Zhou Yuxin

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EDUCATION

Harvard University Sep 2025- Present

Visiting PhD, Department of Earth and Planetary Sciences,

National Key Laboratory of Earth System Numerical Modeling and Application, University of Chinese Academy of Sciences, Sep 2021- Present

Course weighted average score: 80/100(GPA: 3.4/4.00)

Geodynamics PhD, College of Earth and Planetary Sciences,

Changsha University of Science and Technology Sep 2017-Jun 2021

Applied Statistics Bachelor, Mathematics and Statistics College

Course weighted average score: 85/100(GPA: 3.5/4.00)

RESEARCH EXPERIENCE

DAMO Academy of Alibaba Group Sep 2022- Mar 2024

Research Intern

- Conducted AI for Science research using artificial intelligence tools, developing and implementing a deep learning model (e.g., RNN/Transformer) to enhance the accuracy of earthquake signal detection.
- Wrote popular science article in concerned areas

RESEARCH PROJECT

Research on key technologies for medium- and long-term numerical prediction of earthquakes based on kinetic models Nov 2023- Present

The National Key Research and Development Program of China

With Institute of Earthquake Forecasting, CEA and Institute of Geophysics, China Earthquake Administration

Supervisor: Prof. Huai Zhang

Contributions: Using Big Data and Artificial Intelligence to Identify Precursors

- Weak Signal Separation and Enhancement Using Artificial Intelligence and Big Data. Analyze the Precursor Mechanisms of Existing Several-Year Scale Prediction Methods Using Numerical Simulation Techniques.
- The reconfigured and designed neural network model for weak signal recognition and feature information extraction lays the foundation for future upcoming weak signal enhancement and precursor anomaly information recognition with high spatial and temporal resolution.

Inversion of fault closure state and analysis of seismic activity in the Jan 2022-Dec 2024

Zhaotong-Lianfeng fault zone

The National Key Research and Development Program of China

Contributions: Applied statistical and geophysical models to assess seismic patterns

- Conducted seismic activity analysis of the Zhaotong-Lianfeng fault zone, focusing on earthquake recurrence intervals, magnitude distribution, and stress changes

The impact of intelligent recommendation algorithm of process parameters based on free-bending knowledge base Sep 2023-Dec 2024

Collaborative research and development of science and technology projects

With AVIC Manufacturing Technology Institute

Contributions: Developed and deployed a neural network model

- Conducted a theoretical study of fuzzy neural network systems and discuss their practical application in the intelligent recommendation of free bending process parameters.
- Application of fuzzy neural network system: based on the previous theoretical results, discuss the practical application of fuzzy neural network system in the study of intelligent recommendation of free bending process parameters

Study on cost and investment benefit analysis of battery energy storage for power grids of Hunan province Sep 2018-Sep 2020

Provincial Research Project

Contributions: Modeling and coding

- Established a mathematical model based on the costs and benefits of battery energy storage provided by the Hunan Provincial Power Grid, the correlation between cost and investment is analyzed using autoregressive and other data analysis approaches, and suggestions and future routes are given for the investment benefits of the Hunan Provincial Power Grid.

Study on issues related to R language and structural equation modeling May 2018-May 2019

Contributions: Coding

- Using R language software to solve structural equation models, learn Bayesian statistics, and establish relationships between Bayesian statistics and structural equation modeling

PUBLICATIONS

1. **Zhou, Y.**, Zhang, H., Chen, S., Yuan, Z., Tan, C., Huang, F., Guo, Y., Shi, Y., 2025. TranSeis: A high precision multitask seismic waveform detector. **Computers & Geosciences,** 196, 105867. https://doi.org/10.1016/j.cageo.2025.105867
2. Zhang, Y., Chu, B., Huang, T., Qi, S., Manga, M., Zhang, H., Zheng, B., **Zhou, Y.**, 2024. Using the Tidal Response of Groundwater to Assess and Monitor Caprock Confinement in CO2 Geological Sequestration. **Water,** 16, 868. https://doi.org/10.3390/w16060868.

ARTICLES IN PREPARATION

1. **Zhou, Y.**, Zhang, H., Yin G., He P., Guo Y., Yi S., Shi, Y., 2025. Substantial Evidence Suggests Strong Seismic Potential of the Qiaojia-Dongchuan Seismic Gap. ***In prep*.**

MEETING ABSTRACTS

1. **Zhou, Y.**, Zhang, H., Shi, Y., Effectiveness of using Transformer model in seismic signal detection, StatSei 13 Annual Meeting. (Poster).
2. **Zhou, Y.**, Zhang, H., Shi, Y., Multi-task Parallel Transformer Neural Network Modeling for Faint Seismic Phase Recognition, The 5th Artificial Intelligence for Seismology. (Poster)

COMPETITIONS & AWARDS

1. Beijing Big Data Skills Competition, 2022 — Successful Participation Award.
2. The “CP Group Cup” 10th National College Student Market Research and Analysis Competition, 2019 — Provincial Second Prize.
3. COMAP's 2018 Mathematical Contest in Modeling (MCM) and Interdisciplinary Contest in Modeling (ICM) — S Prize., *Modeling and Writing*
4. Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM), 2019.

SKILL LIST

Coding: Python, GMT, MATLAB, R

Skills: SPSS, Adobe Illustrator, SAS， PPT, Excel

Research types: deep learning, AI, Earthquake, Seismology, Numerical simulation, Seismic waveform data, big data, bayes analysis

Languages: English (CET6)

Interests: guitar,band,reading,ping-pong