Curriculum Vitae

Jing Chen

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Personal Information Born on 16 March, 1994 in Hubei Province, P.R. China.

Education Experience

- Division of Mathematical Sciences, School of Physical & Mathematical Sciences, Nanyan Technological University *Sept. 2021 - present*
  - Research fellow
  - Advisor: Associate Prof. Ping Tong
- Visiting Ph.D Student in GFZ German Research Centre for Geosciences *Sept. 2018 - Sept. 2019*
  - Joint advisor: Senior Scientist Dr. Xiaohui Yuan
- Department of Mathematical Sciences, Tsinghua University *Aug. 2016 - Jun. 2021*
  - Doctor of Science in Mathematics, Tsinghua University
  - Advisor: Associate Prof. Hao Wu
- Bachelor of Science in Mathematics, Tsinghua University *Jul. 2016*

Research Interests

- Seismic tomography
- Inverse problems
- Optimal transport

Awards

[1] Excellent Paper in the Workshop of Beijing-Tianjin-Hebei Society for Computational Mathematics, Beijing Association for Computational Mathematics, 2021.

[2] The Most Concerned Academic Paper in Beijing, Beijing Association for Science and Technology, 2019.

[3] Excellent Youth Paper Award, China Society for Industrial and Applied Mathematics, 2017.

[4] Excellent Youth Paper Award, Annual Meeting of Chinese Geoscience Union, 2017.

Academic Activities

- Conference Speeches and Posters

  [1] *The European Geosciences Union General Assembly 2023*, Vienna, Austria, April, 2023. **(poster presentation)**

  [2] *The American Geophysical Union Fall Meeting 2002,* Chiacago, America, 2022. **(online poster presentation)**

  [3] *The Applied Math PhD Seminar*, Fudan University, Shanghai, China, 2021. **(contributed talk)**

  [4] *The 4th Youth Forum in the 18th Annual Meeting of CSIAM*, Online, November, 2020. **(contributed talk)**

  [5] *The 6th Doctoral Forum of Beijing for Computational Mathematics*, Peking University, Beijing, China, October, 2020. **(contributed talk)**

  [6] *The European Geosciences Union General Assembly 2019*, Vienna, Austria, April, 2019. **(poster presentation)**

  [7] *Doctoral Forum of GFZ German Research Centre*, Potsdam, Germany, March, 2019. **(poster presentation)**

  [8] *The 2017 Annual Meeting of Chinese Geoscience Union Mini-symposium on "Topic 50. Seismic Wave Propagation and Imaging"*, Beijing, China, October, 2017. **(contributed talk)**

  [9] *Youth Forum in the 15th Annual Meeting of CSIAM*, Qingdao, China, October, 2017. **(contributed talk & poster presentation)**

  [10] *Doctoral Forum of Tsinghua University*, Sanbao, Beijing, China, March, 2017. **(contributed talk)**

- Conference Attended

  [1] *SciCADE, the International Conference on Scientific Computation and Differential Equations*, National University of Singapore, Singapore, 2024.

[2] *The Workshop of Computational Geophysics and Partial Differential Equation Inverse Problems*, Northwestern Polytechnical University (Online), November, 2020.

[3] *The Forum of Tsinghua University for Computational Mathematics and Operations Research*, Tsinghua University, Beijing, China, November, 2020.

[4] *The 17th Annual Meeting of CSIAM*, Foshan, China, September, 2019

[5] *The 2017 Annual Meeting of NSFC Key Project* "*Computational Methods for Multi-scale, Multi-physics Transport Problems in Hyperbolic Vehicles*" , Shanghai Jiao Tong University, Shanghai, China, May, 2017.

[6] *2016 Workshop of Beijing-Tianjin-Hebei Society for Computational Mathematics*, Tianjing, China, Sep, 2016.

[7] *Computational Seismology*, Tsinghua Sanya International Mathematics Forum, Sanya, Hainan, China, Jan, 2016.

Publications

- **Published or accepted:**

24. C. Chen, **J. Chen**, B. Luo, S. Jin, and H Wu, *A numerical algorithm with linear complexity for multi-marginal optimal transport with L^1 cost.* CSIAM Trans. Appl. Math., (2025).
https://doi.org/10.4208/csiam-am.SO-2024-0025

23. **J. Chen**, M. Nagaso, M. Xu, and P. Tong, *TomoATT: An open-source package for Eikonal equation-based adjoint-state traveltime tomography for seismic velocity and azimuthal anisotropy.* Comput. Geosci., 204(2025), 105995.
https://doi.org/10.1016/j.cageo.2025.105995

22. S. Wu, **J. Chen**, and P. Tong, *Seismic azimuthal anisotropy of New Zealand revealed by adjoint-state traveltime tomography.* Earth Planet. Sci. Lett., 660(2025), 119362.
https://doi.org/10.1016/j.epsl.2025.119362

21. Y. Bai, S. Hao, J. Xie, M. Xu, X. Xiao, **J. Chen**, C.F. Chey, D. Wang, and P. Tong, *Geothermal potential in Singapore explored with non-invasive seismic data.* Eng. Geol., 348(2025), 107968.
https://doi.org/10.1016/j.enggeo.2025.107968

20. G. Chen, **J. Chen**, T. Li, M. Xu, Q. Zhao, and P. Tong, *Adjoint-state reflection traveltime tomography for velocity and interface inversion with its application in central California near Parkfield.* J. Geophys. Res. Solid Earth, 130(2025), e2024JB029918.

https://doi.org/10.1029/2024JB029918

19. M. Xu, S. Hao, **J. Chen**, B. Zhang, and P. Tong, *SurfATT: High-performance package for adjoint-state surface-wave traveltime tomography.* Seismol. Res. Lett., (2025). https://doi.org/10.1785/0220240206

18. X. Zhang, X. Song, **J. Chen**, L. Zhang, P. Tong, and Y. Li, *The P-wave velocity and azimuthal anisotropy structure of southeastern margin of the Tibetan Plateau from adjoint-state traveltime tomography*, Sci. China Earth Sci., 68(2025), pp. 702–719. https://doi.org/10.1007/s11430-024-1504-x

17. M. Xu, K. Wang, **J. Chen**, J. He, Q. Liu, Y. Liu, Z. Huang, and P. Tong, *Multi-level mechanisms driving intraplate volcanism in central Mongolia revealed by adjoint waveform tomography of receiver function and ambient noise data.* Earth Planet. Sci. Lett. 650(2025), 119137.
https://doi.org/10.1016/j.epsl.2024.119137

16. D. Wang, S. Hao, **J. Chen**, G. Song, and P. Tong *Imaging complex structures of the Los Angeles Basin via adjoint-state traveltime tomography.* Bull. Seismol. Soc. Am. (2024).
https://doi.org/10.1785/0120240035

15. S. Hao, **J. Chen**, M. Xu, and P. Tong, *Topography-incorporated adjoint-state surface wave traveltime tomography: Method and a case study in Hawaii.* J. Geophys. Res. Solid Earth, 129(2024), e2023JB027454.
https://doi.org/10.1029/2023JB027454

14. Q. Liao, Z. Wang, **J. Chen**, B. Bai, S. Jin, and H. Wu, *Fast sinkhorn II: collinear triangular matrix and linear time accurate computation of optimal transport.* J. Sci. Comput., 98 (2024).
https://doi.org/10.1007/s10915-023-02403-2

13. **J. Chen**, S. Wu, M. Xu, M. Nagaso, J. Yao, K. Wang, T. Li, Y. Bai, and P. Tong, *Adjoint-state teleseismic traveltime tomography: method and application to Thailand in Indochina Peninsula.* J.Geophys. Res. Solid Earth, 128(2023), e2023JB027348.
https://doi.org/10.1029/2023JB027348

12. P. Tong, T. Li, **J. Chen**, and M. Nagaso, *Adjoint-state differential arrival time tomography.* Geophys. J. Int., 236 (2023), pp. 139-160.
https://doi.org/10.1093/gji/ggad416

11. M. Xu, K. Wang, **J. Chen**, D. Yu, P. Tong, *Receiver function adjoint tomography for three-dimensional high-resolution seismic array imaging: methodology and applications in southeastern Tibet.* Geophys. Res. Lett., 50 (2023), e2023GL104077. https://doi.org/10.1029/2023GL104077

10. Z. Li, Y. Tang, **J. Chen**, and H. Wu, *On quadratic Wasserstein metric with squaring scaling for seismic velocity inversion.* Numer. Math. Theor. Meth. Appl., 16 (2023), pp. 277-297. https://doi.org/10.4208/nmtma.OA-2022-0111

9. **J. Chen**, G. Chen, M. Nagaso, and P. Tong, *Adjoint-state traveltime tomography for azimuthally anisotropic media in spherical coordinates.* Geophys. J. Int., 234 (2023), pp. 712-736. https://doi.org/10.1093/gji/ggad093

8. D. Zhou, **J. Chen**, H. Wu, and D. Yang, *The Wasserstein-Fisher-Rao metric for waveform based earthquake location.* J. Comput. Math., 41 (2023), pp. 417-438. https://doi.org/10.4208/jcm.2109-m2021-0045

7. G. Chen, **J. Chen**, C. Tape, H. Wu, and P. Tong, *Double-difference adjoint tomography of the crust and uppermost mantle beneath Alaska.* J. Geophys. Res. Solid Earth, 128 (2023), e2022JB025168. https://doi.org/10.1029/2022JB025168

6. Q. Liao, **J. Chen**, Z. Wang, B. Bai, S. Jin, and H. Wu, *Fast Sinkhorn I: An O (N) algorithm for the Wasserstein-1 metric.* Comm. Math. Sci., 20 (2022), pp. 2053-2067. https://doi.org/10.4310/CMS.2022.v20.n7.a11

5. **J. Chen**, G. Chen, H. Wu, J. Yao, and P. Tong, *Adjoint tomography of northeast Japan revealed by common-source double-difference travel-time data.* Seismol. Res. Lett., 93 (2022), pp. 1835-1851. https://doi.org/10.1785/0220210317

4. **J. Chen**, S.-K. Kufner, X. Yuan, B. Heit, H. Wu, D. Yang, B. Schurr, and S. Kay, *Lithospheric delamination beneath the southern Puna plateau resolved by local earthquake tomography.* J. Geophys. Res. Solid Earth, 125 (2020), e2019JB019040. https://doi.org/10.1029/2019JB019040

3. **J. Chen**, H. Jing, P. Tong, H. Wu, and D. Yang, *The auxiliary function method for waveform based earthquake location.* J. Comput. Phys., 413 (2020), 109453. https://doi.org/10.1016/j.jcp.2020.109453

2. **J. Chen**, Y. Chen, H. Wu, and D. Yang, *The quadratic Wasserstein metric for earthquake location*. J. Comput. Phys., 373 (2018), pp. 188-209. https://doi.org/10.1016/j.jcp.2018.06.066

1. H. Wu, **J. Chen**, X. Huang, and D. Yang, *A new earthquake location method based on the waveform inversion*. Comm. Comput. Phys., 23 (2018), pp. 118-141. https://doi.org/10.4208/cicp.OA-2016-0203

- **Submitted**

1. **J. Chen**, M. Xu, Y. Bai, S. Wu, X. Xiao, S. Hao, M. Nagaso, H. Yang, and P. Tong, *Enhanced normal stress triggers supershear rupture of the 2023 Mw 7.8 Turkey earthquake*. Submitted to Nat. Geosci.