jul. 3, Beijing, China.
- 2020 “Standards on the production of photorealistic 3D model of China.” Panelist invited by National Geomatics Center of China, May 14, Beijing, 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
- 2020– Fundamentals of Photogrammetry, Undergraduate Students, 3 credits, [\[Video\]](#)[\[Problem\]](#)
- 2021 Digital Elevation Model, Master/Ph.D. Students, 2 credits

The Hong Kong Polytechnic University

GIS Applications (TA)

STUDENTS SUPERVISION

Supervised Students

- 2021– Ying Jiang, M.Eng. student, MMS Calibration
- 2021– Chengwei Li, M.Eng. student, RGB-D Mapping
- 2021– Xuekun Yuan, M.Eng. student, Global forest/non-forest mapping
- 2021– Mengqi Fu, M.Eng. student, Highway Modeling
- 2020– Shunfu Mao, M.Eng. student, Multi-view Satellite Stereovision.
- 2020– Jiangyong Han, M.Eng. student, Web-based Application Development.
- 2020– Yongkuo Hou, M.Eng. student, Learned 3D Feature Descriptor.
- 2020– Xiaoyu Huang, M.Eng. student, Satellite Building Extraction by GNN.
- 2019– Xinrong Liang, M.Eng. student, Procedural Façade Modeling from Street-view Images.
- 2019– Bo Feng, M.Eng. student, Façade Modeling from Interactive Sketches.

Co-Supervised Students

- 2020– Libin Wang, Ph.D. student, Semantic Modeling from Photogrammetric Meshes.
- 2020– Cheng Liao, Ph.D. student, Semantic Segmentation of Point Clouds.
- 2020– Chuan Zhang, Ph.D. student, LOD Generation of Photogrammetric Meshes.
- 2019– Qisen Shang, Ph.D. student, Façade Texture Syntheses.
- 2019– Daiwei Zhang, Ph.D. student, Self-calibration of Mobile Mapping System.
- 2018– Zhendong Wang, Ph.D. student, Trajectory Optimization of Mobile Mapping System.

- 2018– Li Chen, Ph.D. student, Landslide Susceptibility Mapping.
- 2018– Haojia Yu, Ph.D. student, Building Footprint Extraction.
- 2017– Haowei Zeng, Ph.D. candidate, Landslide Susceptibility Mapping.
- 2017– Lin Chen, Ph.D. candidate, Post-disaster Landslide Detection.
- 2016– Shengzhi Huang, Ph.D. candidate, Building Change Detection from Oblique Images.

Former Co-Supervised Students

- 2017–21 Shiming Li, Ph.D., “Laplacian fusion approach of LiDAR and photogrammetric point clouds”.
- 2016–20 Feng Wang, Ph.D., “Reconstruction at LOD-2 level of building models by means of contour features from oblique photogrammetry”.
- 2015–19 Linfu Xie, Ph.D., “Integration of aerial and ground data for optimized 3D modeling in urban areas”.
- 2016–19 Dengxing Wang, M.Eng., “Precision localization of street-view panorama based on aerial oblique images”.
- 2016–19 Tong Kuai, M.Eng., “Contour line restricted façade optimization of photogrammetric mesh models”.
- 2016–19 Mier Zhang, M.Eng., “Method for correcting façade texture of street-view image considering rigid shape manipulation”.
- 2016–19 Bohang Chen, M.Eng., “Global DEM accuracy evaluation method based on GLAS laser altimetry data”.
- 2016–19 Linlin Zhang, M.Eng., “Optimization method of fragmented textures of detailed building models for high performance visualization”.
- 2015–18 Qiqiang Weng, M.Eng., “An Automatic Texture Mapping Method of 3D Building Models Based on Oblique Photogrammetry”.
- 2015–18 Tao Zhang, M.Eng., “A oblique images feature matching method based on parallax relaxation transmission constraint”.
- 2014–17 Chongtai Chen, M.Eng., “Texture-aware adaptive dense matching for oblique images”.
- 2013–16 Yuan Li, M.Eng., “Semantic segmentation of point clouds with multi-level relationships”.

Awards Received by Students

- 2021 Liupeng Su, National Second Prize, China Student Innovation and Entrepreneurship Competition Track A02, Top-3 (243 Participates).
- 2020 Cheng Liao, Lin Chen, Haojia Yu, **Champion (Prize ¥100,000), Huawei Cloud Cup AI+ Competition, Huawei.** [\[Web\]](#)
- 2020 Lin Chen, Cheng Liao, Haojia Yu, **Runner-Up (Prize ¥100,000), Digital China Summit, Smart Government Competition.** [\[Web\]](#)
- 2020 Lin Chen, Gold Medal, Sichuan Internet+ Contest.
- 2019 Mier Zhang, Best Youth Paper Award, CVGE.
- 2018 Linlin Zhang, Best Youth Paper Award, First Class, Annual Conference of CSGPC.

- 2018 Shiming Li, Best Youth Paper Award, Second Class, Annual Conference of CSGPC.
 2014 Yuan Li, Best Youth Paper Award, First Class, Annual Conference of CSGPC.

Other Activities by Students

- 2020 Han Xu et al., Students Research and Training Program, State-Level Project.
 2020 Lin Chen, Rank 6, Gaofen Cup, Semantic segmentation of polarized SAR data. [\[Web\]](#)
 2020 Cheng Liao, final score: 0.690, CCF Big Data & Computing Intelligence Contest, Plot segmentation based on remote sensing imagery, CCF & Baidu. [\[Web\]](#)
 2020 Cheng Liao, Rank 31/1732, National Artificial Intelligence Challenge (Huawei Shengteng Cup) AI + Remote Sensing, Huawei & Shenzhen. [\[Web\]](#)
 2020 Bihong Yang, Ruijie Huang, "South Survey Cup", Sichuan Competition of Surveying and Mapping, Second Class.
 2020 Pei Tan, Yuan Pan, "South Survey Cup", Sichuan Competition of Surveying and Mapping, Third Class.

SERVICE

Academic Journal Peer Review

Acta Geodaetica et Cartographica Sinica (in Chinese)
Advances in Space Research
Engineering of Surveying and Mapping (in Chinese)
Geo-spatial Information Science
Geomatics and Information Science of Wuhan University (in Chinese)
Geosciences
IEEE Geoscience and Remote Sensing Letters
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
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

Funding Agency Peer Review

Foreign Expert Project, Ministry of Science and Technology, China

National Natural Science Foundation of China

Services to Department and Faculty

- 2021 Program for Graduate Student in Surveying and Mapping of SWJTU
- 2021 Excellent Faculty Award, FGEE
- 2020 Committee for 5th Discipline Assessment of Surveying and Mapping by Ministry of Education of China, FGEE
- 2020 Committee for Doctoral Program Application, SCE
- 2020– Supervision of Undergraduate Thesis (about 6 per year), FGEE
- 2020 Committee on Discipline Planning of Surveying and Mapping for 2021–2025, FGEE
- 2020– Ph.D. Program Admissions Committee, FGEE
- 2020– Master Program Admissions Committee, FGEE

SELECTED MEDIA COVERAGE

- 2021 *Hi-Target Positioning*, “Photo-realistic 3D modeling improves the construction of digital twin city”, Jan. 8. [\[PDF\]](#)[\[Web\]](#)
- 2020 *SWJTU*, “VGE team finished in second place at the Innovative Application Competition of Digital China Innovation Contest 2020·Digital Government”, Jul. 13. [\[Web\]](#)
- 2020 *36 Kr*, “Development of Precision 3D Models for the Geographic Environment of New Generation Infrastructure”, Apr. 17. [\[Web\]](#)

DESCRIPTIVE BIOGRAPHY

Dr. Hu is currently Professor at the Southwest Jiaotong University, China. He graduated (BEng.) in 2010 at Wuhan University, School of Remote Sensing and Information Engineering, China. In the same year, he joined the State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University, where in 2015 he received the Ph.D. degree in Photogrammetry and Remote Sensing.

In 2011–2013, he worked as temporary full-time Research Assistant at the Department of Land Surveying and Geo-Informatics, the Hong Kong Polytechnic University (PolyU). During this period, he devoted into the development of photogrammetric topographic modelling of the Chang’E-3 landing site in the Sinus Iridium of the Lunar surface; this work had produced a precision lunar topographic

model at 20 meters resolution in large scale for the first time.

In 2010–2015, he developed a photogrammetric processing system for the first airborne penta-view oblique camera system (SWDC-5) in China. His research had solved the image feature matching problem of aerial oblique images, an open problem at that time. This research had successfully turned into a commercial software for 3D urban modeling, OSketch.

In 2015–2019, he worked as a Postdoctoral Fellow at PolyU, where he extended the Lunar topographic mapping system to a general system, capable of processing all the high-resolution planetary stereo satellite images for the topographic modelling of Lunar and Mars surface. The landing location of the Chang'E-4 mission was chosen according to the findings produced by this system. Meanwhile, he also lead the development of software for Global Digital Elevation Models organized by NGCC of China's Global Mapping Project.

Since 2019, he works as Professor at SWJTU, the youngest Professor in the Faculty of Geosciences and Environmental Engineering. He is now leading a team of two Associate Professors, one Research Associate and more than 10 PhD. students on Photogrammetry and 3D GIS.

Now the team is focusing on the research and development for efficient 3D modeling, including: 1) global- and country-scale DEM generation using stereo satellite images (e.g., ZY-3/GF-7/TH-1/TH-3), bi-static InSAR data (e.g., TH-2) and airborne Ka-InSAR data; 2) city-scale urban LOD generation using oblique images, LiDAR and multi-view satellite images (e.g., WorldView-3); 3) inverse procedure modeling of highway using ground Mobile Mapping System (e.g., LiDAR and panoramas).