Xu Si

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Education

Georgia Institute of Technology, Atlanta, USA 2024 – Present

Postdoc in Geophysics (Advisor: Zhigang Peng).

University of Science and Technology of China (USTC), Hefei, China 2020 – 2024

Ph.D. in Geophysics (Advisor: Xinming Wu).

China University of Geosciences (Beijing) (CUGB), Beijing, China 2017 – 2020

M.S. in Geophysics (Advisor: Yijun Yuan).

China University of Geosciences (CUG), Wuhan, China 2013 – 2017

B.S. in Applied Geophysics.

Selected Publications

- **Si, X.**, X. Wu*, Z. Li*, et al., An all-in-one seismic phase picking, location, and association network for multi-task multi-station earthquake monitoring, *Communications Earth & Environment*, 2024, doi: 10.1038/s43247-023-01188-4.
- **Si, X.**, X. Wu*, H. Sheng, et al., SeisCLIP: A seismology foundation model pre-trained by multi-modal data for multi-purpose seismic feature extraction, *IEEE TGRS*, 2024, doi: 10.1109/TGRS.2024.3354456.
- Wang, S., **X. Si***, Z. Cai, et al., Fast Global Self-Attention for Seismic Image Fault Identification, *IEEE TGRS*, 2024, doi: 10.1109/TGRS.2024.3436066.
- Dai, C., **X. Si**, X. Wu*, FlexLogNet: a flexible deep learning-based well-log completion method of adaptively using what you have to predict what you are missing, *CG*, 2024, doi: 10.1016/j.cageo.2024.105666.
- Jiang, L., **X. Si**, X. Wu*, Filling borehole image gaps with a partial convolution neural network, *Geophysics*, 2024, doi: 10.1190/geo2022-0344.1.
- Wu, X., J. Ma*, **X. Si**, et al., Sensing prior constraints in deep networks for solving geophysical problems, *PNAS*, 2023, doi: 10.1073/pnas.2219573120.
- Wang, S., **X. Si***, et al., Structural Augmentation in Seismic Data for Fault Prediction, *Applied Science*, 2022, doi: 10.3390/app12199796.
- Yuan, Y.*, **X. Si**, et al., Ground roll attenuation using generative adversarial networks, *Geophysics*, 2020, doi: 10.1190/geo2019-0414.1.
- **Si, X.**, Y. Yuan*, et al., Attenuation of random noise using denoising convolutional neural networks, *Interpretation*, 2019, doi: 10.1190/INT-2018-0220.1.

Professional Experience

University of Science and Technology of China - Research Assistant. 2020 – 2024

- Proposed an all-in-one earthquake monitoring system called seismic Phase picking, Location, and Association Network (PLAN) that achieves for the first time the simultaneous implementation of the three tasks with multi-station data and inter-task constraints.
- Introduced SeisCLIP, a foundational seismology model pretrained through contrastive learning on multi-modal data. The model was initially trained on a large dataset and subsequently fine-tuned for various applications like event classification, location, and focal mechanism analysis.
- Developed an earthquake prediction algorithm, harnessing earthquake catalogs and precursor data. Through monthly testing in the Sichuan-Yunnan region, we attained a precision rate of 20%, all the while maintaining stringent false alarm controls.

Honors and Awards

The University-Level First-Class Scholarship	Sep. 2023
Best Student Presentation *1st*, Award on "Boao Disaster Prevention and Mitigation Conference"	Feb. 2023
The University-Level Second-Class Scholarship	2020,2021,2022
Outstanding Graduates of CUGB (top 5% in the university)	Jun. 2020
Best Student Poster *1st*, Award on "SEG International Workshop on Mathematical Geophysics"	Nov. 2019
National Scholarship of Graduate Student (top 1% in the university).	Nov. 2019
Outstanding Student in Geophysical Intern (top 5% in the university).	Aug. 2016