Pengyu Chen

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Education

M.S. **University of South Carolina**, Geography   Sept 2024 – May 2026
- Advisor: Dr. Sicheng Wang || TA scholarship

B.S. **Wuhan University of Technology**, Geographic Information Science   Sept 2020 – June 2024
- Advisor: Prof. Wei Cui || Chair of GIS Association

Publications

Where are GIScience Faculty Hired from? Analyzing Faculty Mobility and Research Themes Through Hiring Networks   Aug 2025
Yanbing Chen, Jonathan Nelson, Bing Zhou, Ryan Zhenqi Zhou, Shan Ye, Haokun Liu, Zhining Gu, Armita Kar, Hoeyun Kwon, **Pengyu Chen**, Maoran Sun, Yuhao Kang
https://doi.org/10.48550/arXiv.2508.09043 ↗

A GAN-Enhanced Deep Learning Framework for Rooftop Detection from Historical Aerial Imagery   July 2025
Pengyu Chen, Sicheng Wang, Chengyang Wang, Senrong Wang, Beiao Huang, Lu Huang, Zhe Zang
https://doi.org/10.1080/01431161.2025.2534994 ↗

Cross-Modal Urban Sensing: Evaluating Sound-Vision Alignment Across Street-Level and Aerial Imagery   June 2025
Pengyu Chen, Xiao Huang, Teng Fei, Sicheng Wang
https://doi.org/10.48550/arXiv.2506.03388 ↗

Intelligent Bear Prevention System Based on Computer Vision-An Approach to Reduce Human-Bear Conflicts in the Tibetan Plateau Area, China   Mar 2025
Pengyu Chen, Teng Fei, John A. Kupfer, Yunyan Du, Jiawei Yi, Yi Li
https://doi.org/10.48550/arXiv.2503.23178 ↗

Socio-demographic inequalities in the impacts of extreme temperatures on population mobility   June 2023
Xinyue Gu, **Pengyu Chen**, Chao Fan
https://doi.org/10.1016/j.jtrangeo.2023.103755 ↗

Multi-Agent Path Optimization Based on STA* Algorithm   Nov 2022
Ruixiang Cheng, Xinyu Wang, **Pengyu Chen**, Jiaxin Liu
https://doi.org/10.1145/3582935.3583037 ↗

Impacts of Ethiopia Dam on Vegetation and Water and Ecological Countermeasures   Nov 2022
Pengyu Chen, Tengyuan Liang, Zibin Wu
https://doi.org/10.1088/1755-1315/1011/1/012044 ↗

Research Insterests

- Applying deep learning and spatial statistics to analyze human and environmental spatial behavior.
- Leveraging AI in remote sensing for environmental monitoring and conservation efforts.
- Integrating computer vision and multimodal data analysis for urban sensing and planning.

Ongoing Projects

Spatial Model of Crash Fatalities by Examining Effects of Infrastructural Factors: A Case Study on South Carolina
Co-first author | Submitted to TRB Conference

Deep Learning in the Urban Forest: High-Resolution Canopy Change Detection in Columbia, SC (2005-2023)
First author

Research Experience

University of South Carolina, Research Assistant   Columbia, South Carolina
                                                                                    July 2025 – Aug 2025
- This project is funded by City of Columbia.
- Training a canopy segmentation model of 4 years NAIP remote sensing imagery.
- Analysis canopy loss/gain across each neighborhoods in Columbia.
- Supervisor: Prof. Cuizhen Wang, Prof. Kirstin Dow

Wuhan University, Visiting Student & Research Assistant   Wuhan, China
                                                                                    July 2023 – July 2024
- Trained YOLO-based object detection algorithm and deployed model compression to the K210 microcontroller.
- Application: Detecting Tibetan brown bears and using K210 to drive water pumps and bear spray.
- Supervisor: Prof. Teng Fei

Harvard University Spatial Data Lab, Research Intern   Remote
                                                                                    May 2024 – Oct 2024
- Spatial Data Laboratory (SDL) Internship Program
- Geographic Big Data Analytics, Spatio-Temporal Data Mining
- Supervisor: Dr. Yuhang Pan, Peking University

Clemson University, Research Intern   Remote
                                                                                    Sept 2022 – Jan 2023
- Data processing, data cleaning, and curve generation using MATLAB and Python.
- Published paper in the Journal of Transport Geography.
- Supervisor: Dr. Chao Fan

Teaching Experience

Landform Geography (GEOG 201), Graduate Instructor, 2024 Fall

Landform Geography (GEOG 201), Graduate Instructor, 2025 Spring

Professional Experience

Xuzhou Construction Machinery Group (XCMG) - Road Machinery Division, Algo-   Xuzhou, China
rithm Intern   Jan 2022 – Mar 2022
- Developed digital roads using Leica software and presented results with ArcGIS.
- Implemented and modified curve fitting algorithms for practical applications.
- Supervisor: Mr. Bowen Wu

Leading Experience

GISinfo (Subprojects under GISphere), Development Team Leader,Members of the   Wuhan, China
Council   Feb 2022 – present
- Develop backend using Django framework with Django REST Framework APIs and MySQL database. Develop frontend using VUE and Maptable.
- Manage user demand pool, leading backend and frontend development.
- website: https://gisphere.info/

Scholarship & Awards

Graduate Instructor Assistant Scholarship (start from 2024 fall)

AAG Graduate student Travel grant

2022 Huazhong Cup Mathematical Modeling Competition, Second Prize

Technologies

Programming Languages: Python, Java, C#

Software: MySQL, ArcGIS, QGIS, MATLAB

Languages: English (TOEFL iBT 102, tested in 2024), Chinese(First language)

Services

Peer Review for Academic Journals: Computational Urban Science

Voluntary Service: Board members of GISphere