

EDUCATION

Harvard College

Cambridge, MA

*A.B. in Mathematics and Statistics; Cum Laude in Field, High Honors; GPA: 3.92**Sep 2020 – May 2024*

- **Coursework:** Probability; Statistical Inference; Stochastic Processes; Data Structures & Algorithms; Abstract & Linear Algebra; Real Analysis; Complex Analysis; Algebraic Number Theory; Algebraic Geometry

EXPERIENCE

Old Mission Capital, Options

Chicago, IL

*Quantitative Trader**Aug 2024 – Apr 2026*

- **Volatility research:** Led the research, development, and adoption of an options volatility model. Created new trading strategies around the model and executed them on desk.
- **Mentorship:** Managed a junior trader on desk, overseeing trading decisions and projects in risk-tooling.

SpaceX, Starlink Engineering

Hawthorne, CA

*Software Engineer Intern**May 2022 – Aug 2023*

- **Anomaly detection:** Built time-series anomaly detection algorithms for satellite telemetry. Implemented a feedback loop by which anomalies were flagged to responsible engineers, annotated, and sent back to improve the model.
- **LMs for support:** Designed a language model to classify Starlink support tickets and recommend solutions.

NASA Jet Propulsion Laboratory, Science Data Modeling and Computing

Pasadena, CA

*Deep Learning Research Intern**Jun 2021 – Aug 2021*

- **Fast Frequency-domain CNNs:** Deployed fast CNNs operating in the frequency domain for texture segmentation of large Mars terrestrial images.

SELECTED PUBLICATIONS

Journal Articles

- [1] S. Fan, **D. Zhao**, C. Li, D. Shemansky, M.-C. Liang, and Y. Y. Yung. “Seasonal Variations of Chemical Species in Titan’s Upper Atmosphere”. In: *The Planetary Science Journal* (2021).
- [2] J. Jiang, **D. Zhao**, X. Ji, B. Xie, and K. Fahy. “Revisiting the Planet Mass and Stellar Metallicity Relation for Low-Mass Exoplanets Orbiting GKM Class Stars”. In: *Universe* 7.4 (2021), p. 88.
- [3] B. Chen, Y. Kou, **D. Zhao**, F. Wu, S. Liu, A. Chia, and L. Wang. “Calculation on Stopping Time and Return Period”. In: *Natural Hazards* 101.4 (2020), pp. 537–550.
- [4] **D. Zhao**, S. Bartlett, and Y. Y. Yung. “Quantifying Mineral-Ligand Structural Similarities: Bridging the Geological World of Minerals with the Biological World of Enzymes”. In: *Life* 10.12 (2020), p. 338.

Conferences

- [5] K. Pearson, E. Noe, **D. Zhao**, A. Altinok, and A. Morgan. “Mapping ‘Brain Coral’ Regions on Mars using Deep Learning”. In: *IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*. 2023.

Workshops & Preprints

- [6] **D. Zhao**. *Global Sketch-Based Watermarking for Diffusion Language Models*. arXiv preprint arXiv:2606.04486. 2026. URL: <https://arxiv.org/abs/2606.04486>.
- [7] **D. Zhao** and N. S. Pillai. *Policy Gradients for Optimal Parallel Tempering MCMC*. ICML 2024 Workshop on Structured Probabilistic Inference & Generative Modeling. 2024.

SKILLS

Languages: Python, Java, R**Tools:** PyTorch, Linux, Git, CVXPy, Jupyter, Apache Flink

HONORS

NSF GRFP Awardee (Declined)

May 2024

John Harvard Scholar

May 2021

USAJMO Qualifier

Apr 2018