Ching-Yao Lai

Department of Geophysics, Stanford University
397 Panama Mall Mitchell Building, Stanford, CA 94305, USA
Website Phone: (609) 937-6329 Email: cyaolai@stanford.edu

Research Interests

Fluid Mechanics, Ice Mechanics, Geophysics, Machine Learning

Education

Ph.D. in Mechanical and Aerospace Engineering, Princeton University (2013-2018)

Advisor: Professor Howard A. Stone

Thesis title: *Fluid-structure interactions for energy and the environment*

B.S. in Physics, National Taiwan University (2009-2013)

Research Appointments

Stanford University (June 2023-present)

Assistant Professor, Department of Geophysics

Affiliated Faculty, Institute for Computational and Mathematical Engineering (ICME)

Princeton University (Jan 2021-May 2023)

Assistant Professor, Department of Geosciences (GEO)

Assistant Professor, Program in Atmospheric and Oceanic Sciences (AOS)

Affiliated Faculty, Program in Statistics and Machine Learning (SML)

Columbia University (2018-2020)

Lamont Postdoctoral Fellow, Lamont-Doherty Earth Observatory
Mentors: Professor Jonathan Kingslake, Professor Roger Buck, and Dr. Timothy Creyts

Princeton University

PhD Student, Complex Fluids Group, Advisor: Professor Howard A. Stone (2013-2018)

Visiting PhD Student, Advisor: Professor Luc Deike (2017-2018)

National Taiwan University (2012-2013)

Undergraduate Researcher, Theoretical Nonlinear Physics Group, Department of Physics
Advisor: Professor Yih-Yuh Chen

Institute of Physics, Academia Sinica (2011-2013)

Undergraduate Researcher, Advisor: Dr. Jih-Chiang Tsai

Honors

National Science Foundation CAREER Award	(2025-2030)
Sloan Research Fellowship, Alfred P. Sloan Foundation	(Sep 2024-Sep 2026)
Computational Infrastructure for Geodynamics (CIG) Distinguished Lecturer	(2024-2025)
Research Scholar Award, Google Research	(June 2023-May 2024)
Lamont Doherty Postdoctoral Fellowship	(Sep 2018-Aug 2019)
Maeder Graduate Fellowship in Energy and the Environment	(June 2017 - June 2018)
Mary and Randall Hack '69 Graduate Award	(July 2016 - July 2017)

Publications

Group members at the time the work was conducted are marked in bold.

Peer Reviewed Articles

30. K. Nissanka, N. Vora, J. M. Harper, J. C. Burton, J. M. Amundson, A. A. Robel, **Y. Meng, C. Y. Lai**, *"Laboratory experiments reveal transient fluctuations in ice mélange velocity and stress during periods of quasistatic flow,"* J. Geophys. Res. Earth Surf., 130, e2024JF008071 (2025). doi.org/10.1029/2024JF008071

29. **N. B. Coffey** and **C. Y. Lai**, *"Horizontal force balance calving laws: Ice shelves, marine- and land-terminating glaciers,"* J. Glaciol., 71, 1-23 (2025). doi.org/10.1017/jog.2025.10068

28. **Y. Wang** and **C. Y. Lai**, *"DIFFICE-jax: Differentiable neural-network solver for data assimilation of ice shelves in JAX,"* J. Open Source Softw., 10, 7254 (2025). doi.org/10.21105/joss.07254

27. **C. Y. Lai**, P. Hassanzadeh, A. Sheshadri, M. Sonnewald, R. Ferrari, V. Balaji, *"Machine learning for climate physics and simulations"* invited review article, Annu. Rev. Condens. Matter Phys., 16, 343–365 (2025). doi.org/10.1146/annurev-conmatphys-043024-114758

26. **Y. Wang, C. Y. Lai**, D. Prior, **C. Cowen-Breen**, *"Deep learning the flow law of Antarctic ice shelves,"* Science, 387, 1219-1224 (2025). doi.org/10.1126/science.adp3300

25. A. Hoffman, K. Christianson, **C. Y. Lai**, I. Joughin, N. Holschuh, E. Case, J. Kingslake, and the GHOST science team, *"Inland migration of near-surface crevasses in the Amundsen Sea Sector, West Antarctica,"* The Cryosphere, 19, 1353–1372, (2025). doi.org/10.5194/tc-19-1353-2025

24. **Y. Meng, C. Y. Lai, R. Culberg**, M. Shahin, L. Stearns, J. Burton, K. Nissanka, *"Seasonal changes of mélange thickness coincide with Greenland calving dynamics,"* Nature Communications, 16, 1-16 (2025). doi.org/10.1038/s41467-024-55241-7

23. **N. B. Coffey, C. Y. Lai, Y. Wang**, W. R. Buck, T. Surawy-Stepney, A. E. Hogg, *"Theoretical stability of ice shelf basal crevasses with a vertical temperature profile,"* J. Glaciol., 70, 1–22 (2024). doi.org/10.1017/jog.2024.52

22. **N. C. Shibley, C. Y. Lai, R. Culberg**, *"How to infer ocean freezing rates on icy satellites from measurements of ice thickness,"* Mon. Not. R. Astron. Soc., 535, 290–298 (2024). doi.org/10.1093/mnras/stae2304

21. A. Voigtländer, M. Houssais, K. A. Bacik, I. C. Bourg, J. C. Burton, K. E. Daniels, S. S. Datta, E. Del Gado, N. S. Deshpande, O. Devauchelle, B. Ferdowsi, R. Glade, L. Goehring, I. J. Hewitt, D. Jerolmack, R. Juanes, A. Kudrolli, **C. Y. Lai**, W. Li, C. Masteller, K. Nissanka, A. M. Rubin, H. A. Stone, J. Suckale, N. M. Vriend, J. S. Wettlaufer, J. Q. Yang, *"Soft matter physics of the ground beneath our feet,"* Soft Matter, 20, 5859-5888 (2024). doi.org/10.1039/D4SM00391H

20. **Y. Meng*, R. Culberg*, C. Y. Lai**, *"Vulnerability of firn to hydrofracture: Poromechanics modeling,"* J. Glaciol., 70, 1–14 (2024). doi.org/10.1017/jog.2024.47 *Equally Contributed

19. L. A. Stevens, S. B. Das, M. D. Behn, J. J. McGuire, **C. Y. Lai**, I. Joughin, S. Larochelle, M. Nettles, *"Elastic stress coupling between supraglacial lakes,"* J. Geophys. Res. Earth Surf., 129, e2023JF007481 (2024). doi.org/10.1029/2023JF007481

18. **Y. Wang, C. Y. Lai**, *"Multi-stage neural networks: Function approximator of machine precision,"* J. Comput. Phys., 504, 112865 (2024). doi.org/10.1016/j.jcp.2024.112865

17. **R. Eusebi**, G. A. Vecchi, **C. Y. Lai**, M. Tong, *"Realistic tropical cyclone wind and pressure fields can be reconstructed from sparse data using deep learning,"* Nature Commun. Earth Environ., 5, 8 (2024). doi.org/10.1038/s43247-023-01144-2

16. **Y. Iwasaki, C. Y. Lai**, *"1D ice shelf hardness inversion: Clustering behavior and collocation resampling in physics-informed neural networks,"* J. Comput. Phys., 492, 112435 (2023). doi.org/10.1016/j.jcp.2023.112435

15. **Y. Wang, C. Y. Lai**, J. Gomez-Serrano, T. Buckmaster, *"Asymptotic self-similar blow-up profile for 3-D axisymmetric Euler equations using neural networks,"* Phys. Rev. Lett., **130**, 244002 (2023). doi.org/10.1103/PhysRevLet

14. J. Lockwood, N Lin, M. Oppenheimer, **C. Y. Lai**, *"Using neural networks to predict hurricane storm surge and to assess the sensitivity of surge to storm characteristics,"* J. Geophys. Res., 127, e2022JD037617 (2022). doi.org/10.1029/2022JD037617

13. **N. Coffey**, D. R. MacAyeal, L. Copland, D. Mueller, O. V. Sergienko, A. F. Banwell, **C. Y. Lai**, *"Enigmatic surface rolls of the Ellesmere Ice Shelf,"* J. Glaciol., 1–12 (2022). doi.org/10.1017/jog.2022.3

12. D. L. Chase, **C. Y. Lai**, and H. A. Stone, *"Relaxation of a fluid-filled blister on a porous substrate,"* Phys. Res. Fluids, **6**, 084101 (2021). doi.org/10.1103/PhysRevFluids.6.084101

11. **C. Y. Lai**, L. A. Stevens, D. L. Chase, T. T. Creyts, M. D. Behn, S. B. Das, H. A. Stone, *"Hydraulic transmissivity inferred from ice-sheet relaxation following Greenland supraglacial lake drainages,"* Nat Commun, **12**, 3955 (2021). doi.org/10.1038/s41467-021-24186-6

10. W. R. Buck and **C. Y. Lai**, *"Flexural Control of Basal Crevasse Opening Under Ice Shelves,"* Geophys. Res. Lett., **48**, e2021GL093110 (2021). doi.org/10.1029/2021GL093110

9. S. Shim, S. Khodaparast, **C. Y. Lai**, J. Yan, J. T. Ault, B. Rallabandi, O. Shardt, H. A. Stone, *"CO 2-Driven diffusiophoresis for maintaining a bacteria-free surface,"* Soft matter, **17**, 2568–2576 (2021). doi.org/10.1039/D0SM0202

8. **C. Y. Lai**, J. Kingslake, M. Wearing, P.-H. Cameron Chen, P. Gentine, H. Li, J. Spergel, J. M. van Wessem, *"Vulnerability of Antarctica's ice shelves to meltwater-driven fracture,"* Nature, **584**, 574–578 (2020). doi.org/10.1038/s41586-020-2627-8

7. **C. Y. Lai**, J. Eggers, and L. Deike, *"Bubble bursting: universal cavity and jet profiles,"* Phys. Rev. Lett., **121**, 144501 (2018). doi.org/10.1103/PhysRevLett.121.144501

6. **C. Y. Lai**, B. Rallabandi, A. Perazzo, Z. Zheng, S. Smiddy, and H. A. Stone *"Foam-driven fracture,"* Proc. Natl. Acad. Sci., 201808068 (2018). doi.org/10.1073/pnas.1808068115

5. H. S. Rabbani, D. Or, Y. Liu, **C. Y. Lai**, N. Lu, S. S. Datta, H. A. Stone, and N. Shokri, *"Suppressing viscous fingering in structured porous media,"* Proc. Natl. Acad. Sci., 201800729 (2018). doi.org/10.1073/pnas.18007291

4. **C. Y. Lai**, Z. Zheng, E. Dressaire, G. Ramon, H. E. Huppert, H. A. Stone, *"Elastic relaxation of fluid-driven cracks and the resulting backflow,"* Phys. Rev. Lett., **117**, 268001 (2016). doi.org/10.1103/PhysRevLett.117.268001

3. **C. Y. Lai**, Z. Zheng, E. Dressaire, H. A. Stone, *"Fluid-driven crack in an elastic matrix in the toughness-dominated limit,"* Invited paper to Philos. Trans. R. Soc. A, **374**, 20150425 (2016). doi.org/10.1098/rsta.2015.0425

2. **C. Y. Lai**, Z. Zheng, E. Dressaire, J. Wexler, H. A. Stone, *"Experimental study on penny-shaped fluid-driven cracks in an elastic matrix,"* Proc. R. Soc. A, **471**, 20150255 (2015). doi.org/10.1098/rspa.2015.0255

1. J. C. Tsai, C. Y. Tao, Y. C. Sun, **C. Y. Lai**, K. H. Huang, W. T. Juan, and J. R. Huang, *"Vortex-induced morphology on a two-fluid interface and the transitions,"* Phys. Rev. E, **92**, 031002(R) (2015). doi.org/10.1103/PhysRevE.92.031002

Energy Policy

G. Davies*, R. Edwards*, **C. Y. Lai***, B. Perry*, and K. Spokas*, *"Institutional Emissions and Energy Planning: Understanding the interactions between carbon accounting, institutional goal setting, and energy procurement,"* published by the Princeton Environmental Institute at Princeton University (2019). *Equally Contributed (report available online)

Presentations

Invited Talks/Colloquia

Earth Sciences

78. Department of Earth Science, Dartmouth College, NH (January 2026)
77. AGU Fall Meeting (December 2025)
76. Department of Earth and Planetary Sciences, University of California Santa Cruz, CA (November 2025)
75. Focus Session "Rheology in Geoscience," Annual Meeting of The Society of Rheology, Santa Fe, NM (October 2025)
74. Department of Earth Sciences, University of Southern California, CA (September 2025)
73. GRC conference "Machine Learning for Actionable Climate Science", RI (June 2025)
72. CIG Distinguished Lecture, University of New Mexico (March 2025)
71. CIG Distinguished Lecture, University of Kansas (March 2025)
70. AGU Fall Meeting (December 2024)
69. Department of Earth, Environmental and Planetary Sciences, Brown University, RI (December 2024)
68. Keynote speaker at the "Exploring System Dynamics in the Natural World with AI" conference, University of Oslo, Norway (September 2024)
67. Environmental Science and Engineering, Caltech, CA (June 2024)
66. Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, MA (April 2024)
65. Statistics/EPS Joint Seminar, University of California Berkeley, CA (April 2024)
64. Department of Earth and Environmental Science, Boston College, MA (February 2024)
63. Department of Earth Sciences, University of Oregon, OR (January 2024)
62. National Academies of Sciences, Engineering, and Medicine Meeting "Artificial Intelligence and Machine Learning in Geophysics - Are We Beyond the Black Box?" (November 2023)

61. International Glaciological Society (IGS) Global Seminar Series (international virtual talks) (October 2023).

60. Department of Earth and Environmental Science, University of Pennsylvania, PA (September 2023)

59. Department of Earth ad Planetary Science, University of California Berkeley, CA (September 2023)

58. Department of Atmospheric Sciences, National Taiwan University, Taiwan (July 2023)

57. Sea Level Rise Seminar, NASA Goddard Institute for Space Studies (virtual) (June 2023)

56. AGU Fall Meeting (December 2022).

55. Department of the Geophysical Sciences, University of Chicago, IL (December 2022).

54. Earth Resources Laboratory, Massachusetts Institute of Technology, MA (virtual) (April 2022).

53. Stanford Earth, Stanford University, CA (April 2022).

52. Department of Earth and Planetary Sciences, Harvard University, MA (virtual) (April 2022).

51. AGU Fall Meeting (December 2021).

50. Department of Earth and Environmental Sciences, Vanderbilt University, TN (virtual) (December 2021).

49. Department of Geophysics, Stanford University, CA (virtual) (October 2021).

48. Maths on Ice Forum (international virtual talks) (April 2021).

47. Department of Earth and Planetary Sciences, Harvard University, MA (virtual) (March 2021).

46. Department of Earth Sciences, University of Oxford, UK (virtual) (February 2021).

45. Climate Seminar Series, Princeton University, NJ (March 2020).

44. The School of Earth and Atmospheric Sciences, Georgia Institute of Technology, GA (February 2020).

43. Division of Marine Geology and Geophysics, Lamont-Doherty Earth Observatory, Columbia University, NY (November 2017).

Math

42. Department of Applied Mathematics, University of California Santa Cruz, CA (March 2026).

41. Applied Math Colloquium, Northwestern University, IL (January 2026).

40. “Accuracy and Efficiency in Scientific Machine Learning" IVADO workshop, Centre de recherches mathématiques, University of Montreal, Quebec (June 2025).

39. Simons Collaboration on Wave Turbulence Annual Meeting, Simons Foundation, NY (December 2024)

38. SEA-CROGS Webinar, Pacific Northwest National Laboratory (virtual) (May 2024)

37. FRG conference: Singularities in incompressible flows, University of Minnesota, MN (April 2024)

36. Mathematics and Machine Learning Seminar, Mathematics Department, Caltech, CA (November 2023)

35. AOS Colloquium, NYU Courant Institute of Mathematical Sciences, NY (April 2023)

34. Machine Learning + X Seminars, Brown University, RI (virtual) (April 2023)

33. Machine Learning at the Flatiron Institute Seminar, Flatiron Institute, NY (March 2023)

32. Scientific Machine Learning Webinar, Department of Applied Mathematics, National Yang Ming Chiao Tung University, Taiwan (virtual) (March 2023).

31. Brandeis-Harvard-MIT-Northeastern Joint Mathematics Colloquium, Department of Mathematics, Massachusetts Institute of Technology, MA (February 2023).

30. Simons Collaboration on Wave Turbulence Workshop, Courant Institute of Mathematical Sciences, New York University, NY (December 2022).

29. Mathematical Institute, University of Oxford, UK (virtual) (February 2021)

Physics and Engineering

28. American Physical Society Physics of Climate Seminar (virtual) (May 2026)

27. Keynote speaker at the ERCOFTAC Workshop on "Machine Learning for Fluid Dynamics," Amsterdam, the Netherlands (March 2026)

26. KITP conference "Hard Problems in Soft Earth Geophysics", Kavli Institute for Theoretical Physics, CA (January 2026)

25. Schmidt AI in Science Speaker Series, University of Chicago, IL (November 2025)

24. KITP conference "The Future of Earth's Polar Regions", Kavli Institute for Theoretical Physics, CA (June 2025)

23. Bakar Institute of Digital Materials for the Planet (BIDMaP) Seminar, University of Berkeley, CA (May 2025)

22. Data Science Week 2024, Purdue University, IN (virtual) (December 2024)

21. Department of Mechanical and Aerospace Engineering, University of California San Diego, CA (November 2024)

20. Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, IL (November 2024)

19. AI for Science Summit, Lawrence Berkeley National Laboratory, CA (October 2024)

18. The Data-Driven Physical Simulation (DDPS) Webinar, Lawrence Livermore National Laboratory (virtual) (October 2024)

17. Center for Soft and Living Matter, University of Pennsylvania, PA (June 2024)

16. Conference: Advancing fluid and soft-matter dynamics with machine learning and data science, University of Wisconsin-Madison, WI (June 2024)

15. Keynote speaker at the JFM/DAMTP/LIFD joint Fluid Mechanics Webinar (virtual) (December 2023)

14. Department of Mechanical Engineering, Fluid Mechanics Seminar, Stanford University, CA (October 2023)

13. Department of Mechanical Engineering Colloquium, University of California, Riverside, CA (October 2023)

12. Department of Mechanical Engineering, Solid Mechanics Seminar, Stanford University, CA (October 2023)

11. Institute of Physics Colloquium, Academia Sinica, Taiwan (August 2023)
10. School of Engineering, Fluids Seminar, Brown University, RI (February 2023).
9. Physics Department Colloquium, Department of Physics, Emory University, GA (October 2022).
8. National Center for Theoretical Sciences, Physics Division, Taiwan (August 2022).
7. American Physical Society March Meeting (March 2022).
6. Department of Mechanical and Civil Engineering Department, Caltech, CA (virtual) (February 2021).
5. Department of Physics, National Tsing Hua University, Taiwan (November 2020).
4. Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, MA (March 2020).
3. Department of Physics and Astronomy, University of Pennsylvania, PA (February 2020).
2. The Rowland Institute at Harvard, Harvard University, MA (September 2019).
1. School of Mechanical Engineering, Purdue University, West Lafayette, IN (May 2016).

Informal Seminars Talks

Australian Community Climate and Earth System Simulator (ACCESS) Cryosphere Modelling Working Group, Australian National University, Australia (virtual) (August 2025)

Institute for Advanced Study (IAS), Astrophysics Group, Princeton, NJ (May 2024)

Glaciological Seminar Series, ETH Zürich, Switzerland (virtual) (April 2021).

Climate Seminar Series, Princeton University, NJ (February 2021).

Institute of Physics, Academia Sinica, Taiwan (November 2020).

Geodynamics Summer Series, Boston College, MA (virtual) (August 2020).

Division of Marine Geology and Geophysics, Lamont-Doherty Earth Observatory, Columbia University, NY (March 2019).

Conference Talks

C. Y. Lai, Y. Wang, *"Boosting the representation accuracy of neural networks for multiscale problems"* SIAM Conference on Uncertainty Quantification, Minneapolis, MN (March 2026)

C. Y. Lai, Y. Wang, *"Machine-precision neural networks for multiscale dynamics"* SIAM Conference on Mathematical and Computational Issues in the Geosciences, Baton Rouge, LA (October 2025)

C. Y. Lai, Y. Wang, *"Tackling the spectral bias of neural networks for multiscale flows"* American Physical Society Global Physics Summit, Anaheim, CA (March 2025)

C. Y. Lai, Y. Wang, *"Physics-informed deep learning for data assimilation of ice shelves (DIFFICE.jax)"* SIAM Conference on Computational Science and Engineering, Fort Worth, TX (March 2025)

C. Y. Lai, Y. Wang, D. Prior, C. Cowen-Breen, *"How can physics-informed deep learning help reveal the flow law of ice?"* International Symposium on Verification and Validation of Cryospheric Models, Newcastle, UK (August 2024)

C. Y. Lai, *"Bridging the gap between climate observations and models via physics-informed machine learning"* SIAM Conference on Uncertainty Quantification, Trieste, Italy (February 2024)

C. Y. Lai, L. A. Stevens, D. L. Chase, T. T. Creyts, M. D. Behn, S. B. Das, H. A. Stone, *"Seasonally evolving hydraulic transmissivity beneath Greenland supraglacial lakes"* American Geophysical Union Fall Meeting (virtual) (December 2020)

C. Y. Lai, J. Kingslake, M. Wearing, P.-H. Cameron Chen, P. Gentine, H. Li, J. Spergel, J. M. van Wessem, *"Vulnerability of Antarctica's ice shelves to meltwater-driven fracture"* American Geophysical Union Fall Meeting, San Francisco, CA (December 2019)

C. Y. Lai, D. L. Chase, L. A. Stevens, T. T. Creyts, H. A. Stone, *"Relaxation of ice-sheet uplift on a porous bed"* 72th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Seattle, CA (November 2019).

C. Y. Lai, J. Kingslake, M. Wearing, P.-H. Cameron Chen, P. Gentine, H. Li, J. Spergel, J. M. van Wessem, *"Vulnerability of Antarctica's ice shelves to meltwater-driven fracture"* West Antarctica Ice Sheet Workshop, Julian, CA (October 2019)

C. Y. Lai, J. Eggers, L. Deike, *"Bubble bursting: universal cavity and jet profiles"* 71th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Atlanta, GA (November 2018).

C. Y. Lai, B. Rallabandi, A. Perazzo, S. Hilgenfeldt, S. Smiddy, H. A. Stone, *"Foam relaxation in fractures and narrow channels"* 70th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Denver, CO (November 2017).

C. Y. Lai, Z. Zheng, E. Dressaire, G. Ramon, H. E. Huppert, H. A. Stone, *"Elasticity-driven backflow of fluid-driven cracks"* 69th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Portland, OR (November 2016).

C. Y. Lai, *"A laboratory-scale model of hydraulic fracturing and the resulting flowback,"* The 5th International Education Forum on Environment and Energy Science, San Diego, CA (December 2016).

C. Y. Lai, S. Smiddy, H. A. Stone, *"Foam-driven fractures of an elastic matrix"* 68th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Boston, MA (November 2015).

C. Y. Lai, Z. Zheng, E. Dressaire, J. Wexler, H. A. Stone, *"Fluid-driven fracture of elastic reservoirs followed by viscous backflow"* 67th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, San Francisco, CA (November 2014).

C. Y. Lai, Y. T. Sun, C. C. Chang, Y. Y. Chen, P. Arratia, J. C. Tsai, *"Interfacial Instabilities in Torsional Flows"* 65th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, San Diego, CA (November 2012).

Reviewer

Nature, Nature Climate Change, Proceedings of the National Academy of Sciences (PNAS), Geophysical Research Letters (GRL), SIAM Journal on Scientific Computing (SISC), Journal of Computational Physics (JCP), Journal of Geophysical Research (JGR), Journal of Glaciology (JOG), The Cryosphere, Frontiers in Earth Science

Teaching

Princeton University

Graduate Courses

Instructor - "Deep Learning in Geophysical Fluid Dynamics". Evaluation score: 5/5 (Fall 2021, 2022)

Undergraduate Courses

Instructor - “The Physics of Glaciers". (Spring 2022)

Teaching Assistant - “Mathematics in Engineering". Evaluation score: 4.6/5 (Fall 2017)

Teaching Assistant - “Mechanics of Fluids". (Spring 2015 and 2016)

Mentoring

Lai Research Group, Stanford University

Postdoctoral Scholars

Yongji Wang (2023-present)

Facu Sapienza (2024-2026)

Ellie Abrahams (Stanford Data Science Postdoctoral Fellow) (2024-2025)

Fiona Clerc (2024-2025)

Yue (Olivia) Meng (2023-2024)

Stephanie Olinger (Thompson Postdoctoral Fellow) (2023-2024)

PhD Students

Jasper Chen (Geophysics) (2024-present)

Eojin Lee (Geophysics) (2024-present)

Sinan He (Geophysics) (2024-present)

Ben Alessio (Mechanical Engineering) (2024-present)

Josh Rines (Geophysics) (2023-present)

Niall Coffey (Geophysics) (2023-2026)

Undergraduate Students

Danny Warren Sallis (Computer Science), honors thesis (Fall 2024-Spring 2025)

Erik Wang (Harvard Physics), summer research (Summer 2024)

Jello Zhou (Princeton Physics), summer research (Summer 2024)

Iona Xia (Computer Science), summer research (Summer 2024)

Judy Liu (Physics) (Fall 2023-Spring 2024)

Jakin Ng (MIT Math), summer research (Summer 2023-Spring 2024)

Lai Research Group, Princeton University

Postdoctoral Scholars

Yue (Olivia) Meng (2022-2023)

Riley Culberg (HESS postdoctoral fellow) (2022-2023)

Nicole Shibley (Postdoc Fellow at Princeton Center for Theoretical Sciences) (2021-2023)

Yongji Wang (2021-2023)

PhD Students

Niall Coffey (AOS) (2021-2023)

Josh Rines (AOS) (2021-2023)

Undergraduate Students

Evan Chandran (Physics), junior paper (JP) research (Spring 2023)

Elizabeth Berzin (Physics), Applied and Computational Math independent work (2021 - 2023)

Hugh Shields (Geosciences), junior paper (JP) research (Fall 2022; Spring 2023)

Wiley Kohler (Mathematics), HMEI summer research (Summer 2022)

Jakob Kintzele (Geosciences), summer research (Summer 2022)

Charlie Cowen-Breen (Mathematics), junior (JP) and senior thesis (ST) (Spring 2021 - Spring 2022)

Ryan Eusebi (Computer Science), senior thesis (ST) (Fall 2021 - Spring 2022)

Yunona Iwasaki (Physics), junior paper (JP) research (Fall 2021)

Elijah Pomerantz (Physics), HMEI summer research (Summer 2021)

Outreach

American Museum of Natural History Earth Fest, New York, NY

Explain fracturing of Antarctica's ice shelves with experiment "Ice Cracks". (Spring 2019)

A museum-wide festival of art, science, and culture in honor of Earth Day.

Lamont Open House, Palisades, NY

Demonstrate iceberg calving experiments. (October 2018 and 2019)

A large outreach event held each fall on the Lamont campus that attracts around 4000 attendees of all ages.

Prison Teaching Initiative, Garden State Youth Correctional Facility, Crosswicks, NJ

Volunteer Instructor - "Elementary algebra" (Spring 2017)

An initiative aiming to reduce incarceration rates in New Jersey by increasing access to post-secondary education in state prisons.

Princeton Day School, Princeton, NJ

Volunteer Speaker - "Technological solutions for climate change" (Spring and Fall 2017)

Strengthen climate education in a local high school via discussions on policies and technologies for mitigating climate change, led by Princeton PhD students.

Harlem Prep Elementary School Visit, Princeton, NJ

Demonstrate fluids experiments. (May 2015, 2016, 2017 & April 2018)

An annual lab visit, organized by Princeton's Mechanical and Aerospace Engineering Department, to show simple experiments on Princeton's campus to elementary students from Harlem Prep.