TIANZE JIANG

tzjiang@princeton.edu ◇ Princeton, NJ, 08540 ◇ Scholar ◇ Homepage

EDUCATION

Ph.D., Princeton University Operations Research and Financial Engineering **2024 - present**

Advisor: Boris Hanin.

M.A., Princeton University Operations Research and Financial Engineering (GPA: 4.0/4.0) **2026**

Committee: Prof. Jianqing Fan, Prof. Boris Hanin, Prof. Jason Klusowski

B.S., Massachusetts Institute of Technology Double major in Math and Computer Science (GPA: 5.0/5.0) **2020 - 2024**

Selected Honors and Awards:

- Francis Robbins Upton Graduate Fellowship 2024
- William Lowell Putnam Math Competition, N1 (top 15 overall) 2021
- International Math Olympiad (IMO) Team USA (top place during team selection), Silver Medal 2020
- USA Math Olympiad (USAMO) winner, 5th place nationwide 2020
- Chinese International Math Olympiad (IMO) Team Candidate (top 15 overall) 2018

RESEARCH INTERESTS

I'm interested in studying the deep learning using theoretical methods from math physics, statistics, and probability. My current research directions concern scaling up deep networks and their training dynamics. In the past, I've also worked on information theory, non-asymptotic high-dimensional statistics, and average-case complexity theory.

SELECTED RESEARCH

1. $^{\alpha\beta}$Boris Hanin, **TJ**, "*Bayesian Inference with Shaped Deep Non-linear MLPs.*" (2026+) Paper.
2. $^{\alpha\beta}$Boris Hanin, **TJ**, "*Global Universality of Singular Values in Products of Many Large Random Matrices.*" (2026+) Paper.
3. ^{12}**TJ**, Blake Bordelon, Cengiz Pehlevan, Boris Hanin, "*Hyperparameter Transfer with Mixture-of-Experts Layers.*" In: *Proc. 43rd Int. Conf. Machine Learning* (ICML 2026). Paper.
4. $^{\alpha\beta}$Patrik Gerber, **TJ**, Yury Polyanskiy, Rui Sun, "*Density estimation using the perceptron.*" (2025) In: *Journal of Machine Learning Research* (JMLR). Paper.
5. $^{\alpha\beta}$Yanjun Han, **TJ**, Yihong Wu, "*Prediction from compression for models with infinite memory.*" In: *Proc. Conf. on Learning Theory* (COLT 2024). Paper.
6. $^{\alpha\beta}$Patrik Gerber, **TJ**, Yury Polyanskiy, Rui Sun, "*Kernel-based Tests for Likelihood-Free Hypothesis Testing.*" In: *Proc. 37th Adv. Neural Inf. Process. Systems* (NeurIPS 2023). Paper.
7. $^{\alpha\beta}$Guy Bresler and **TJ**, "*Detection-Recovery and Detection-Refutation Gaps via Reductions from Planted Clique.*" In: *Proc. Conf. on Learning Theory* (COLT 2023). Paper.

*$\alpha\beta$=Alphabetically ordered authorship

INDUSTRY EXPERIENCES

Research Scientist Intern, FAIR (Meta Superintelligence Labs), San Francisco, CA Jun. - Dec. 2026
AI Alignments, Theory and Optimization

- Auto-research harnessing and multi-agents.

Quantitative Research Intern, Citadel Securities, Miami, FL Jun. - Aug. 2024
FICC and Systematic Equities

- Constructed market impact accounting models of high-frequency trades on the US equities market.

OTHER EXPERIENCES

- **Reviewer**: IEEE Transactions on Information Theory; Algorithmic Learning Theory (ALT) 2024, 2025, 2026; ICLR 2026; ICML 2026 (Gold Reviewer Award); NeurIPS 2026
- **Teaching Assistant:** (SP26) High Frequency Markets