

# Peilong Ma (马培龙)

Research interests: geospatial information services, AI for Science, open science infrastructure

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## Education

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**Nanjing Normal University** Sep. 2022 - Present

PhD Candidate in GIS, supervised by [Prof. Min Chen](#)

School of Geography, Nanjing, China

Honors: Doctoral Academic Rising Star Program; First-Class Scholarship

**Nantong University** Sep. 2018 - Jun. 2022

BSc in GIS

Nantong, China

Honors: Outstanding Graduate

## Experience

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**Researcher and Core Developer** Sep. 2022 - Present

*OpenGMS Lab, Nanjing Normal University*

*Nanjing, China*

- Develop open infrastructures for geographic modeling, including [OpenGMS](#) and [OpenGMP](#), with emphasis on model knowledge organization, service integration, and reproducible workflows.
- Support research software and service pipelines for geographic analysis, simulation, and decision support in AI for Science settings.

**Open-source Developer** Jan. 2025 - Present

*PyGeoModel and OpenGeoLab*

*Nanjing, China*

- Build Jupyter-centered tooling for model recommendation, interactive configuration, service-based execution, and reproducible workflows.
- Maintain open-source codebases for geospatial modeling, model services, and language-model-driven GIS tooling.

## Selected Publications

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[1] **Peilong Ma**, Min Chen, Dichen Liu, Wei Xie, Tianyu Sheng, et al., “PyGeoModel: A Python Package for Integrating Intelligent Geographic Model Services for Urban Analysis in Jupyter,” 2026 [\[Paper Link\]](#) [\[Under Review\]](#)

[2] Hongping Zhang<sup>†</sup>, **Peilong Ma**<sup>†</sup>, Cong Wang, Lei Ding, Zhen Wang, and Heng Li, “Chat2Map: A ReAct-based Agent Framework for Automated Web Map Generation from Natural Language Instructions,” 2026 [\[Paper Link\]](#) [ISPRS 2026]

[3] **Peilong Ma**, Min Chen, Shuo Zhang, Zhiyi Zhu, Zhen Qian, et al., “Facilitating sensitivity analysis of hydrological models through knowledge-driven configuration and distributed online model services,” *Journal of Hydrology*, 2025 [\[Paper Link\]](#)

[4] **Peilong Ma**<sup>†</sup>, Minshuo Zhou<sup>†</sup>, Wanhao Li, Wei Xie, Tianyu Sheng, et al., “OpenGeoLab: Synergizing service-oriented resources and reproducible workflows for geographic modeling,” 2026 [\[Paper Link\]](#) [\[Under Review\]](#)

[5] Kai Xu, Songshan Yue, Qingbin Chen, Jin Wang, Fengyuan Zhang, Yijie Wang, **Peilong Ma**, et al., “Construction of an open knowledge framework for geoscientific models,” *Transactions in GIS*, 2024 [\[Paper Link\]](#)

[6] Wanhao Li, Min Chen, Fengyuan Zhang, **Peilong Ma**, et al., “Optimizing AI-driven Geographic Simulation Task Scheduling through Intelligent Runtime Estimation,” 2026 [\[Paper Link\]](#) [\[Under Review\]](#)

[7] **Peilong Ma**, Fei Tao, Lina Gao, Shaijie Leng, Ke Yang, and Tong Zhou, “Retrieval of Fine-Grained PM2.5 Spatiotemporal Resolution Based on Multiple Machine Learning Models,” *Remote Sensing*, 2022 [\[Paper Link\]](#)

† Co-first authors

## Projects

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**PyGeoModel** 2025 - Present  
*Open-source developer; GitHub + PyPI*

- An intelligent Python package for integrating geographic model recommendation, configuration, and execution into Jupyter-based urban and geospatial analysis workflows.

**GeoDataProcessor-MCP** 2025 - Present  
*Open-source developer*

- An MCP server that exposes WhiteBox and SAGA GIS style capabilities for language-model-based agents and desktop assistants.

**RS\_Segmentation** 2024 - Present  
*Open-source developer*

- A geospatial AI system for remote sensing image segmentation with text-prompt interaction, point-based refinement, and GIS-oriented data export.

## Selected Talks

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**OpenGeoLab: Synergizing service-oriented resources and reproducible workflows for geographic modeling** Nov. 2025  
*International Congress on Modelling and Simulation 2025* *Adelaide, Australia*

- Presented OpenGeoLab as a unified infrastructure pattern for service-oriented resources and reproducible workflows in geographic modeling.

**PyGeoModel: A Python Package for Integrating Intelligent Geographic Model Services into Jupyter’s Interactive Computing Environment** Jun. 2025  
*32nd International Conference on Geoinformatics and CPGIS Annual Conference* *Jiaozuo, China*

- Presented PyGeoModel and received the [Best Paper](#) award.

**Knowledge- and service-driven hydrological sensitivity analysis: an early exploration of intelligent geographic modeling** Apr. 2025  
*Annual Meeting of the CAG Specialized Committee on Geographic Modeling and GIS Analysis* *Hangzhou, China*

- Reported early work on hydrological sensitivity analysis based on knowledge organization and online model services.

## Awards & Honors

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- [Best Paper](#), 32nd International Conference on Geoinformatics and CPGIS Annual Conference, 2025
- Doctoral Academic Rising Star Program, Nanjing Normal University, 2024
- First-Class Scholarship, Nanjing Normal University, 2024
- Outstanding Graduate, Nantong University, 2022