Zhouxuan Xiao

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Education

Sun Yat-sen University *Zhuhai, China*

PH.D. IN CARTOGRAPHY AND GIS *Sep. 2020 – Dec. 2024*

- Supervisor: Prof. Dr. Wuming Zhang and Prof. Dr. Zhiyong Xiao
- Research Topic: Automatic Detection and Classification of Lunar Surface Changes
- Skills: ISIS3, ASP, ArcGIS, ENVI, Blender, python, C++

University of Trento *Trento, Italy*

VISITING SCHOLAR IN INFORMATION ENGINEERING AND COMPUTER SCIENCE *Oct. 2022 – Oct. 2023*

Supervisor: Prof. Dr. Lorenzo Bruzzone

- Research Topic: Remote Sensing Images Change Detection
- Skills: Linux, python, Matlab, deep learning

Chang'an University *Xi'an, China*

M.S. IN GEOLOGY *Sep. 2017 – Jul. 2020*

- Supervisor: Prof. Dr. Ran Wang
- Research Topic: Multi-scale Segmentation and Classification of Remote Sensing Imagery
- Skills: eCognition developer, QGIS, Matlab, C

Chang'an University *Xi'an, China*

B.S. IN RESOURCE EXPLORATION ENGINEERING *Sep. 2013 – Jul. 2017*

- Supervisor: Prof. Dr. Ran Wang
- Research Topic: Fault Zone Investigation and Analysis
- Skills: MS Office, CorelDraw, C

Selected Awards

2025 – **Egret Star Program**		*Shenzhen, China*
2023 - **Scholarship**, 3rd place Scholarship of Sun Yat-sen University		*Zhuhai, China*
2022 - **Scholarship**, CSC		*China*
2022 - **Scholarship**, 2nd place Scholarship of Sun Yat-sen University		*Zhuhai, China*
2021 - **Scholarship**, 2nd place Scholarship of Sun Yat-sen University		*Zhuhai, China*
2021 - **Award**, Champion of Volleyball match in Zhuhai Campus, SYSU		*Zhuhai, China*
2021 - **Award**, 2nd place of Basketball match in Zhuhai Campus, SYSU		*Zhuhai, China*
2020 - **1st Place**, High-precision Map Contest in the National LiDAR Conference		*Beijing, China*
2020 - **2nd Place**, Point Cloud Classification Contest in the National LiDAR Conference		*Beijing, China*
2020 - **Scholarship**, 3rd place Scholarship of Sun Yat-sen University		*Zhuhai, China*
2020 - Outstanding Graduates Awards of Chang'an University		*Xi'an, China*
2019 - **Scholarship**, National Scholarship for Graduate Student		*Xi'an, China*
2016 - Merit Student Awards of Chang'an University		*Xi'an, China*
2015 - **Scholarship**, National Endeavor Scholarship for Undergraduate Student		*Xi'an, China*

Research Projects

2021-present: **3D rock extraction on Mars** (State Key Laboratory of Remote Sensing, Participant)

2020-present: **Site selection for the International Lunar Research Station** (CNSA, Participant)

2019-2020: **Digitalizing rocky valley using point cloud data** (Shaanxi Provincial Natural Science Foundation Project, Co-investigator)

2019-2020: **Multi-scale analysis and feature extraction of crystalline rocks** (Postgraduate research innovation practice project, principal investigator)

2017-2019: **Surrounding rock lining of tunnel crossing active fault** (National Key R&D Program, Co-investigator)

2016-2018: I**nvestigation of oil and gas resources around the Qaidam Basin** (China Geological Survey Project, Co-investigator)

Publication List

Papers on peer-review journals:

[17] Zhiyong Xiao, **Zhouxuan Xiao**, Wuming Zhang, Shubing Ouyang, Yichen Wang, Yiren Chang, Hanxing Ouyang, Senmiao Wang, Jun Cui. "Active landslides on the Moon." National Science Review, nwaf384, 2025. https://doi.org/10.1093/nsr/nwaf384

[16] Yuan Li, Xusheng Zhang, Junying Lv, Wuming Zhang, **Zhouxuan Xiao**, Ziyi Xiong. "A multi-objective multi-factor integrated method for comprehensive luna base site selection." Geo-Spatial Information Science, 1-28, 2024, https://doi.org/10.1080/10095020.2025.2495682.

[15] Chaohua Ma, Yuan Li, Junying Lv, **Zhouxuan Xiao**, Wuming Zhang, Linshan Mo. "Automated Rock Detection from Mars Rover Image via Y-shape Dual-Task Network with Depth-aware Spatial Attention Mechanism". IEEE Transactions on Geoscience and Remote Sensing, 2024, https://doi.org/10.1109/TGRS.2024.3371684.

[14] Yuanhe Yu, **Zhouxuan Xiao**, Lorenzo Bruzzone, Huan Deng. "Mapping and analyzing the spatiotemporal patterns and drivers of multiple ecosystem services: A case study in the Yangtze and Yellow River Basins". Remote Sensing, 2024, https://doi.org/10.3390/rs16020411.

[13] Yuan Li, **Zhouxuan Xiao**, Chaohua Ma, Linzhou Zeng, Wuming Zhang, Man Peng, Aiguang Li. "Extraction and Analysis of Three-dimensional Morphological Features of Centimeter-scale Rocks in Zhong Landing Region". JGR-Planets, 2023, https://doi.org/10.1029/2022JE007656.

[12] Yonghui Xin, Ran Wang, Xi Wang, Xingwei Wang, **Zhouxuan Xiao**, Jingyu Lin. "High-Resolution Terrain Reconstruction of Slot Canyon Using Backpack Mobile Laser Scanning and UAV Photogrammetry". Drones, 2022, 6(12), 429, https://doi.org/10.3390/drones6120429.

[11] Yichen Wang, Zhiyong Xiao, Rui Xu, **Zhouxuan Xiao**, Jun Cui. "Dark spots on Mercury show no signs of weathering during 30 Earth months". Communications Earth & Environment, 2022, Springer Nature, https://doi.org/10.1038/s43247-022-00634-z.

[10] **Zhouxuan Xiao**, Linzhou Zeng, Yuan Li*, Jie Shao, Chaohua Ma, Wuming Zhang*, Man Peng. "High-Precision

Measurement of 3-D Rock Morphology on Mars Using Stereo Rover Imagery". IEEE Geoscience and Remote Sensing Letters, 2022, Vol.19, https://doi.org/10.1109/LGRS.2022.3154629.

[9] Zhouxuan Xiao, Licheng Ma, Wan Jiang, Ran Wang, Yuyan Yao, Jie Cai, Jingyu Lin, Lu Li. Grenville-age orogenic event along the northeastern margin of the Quanji massif, NW China: constraints from ~1.1 Ga migmatite. Geosciences Journal, 2020, 24, 249–266, https://doi.org/10.1007/s12303-019-0033-8.

[8] Ran Wang, Jingyu Lin, Lu Li, **Zhouxuan Xiao**, Yonghui Xin. "A revised orientation-based correction method for SfM-MVS point clouds of outcrops using ground control planes with marks". Journal of Structural Geology, 2021, 143, 104266, https://doi.org/10.1016/j.jsg.2020.104266.

[7] Yuanxiu Hui, Rang Wang, Lu Li, Jingyu Lin, **Zhouxuan Xiao**, Yonghui Xin. "The timing of barleik formation and its implication for the devonian tectonic evolution of western junggar, NW china". Open Geosciences, 2021, 13(1), 188-196, https://doi.org/10.1515/geo-2020-0229.

[6] Licheng Ma, Wan Jiang, **Zhouxuan Xiao**, Zongxing Li, Bo Peng, Junjie Hu, Min Dong. "Discussion on the depositional timing of the Zhabusagaxiu formation in the eastern Qaidam Basin". Journal of Geomechanics, 2020, 26(6):961-972. https://doi.org/10.12090/j.issn.1006-6616.2020.26.06.077.

[5] SUN, J., JIANG, W., MA, L. and **XIAO, Z**. (2019), Early Permian Strata Exist in the Olongbluk Block. Acta Geologica Sinica - English Edition, 93: 481-482. https://doi.org/10.1111/1755-6724.13786

[4] Lu Li, Ran Wang, Jingyu Lin, **Zhouxuan Xiao**, Yuanxiu Hui. "A Novel Approach for Extraction of Ripple Mark Parameters Based on SfM". Sedimentary Geology, 2019, 392, 105523, https://doi.org/10.1016/j.sedgeo.2019.105523.

[3] Ran Wang, Jingyu Lin, Bo Zhao, Lu Li, **Zhouxuan Xiao**, Jürgen Pilz. "Integrated Approach for Lithological Classification Using ASTER Imagery in a Shallowly Covered Region—The Eastern Yanshan Mountain of China". IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2018, vol. 11, no. 12, pp. 4791-4807, https://doi.org/10.1109/JSTARS.2018.2879493.

[2] Ran Wang, **Zhouxuan Xiao**, Jingyu, Lu Li, Wenling Cui. "*The Diverse Tectonic Background of Boudinage Structures*". Geotectonica et Metallogenia, 2018, 45(5):777-785.(EI)

[1] Zhouxuan Xiao, Hui Li, Rukuan Chai. "Well productivity formula in low permeability reservoir with threshold pressure gradient". Petrochemical Application, 2016, 35(9), https://doi.org/10.3969/j.issn.1673-5285.2016.09.009.

Papers on academic conferences:

[6] Zhouxuan Xiao, Ran Wang, Jingyu Lin, Wuming Zhang. "Outcrop-scale Yardang Geometric Analysis using SfM-MVS Point Clouds in Hami Area, NW China". The Third Symposium on Space Earth Science, China, 2020.

[5] Zhouxuan Xiao, Ran Wang, Yuanxiu Hui, Jingyu Lin, Lu Li. "Integrated Approach for Calculating the Mineral Assemblages and Oxide Percentage of Crystalline Rock based on Object-Based Image Analysis and Electron Probe Microscopic Analyzer". IEEE International Conference on Image, Vision and Computing (ICIVC), 2019, pp. 109-113, https://doi.org/10.1109/ICIVC47709.2019.8981017.

[4] Yuanxiu Hui, **Zhouxuan Xiao**, Ran Wang, Jingyu Lin, Lu Li. "Feature Extraction and Analysis of Zircon Cathodoluminescence Images Based on Multiscale Segmentation". IEEE International Conference on Image, Vision and

Computing (ICIVC), 2019, pp. 114-117, https://doi.org/10.1109/ICIVC47709.2019.8980954.

[3] Jingyu Lin, Ran Wang, Lu Li, **Zhouxuan Xiao**. "A Workflow of SfM-Based Digital Outcrop Reconstruction Using Agisoft PhotoScan". IEEE 4th International Conference on Image, Vision and Computing (ICIVC), 2019, pp. 711-715, https://doi.org/10.1109/ICIVC47709.2019.8980982.

[2] Lu Li, Ran Wang, Jingyu Lin, **Zhouxuan Xiao**. Yuanxiu Hui, Wei Zeng, "Arbitrary Oriented Outcrop Section Measurement Using 3D Point Cloud". IEEE International Conference on Image, Vision and Computing (ICIVC), 2019, pp. 193-196, https://doi.org/10.1109/ICIVC47709.2019.8981331.

[1] Jingyu Lin, Ran Wang, **Zhouxuan Xiao**, Lu Li, Weihua Yao, Wei Han, Baolin Zhao. "Application of backpack Lidar to geological cross-section measurement". Proceeding of SPIE 10605, LIDAR Imaging Detection and Target Recognition 2017, 106050J (15 November 2017), https://doi.org/10.1117/12.2295060.

Datasets:

[2] Li, Yuan, **Xiao, Zhouxuan**, Ma, Chaohua, Zeng, Linzhou, Zhang, Wuming*, Peng, Man, & Li, Aiguang. (2023). DEM, rock point clouds, and 3D morphological features of Martian rocks in the landing region of Zhurong rover (1.0) [Data set]. Zenodo. https://doi.org/10.5281/zenodo.7620416

[1] Ma, Chaohua, Li, Yuan, **Xiao, Zhouxuan**, Zhang, Wuming, Mo, Linshan, & Li, Aiguang. (2023). SimMars6K (1.0) [Data set]. Zenodo. https://doi.org/10.5281/zenodo.7707898

Patents:

[2] 林靖愉, 王冉, 惠元秀, 辛永辉, 李路, **肖宙轩**, 刘源. "基于 NED 坐标系向量旋转的 SfM 点云校正方法".中国发明专利.2020. https://patents.google.com/patent/CN112712559B/zh

[1] 王冉, 林靖愉, 李路, **肖宙轩**, 惠元秀, 辛永辉. "一种用于 SfM 三维建模的加载激光无级比例尺的永平指南针". 中国发明专利, 2019. https://patents.google.com/patent/CN110672080A/zh