Ziyi Xi 席子义

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⌨ ziyixi

Education

2024   Ph.D in Computational Mathematics, Science and Engineering, Michigan State University (MSU), East Lansing, US

2018   B.S. in Computer Science (dual degree), University of Science and Technology of China (USTC), Hefei, China

2018   B.S. in Geophysics, University of Science and Technology of China (USTC), Hefei, China

Employment

2024/07–present   Software Engineer, Google, Sunnyvale, CA

2022/05–2022/08   Software Engineer Intern, Meta, New York, NY

2018/08–2021/09   Graduate Research Assistant, Department of Computational Mathematics, Science and Engineering, Michigan State University, East Lansing, MI

Research Interests

- Machine Learning Applications in Seismology

- High Performance Computing Inspired Computational Seismology

- Tectonic Structure of the Western Pacific Subduction Zones

Professional Societies & Services

Professional Societies

- Member of American Geophysical Union (AGU) (since 2018)

- Member of European Geophysical Union (EGU) (since 2020)

Awards & Honors

2021   Cloud Computing Fellowship, Michigan State University, US

2018   Ginther Graduate Fellowship, Michigan State University, US

2017   Outstanding Undergraduate Student, University of Science and Technology of China, China

Peer-reviewed Publications

6. **Ziyi, X.**, Songqiao, W., Weiqiang, Z., Greg, B., Yaqi, J., & Nooshin, S. (2024). Deep Learning for Deep Earthquakes: Insights from OBS Observations of the Tonga Subduction Zone. *Geophysical Journal International*, *238*(2). doi:10.1093/gji/ggae200

5. Shaohua, L., Jiaqi, L., Thomas, F., Tong, Z., Mingda, L., **Ziyi, X.**, Ross, M., Guangjie, H., Juan, L., Xiyuan, B., Yiran, J., & Tiezhao, B. (2022). Deep geophysical anomalies beneath the Changbaishan Volcano. *Journal of Geophysical Research: Solid Earth*, *128*(4). doi:10.1029/2022JB025671

4. Gilbert, M., Thomas, F., Jiaqi, L., Brian, Z., **Ziyi, X.**, & Min, C. (2022). Unsupervised machine learning reveals slab hydration variations from deep earthquake distributions beneath the northwest Pacific. *Communications Earth & Environment*, *56*(2022). doi:10.1038/s43247-022-00377-x

3. Tong, Z., **Ziyi, X.**, Jiaqi, L., & Min, C. (2022). Assessment of seismic tomographic models of the contiguous United States using intermediate-period 3-D wavefield simulation. *Geophysical Journal International*, *228*(2). doi:10.1093/gji/ggab406

2. Tong, Z., Jiaqi, L., **Ziyi, X.**, Guoliang, L., & Min, C. (2021). CUSRA2021: A Radially Anisotropic Model of the Contiguous US and surrounding regions by full-waveform inversion. *Journal of Geophysical Research: Solid Earth*, *127*(8). doi:10.1029/2021JB023893

1. Jiaqi, L., Min, C., Keith, K., Tong, Z., **Ziyi, X.**, Shaohua, L., & Guoliang, L.(2021). FastTrip: A Fast MPI-Accelerated 1D Triplication Waveform Inversion Package for Constraining Mantle Transition Zone Discontinuities. *Seismological Research Letters*, *92*(4). doi:10.1785/0220200475

Papers submitted/under revision

1. **Ziyi, X.**, Min, C., Songqiao, W., Jiaqi, L., Tong, Z., Baoshan, W., & YoungHee, K. (2023). EARA2024: A New Radially Anisotropic Seismic Velocity Model for the Crust and Upper Mantle beneath East Asia and Northwestern Pacific Subduction Zones. *Under Review at Geophysical Journal International*.

Meeting Abstracts

Oral

2. **Ziyi, X.**, Songqiao, W., Nooshin, S., Weiqiang, Z., & Greg, B. (2022). Detecting converted seismic phases of Tonga deep earthquakes: insights from deep-learning methods. 2022 AGU Fall Meeting, Chicago, IL, USA. ID: S52A-05.

1. **Ziyi, X.**, Min, C., Jiaqi, L., & Songqiao, W. (2021). A 3D Azimuthal Anisotropy Model Beneath the East Asia Continent and Western Pacific Subduction Zone. 2021 AGU Fall Meeting, New Orleans, LA, USA. ID: S14B-01.

Poster

4. **Ziyi, X.**, Jiaqi, L., Min, C., & Songqiao, W. (2021). PyFK: A Fast MPI and CUDA Accelerated Python Package for Calculating Synthetic Seismograms Based on the Frequencywavenumber Method. 2021 AGU Fall Meeting, New Orleans, LA, USA. ID: S14B-01.

3. **Ziyi, X.**, Min, C., Tong, Z., Baoshan, W., & YoungHee, K. (2021). Full waveform inversion of the crust and upper mantle beneath the East Asia Continent and Western Pacific Subduction Zone. 2021 EGU General Assembly, Online. ID: EGU21-13849.

2. **Ziyi, X.**, Min, C., Tong, Z., Baoshan, W., & YoungHee, K. (2020). Slab Thinning Controls the Distribution of Large Deep Intraslab Earthquakes in the Western Pacific Subduction Zones. 2020 AGU Fall Meeting, Online. ID: T018-0021.

1. **Ziyi, X.**, Min, C., Tong, Z., Baoshan, W., & YoungHee, K. (2020). Towards a Refined 3D Model of the Western Pacific Slab to Investigate the Nature of Deep Earthquakes. 2019 AGU Fall Meeting, San Francisco, CA, USA. ID: T21F-0384.

Teaching Experience

Teaching Assistant

- Undergraduate Course "Theoretical Mechanics" (2017, USTC)
- Undergraduate Course "Electromagnetism" (2016, USTC)

Open Source Software

2014–present **PyFK** | https://github.com/ziyixi/pyfk/
A python implementation of FK used to calculate the Green's function and the synthetic waveforms for the 1D Earth model.

2018–present **PhaseNet-TF** | https://github.com/ziyixi/PhaseNet-TF/
An advanced seismic arrival time detection via deep neural networks in the spectrogram domain, leveraging cutting-Edge image segmentation approaches