Fengzhou Tan

CONTACT INFORMATION

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WORK EXPERIENCE

Postdoctoral research scholar　　　　　　　　　　　　　　　　10/01/2024–now
University of California, San Diego

- Lead research projects about earthquake physics, oceanic transform faults, and advanced geophysical methods.
  - Postdoctoral Fellowship — 140,000 CAD
    provided by *Natural Sciences and Engineering Research Council of Canada*

Teaching assistant　　　　　　　　　　　　　　　　09/01/2018–12/31/2022
University of Victoria

- Developed a series of discussion and activity sessions for the EOS 170 Natural Hazards ($\sim$300 students each term), led sessions and gave lectures, graded exams.

Research assistant　　　　　　　　　　　　　　　　12/01/2018–03/31/2019
Natural Resources Canada

- Developed, coded and tested an automatic earthquake detection and location workflow, the Seismicity-Scanning based on Navigated Automatic Phase-picking (S-SNAP) for induced seismicity monitoring in BC, Canada.

Field technician　　　　　　　　　　　　　　　　09/26/2018–10/08/2018
British Columbia Oil and Gas Commission

- Set up seismometers and accelerometers at six stations around Fort St. John, BC, Canada.

EDUCATION

Ph. D. Major in Geophysics　　　　　　　　　　　　　　05/01/2019–08/31/2024
University of Victoria, Victoria, BC, Canada

- **Courses:** Geophysical Inverse Theory A+, Seismology A+.
- **GPA:** 9.0/9.0
  - Graduate Award — 34,000 CAD　　　　　　　　University of Victoria (UVic), 2019–2023

- Graduate Student Travel Grant — 1,200 CAD UVic, 2022, 2023
- The Charles S. Humphrey Graduate Student Award — 5,000 CAD UVic, 2020, 2023
- Albert Hung Chao Hong Scholarships — 3,189 CAD UVic, 2023
- Victoria Canada-China Friendship Association Scholarship — 726 CAD UVic, 2023
- David McGillivray Scholarship in Science — 3,731 CAD UVic, 2022
- M.A. & D.E. Breckenridge Graduate Awards — 2,000 CAD UVic, 2022
- Melva J. Hanson Graduate Scholarship — 3,200 CAD UVic, 2022
- CUPE 4163 Conference Award — 450 CAD UVic, 2022
- President's Fellowship in Research-Enriched Teaching — 5,000 CAD UVic, 2020
- A. & H. Stafford MacCarthy Muir Graduate Scholarship — 3,500 CAD UVic, 2020
- Mitacs Research Training Award — 6,000 CAD Mitacs, 2020
- Graduate Entrance Award — 5,000 CAD UVic, 2019

M. S. Major in Geophysics
University of Victoria, Victoria, BC, Canada 09/01/2017–04/30/2019

- **Courses:** Research Frontiers in EOS A+, Selected Topics in Geophysics: Earthquake Seismology A+, Selected Topics in Geophysics: Introductory Subduction Zone Geodynamics A.
- **GPA:** 8.7/9.0
  - Graduate Award — 16,000 CAD UVic, 2017–2019
  - Diana and Martin Hocking Scholarship — 1,300 CAD UVic, 2018
  - CUPE 4163 Conference Award — 450 CAD UVic, 2018

B. S. Major in Geophysics
Peking University, Beijing, China 09/01/2013–07/12/2017

PEER-REVIEWED PUBLICATIONS

- **Tan, F.**, Nissen, E., & Kao, H. The complex 2023 Kahramanmaras,Turkey earthquake sequence revealed by deep learning computer vision. Submitted to *Bulletin of the Seismological Society of America*.

- Salomon, G., Nissen, E., **Tan, F.**, Bergman, E., Sloan, A., & Pousse-Beltran, L. The 2020 Mw 6.4 Koryak Highlands earthquake illustrates hidden seismic hazards in the northern Pacific Cordillera. Submitted to *Geophysical Journal International*.

- **Tan, F.**, Kao, H., Yi, K. M., Nissen, E., Goerzen, C., Hutchinson, J., Gao, D., & Farahbod. A. (2024). Next Generation Source Detection by Computer Vision: Untangling the Complexity of the 2016 Kaikōura Earthquake Sequence. *Journal of Geophysical Research*, 129(5).

- **Tan, F.**, Kao, H., Nissen, E., & Visser, R. (2020). Tracking Earthquake Sequences in Real Time: Application of Seismicity-Scanning based on Navigated Automatic Phase-Picking (S-SNAP) to the 2019 Ridgecrest, California Sequence. *Geophysical Journal International*, 223(3).

- Pousse-Beltran, L., Nissen, E., Bergman, E. A., Cambaz, M. D., Gaudreau, É., Karasözen, E., & **Tan, F.** (2020). The 2020 M_w 6.8 Elazığ (Turkey) Earthquake Reveals Rupture Behavior of the East Anatolian Fault. *Geophysical Research Letters*, 47(13).
- Visser, R., Kao, H., Smith, B., Goerzen, C., Kontou, B., Dokht, R.M.H., Hutchinson, J., **Tan, F.**, & Babaie Mahani, A. (2020). *A Comprehensive Earthquake Catalogue for the Fort St. John-Dawson Creek Region, British Columbia, 2017–2018* (Open File No. 8718). Geological Survey of Canada.
- Gaudreau, É., Nissen, E., Bergman, E., Benz, H., **Tan, F.**, & Karasozen, E. (2019). The August 2018 Kaktovik Earthquakes: Active Tectonics in Northeastern Alaska Revealed with InSAR and Seismology. *Geophysical Research Letters*, 46(24).
- **Tan, F.**, Kao, H., Nissen, E., & Eaton, D. (2019). Seismicity-Scanning based on Navigated Automatic Phase-picking. *Journal of Geophysical Research*, 124(4).
- Nissen, E., Ghods, A., Karasözen, E., Elliott, J. R., Barnhart, W. D., Bergman, E. A., Hayes, G. P., Jamal-Reyhani, M., Nemati, M., **Tan, F.**, Abdulnaby, W., Benz, H. M., Shahvar, M. P., Talebian, M., & Chen L. (2019). The 12 November 2017 M_w 7.3 Ezgeleh-Sarpolzahab (Iran) Earthquake and Active Tectonics of the Lurestan Arc. *Journal of Geophysical Research*, 124(2).
- **Tan, F.**, Ge, Z., Kao, H., & Nissen, E. (2019). Validation of the 3-D Phase-Weighted Relative Back Projection Technique and its Application to the 2016 M_w 7.8 Kaikōura Earthquake. *Geophysical Journal International*, 217(1).

CONFERENCE PUBLICATIONS

- **Tan, F.**, Nissen, E., & Kao, H., The Kahramanmaras (Turkey) earthquake multiplet sequence revealed by deep learning computer vision. *Seismological Society of American (SSA) 2024 Annual Meeting* **oral** presentation.
- **Tan, F.**, Nissen, E., & Kao, H., Untangling the complexity of the 2016 Kaikōura earthquake sequence by artificial intelligence image recognition. *Canadian Geophysical Union (CGU) 2023 Meeting* **oral** presentation (S05a-01).
- **Tan, F.**, Kao, H., Yi, K. M., Goerzen, C., Hutchinson, J., Gao, D., Farahbod. A., & Nissen, E., Source Untangler Guided by Artificial Intelligence Image Recognition (SUGAR). *American Geophysical Union (AGU) 2022 Fall Meeting* **oral** presentation (S52A-03).
- Karasozen E., Pousse-Beltran L., Buyukakpinar P., Dogan G. G., Goldberg D., Floyd M., **Tan F.**, Bergman E., Nissen E., Ozacar A., Yalciner A. C., The 2020 October 30 Mw 7.0 Samos earthquake. *The 37th Assembly (2021) of the European Seismological Commission* **oral** presentation (38-206).
- Schaeffer A., **Tan F.**, Hale C., Kao H., Mulder T., & Paul C., Examining micro-seismicity across southern Vancouver Island: applying automated detection to augment existing seismic catalogues. *AGU 2021 Fall Meeting* poster presentation (T15D-0195).
- Salomon G., **Tan F.**, Nissen E., Pousse-Beltran L., Bergman E. & Karasozen E. Tectonic setting of the Koryak region, Siberia from the 2020 M 6.4 Chukotskiy earthquake. *AGU 2021 Fall Meeting* poster presentation (EP55A-1059).

- **Tan, F.**, Kao, H., & Nissen, E. Tracking Earthquake Sequences in Real Time: Application of Seismicity-Scanning based on Navigated Automatic Phase-Picking (S-SNAP) to the 2019 Ridgecrest, California Sequence. *AGU 2020 Fall Meeting* poster presentation (S038-0016).

- Pousse-Beltran, L., Nissen, E., Bergman, E., Cambaz, D., Gaudreau, É., Karasözen, E., & **Tan, F.** Rupture behavior of the 2020 Mw 6.8 Elazig (Turkey) earthquake and its tectonic implications. *AGU 2020 Fall Meeting* poster presentation (T054-0009).

- **Tan, F.**, Kao, H., & Nissen, E. Source-Scanning based on Navigated Automatic Phase-Picking (S-SNAP) for Delineating the Spatiotemporal Distribution of Earthquake Sequence in Real Time: Application to the 2019 Ridgecrest, California Sequence. *SSA 2020 Annual Meeting* **oral** presentation (*Seismological Research Letters* (2020) 91 (2B): 1258.).

- Kao, H., Visser, R., Dokht, R. M. H., Venables, S., Mahani, A. B., Liu, Y., & **Tan F**. Quantitative Relationship Between Injection Operations and Induced Seismicity in the Southern Montney Play, British Columbia, Canada. *AGU 2019 Fall Meeting* **oral** presentation (S12A-08).

- **Tan, F.**, Kao, H., Nissen, E., & Eaton, D. Seismicity-Scanning based on Navigated Automatic Phase-picking (S-SNAP). *AGU 2018 Fall Meeting* poster presentation (S31F-0568).

- Nissen, E., Ghods, A., Karasözen, E., Elliott, J. R., Barnhart, W. D., Bergman, E. A., Hayes, G. P., Jamal-Reyhani, M., Nemati, M., **Tan, F.**, Abdulnaby, W., Benz, H. M., Shahvar, M. P., Talebian, M., & Chen L. The 12 November 2017 Mw 7.3 Ezgeleh-Sarpolzahab (Iran) earthquake and active tectonics of the Lurestan arc. *AGU 2018 Fall Meeting* poster presentation (G23B-0581).

- **Tan, F.**, Wang, G., Chen, C., Ge, Z. Comparison of Different Approaches of Back Projection Method in Retrieving the Rupture Process of Large Earthquakes. *AGU 2016 Fall Meeting* poster presentation (S23C-2784).

PROFESSIONAL SERVICES

- **Presentations**
  - "Earthquake detection and location using AI and computer vision"
    Gave seminars in:

Peking University, Beijing, China	Sept, 2024
Southern University of Science and Technology, Shenzhen, China	Sept, 2024
Zhejiang University, Hangzhou, China	Sept, 2024
Ocean Networks Canada, Victoria, Canada	July, 2024

  - "Untangling complex earthquake sequences by artificial intelligence image recognition: preliminary results of the 2023 M7.8 Turkey-Syria earthquake"
    Gave seminars in:

McGill University, Montreal, Canada	July, 2023
University of Ottawa, Ottawa, Canada	July, 2023

- "Innovative earthquake location methods and their applications"
  Gave a seminar in:

  <div style="text-align:center">University of Victoria, Victoria, Canada</div>   Apr, 2023
- "Earthquake shakedown"
  gave presentations and demos to k-12 students and educators about earthquake and hazards in *Science Rendezvous Canada* .   May, 2022
- "Seismicity-scanning based on navigated automatic phase-picking (S-SNAP)"
  presented for *Geological Survey of Canada* Environmental Geoscience Program.

  Jan, 2022

- **Scientific journal reviewer**   2019-2024

  - *Seismological Research Letters* (6).
  - *Earth, Planets and Space* (3).
  - *Tectonophysics* (1).
  - *New Zealand Journal of Geology and Geophysics* (1).
  - *Earth Science Informatics* (1).

- **Scientific conference session convenor**

  - Session convener and chair of S05 "New methods and findings on seismic and aseismic events" in CGU annual meeting.   2023

- **Mentoring**

  - Mentored a PhD student detecting and locating landslides around Douglas Channel, BC, Canada using a machine learning method.   2023–2024
  - Mentored an undergraduate student detecting and locating micro earthquakes in southern Vancouver Island, BC, Canada.   2021

- **Teaching**

  - Designed a series of online activity sessions for the EOS 170 "Natural Hazards" (300 students each term) in UVic in response to Covid-19 restrictions.   2020
  - Gave lectures, and led discussion sessions for EOS 170 in UVic.   2018–2022
  - Gave lectures, designed and led workshops "Earthquake Relocation" and "Seismic Tomography" for graduate students in UVic.   2022
  - Taught earth science classes (Grade 7 & 8) for the Selkirk Montessori School in Victoria, BC, Canada   2022
  - Taught middle school and high school courses "High School Students Career Planning and Major Choice—Earth Sciences" and "Physics in Bicycle" in the High School Affiliated to Renmin University of China.   2015–2017

SKILLS & HOBBIES

Languages	Chinese: Mother tongue
	English: Fluent
Software	Python, Matlab, LaTeX, Adobe Premiere, Microsoft Office
Hobbies	Table Tennis, Go, Contrast Bridge, Photography, Film Production