

Bowen Gao

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OBJECTIVES

I am a dedicated and accomplished PhD graduate specializing in Remote Sensing and GIS, complemented by extensive experience in satellite imagery processing and geospatial data analysis. I am skilled in utilizing cutting-edge deep learning approaches in GeoAI research. I am seeking challenging opportunities where I could apply technical expertise and research experience in solving real-world problems and developing innovative solutions for diverse fields. I am confident that being well-motivated, diligent, detail-oriented and analytical I should be able to contribute to the future success of my employer.

ABILITIES

- Quick learner: acquired an impressive set of technical skills in a short period of time to support PhD research
- Natural leader: held numerous leadership positions in academic and social circles at the university
- Persistent in delivering results: proven through a broad range of academic achievements

TECHNICAL SKILLS

- Programming Languages: Python, R, C++, SQL, Matlab
- Tools: TensorFlow, PyTorch, scikit-learn, OpenCV, GDAL, Rasterio, scikit-image, pandas, Google Earth Engine, Git
- Software: QGIS, ArcGIS, ENVI, Agisoft Photoscan, PostgreSQL, Adobe Photoshop, Inkscape, MS Office
- Operating Systems: Windows, Linux

EDUCATION

Zhejiang University

Hangzhou, China

PhD, Remote Sensing and Geographic Information System (GIS)

Sept 2017–Sept 2023

- Fields: image processing & analysis, spatio-temporal data analysis, GeoComputation, GeoAI, geomorphological mapping
- Doctoral thesis: Spatial distribution characteristics of yardang landforms and their impact factors in the Qaidam Basin based on multi-source remote sensing data. Supervised by Prof. Dr. Ninghua Chen.

Paris Lodron University of Salzburg

Salzburg, Austria

Visiting PhD Student

Jun 2021–Jun 2022

- Fellowship recipient (Zhejiang University International Cooperative Research and Exchange Programs). Supervised by Prof. Dr. Thomas Blaschke.

Hohai University

Nanjing, China

BEng, Geodesy and Geomatics Engineering, GPA: 4.6/5.0

Sept 2013–Jun 2017

BBA, Business Administration, GPA: 4.6/5.0

RESEARCH EXPERIENCE

Zhejiang University, School of Earth Sciences

Hangzhou, China

PhD Researcher

Sept 2017–Sept 2023

- Collected very high spatial resolution remote sensing imagery from the Google Earth platform; created and published a COCO format dataset for the segmentation task of yardang landform
- Implemented and improved a CNN-based deep learning model to detect, classify, and delineate yardangs and evaluated the algorithm accuracy with the change of image resolution and spatial content
- Conducted a large-scale mapping of yardangs using the proposed deep learning model; extracted the morphological parameters (length, width, aspect ratio, orientation, area, etc.) of more than 680,000 yardangs using open-source tools and auto-process scripts to reveal their spatial distribution
- Utilized the statistical model (PLS-SEM) to analyze the relationships between yardang abundance at the landscape scale and its impact factors (wind, soil, topography, precipitation, etc.) derived from multi-source remote sensing and geospatial datasets
- Constructed 3D terrain model of yardangs with Agisoft Photoscan using UAV images; modeled its near-surface wind field
- Studied land surface erosion process in arid regions using landscape evolution modeling (Landlab)
- Worked with team to extract other geomorphic features (dyke swarms, triangular facets) with diverse computer vision approaches

Paris Lodron University of Salzburg, Department of Geoinformatics - Z_GIS

Salzburg, Austria

PhD Researcher

Jun 2021–Jun 2022

- Worked with the Risk, Hazard & Climate and EO Analytics research group to apply deep learning algorithms to the mapping of landslides based on multispectral/SAR imagery

China National Silk Museum

Hangzhou, China

Researcher

Jan 2020–Dec 2022

- Worked with a team for the development of Jinshow World Silk Interactive Map (an information database and demonstration platform for silk cultural heritage, National Key R&D Program of China)
- Designed data storage schema for structural and non-structural data
- Pre-processed data, including data cleaning and spatializing with PostgreSQL and Python
- Assisted in the paperwork for the project proposal, final report, and technical documents

Second Institute of Oceanography of the Ministry of Natural Resources of China

Hangzhou, China

Software Developer

Jan 2018–Dec 2019

- Developed a standalone GIS application with C++ based on QGIS 2 API to manage and process raster/vector data for offshore environment research

LEADERSHIP EXPERIENCE

Zhejiang University, School of Earth Sciences

Sept 2018–Sept 2021

Teaching Fellow

Hangzhou, China

- Prepared course material including lectures and experiments for the graduate course Remote Sensing Geo-Analysis
- Advised 200+ students on research design, experimental guidance, and weekly homework

Zhejiang University, Publicity Department of the Doctoral Students' Union

Dec 2017–Dec 2018

Vice Director

Hangzhou, China

- Managed and maintained the social media (WeChat) official account of the association which has 30k+ followers
- Designed logos, posters, and other visual image materials for the opening ceremony and university anniversary

Zhejiang University, Chu Kochen Honors College

Sept 2018–Sept 2019

College Counselor

Hangzhou, China

- Assisted 100+ students in the evaluation of awards, career development, employment services, funding, and daily affairs management

Zhejiang University, Choir of the Graduate Art Troupe

Sept 2018–Sept 2019

Leader

Hangzhou, China

- Planned and organized 5 university-level performances; scheduled rehearsals and vocal training for group members
- Led a team of 13 to participate in the 11th Singapore Chinese Vocal International Competition and won 4 gold awards

LANGUAGES

Chinese (Native), English (Proficient/C1), French (Conversational/B1), German (Beginner/A1)

SELECTED PUBLICATIONS

- **Gao B**, Chen N, Blaschke T, et al. Automated characterization of yardangs using deep convolutional neural networks[J]. Remote Sensing, 2021, 13(4): 733.
- Zhang H, Chen N, **Gao B**, et al. Semi-automatic mapping of dyke and dyke-related fractures using UAV-based photogrammetric data: A case study from Sijiao Island, coastal Southeastern China[J]. Journal of Structural Geology, 2020, 132: 103971.
- Lin N, Xu Y, **Gao B**, et al. Semi-automatic extraction of triangular facet attitude based on edge extraction algorithm[J] Earth Science, 2021, 46(10): 3753-3763 (in Chinese)
- **Gao B**, Chen N, Zhang D, et al. Large-scale mapping of yardangs in the Qaidam Basin using deep learning and effects of multiple environmental factors on yardang development [J] Geomorphology, 2024 (revision submitted)