Tiffany Ding

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Education

University of California, Berkeley — **Berkeley, CA**
Ph.D. Candidate, Statistics — *2021 – Present*
Advisors: Michael I. Jordan and Ryan J. Tibshirani

Brown University — **Providence, RI**
Master of Science, Computer Science — *2020 – 2021*
Advisor: Stephen Bach

Brown University — **Providence, RI**
Bachelor of Science, Applied Math — *2017 – 2021*
GPA: 4.0, magna cum laude

Papers

[1] **T. Ding**, D. Perrault-Joncas, O. Ronen, M. I. Jordan, D. Bergemann, D. Foster, and O. Gottesman. The role of the marketplace operator in inducing competition. *arXiv:2503.06582*, 2025.

[2] N. Ananthakrishnan*, **T. Ding***, M Werner*, S. P. Karimeddy, and M. I. Jordan. Privacy can arise endogenously in an economic system with learning agents. *Foundations of Responsible Computing*, 2024.

[3] **T. Ding**, A. N. Angelopoulos, S. Bates, M. I. Jordan, and R. J. Tibshirani. Class-conditional conformal prediction with many classes. *Neural Information Processing Systems (NeurIPS)*, 2023.

[4] P. Yu, **T. Ding**, and S. H. Bach. Learning from multiple noisy partial labelers. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2022.

[5] **T. Ding***, S. Kumar*, and S. Shaw*. A seabird population model to evaluate plastic pollution policies. *The UMAP Journal of Undergraduate Mathematics and Its Applications*, 41(3), 2020.

[6] **T. Ding** and E.S. Chen. Mining drugs and indications for suicide-related adverse events. In *AMIA Annual Symposium Proceedings*, volume 2019. American Medical Informatics Association, 2019.

*equal contribution

Experience

Research

University of California, Berkeley — **Berkeley, CA**
Graduate Student Researcher — *Aug 2021 – Present*
- Ongoing research in uncertainty quantification (e.g., conformal prediction); calibration in ML pipelines; learning in the presence of distribution shift; human-AI collaboration

Brown University, Dept. of Computer Science **Providence, RI**
Master's Project *Mar 2020 – May 2021*
Advisor: Stephen Bach

- Designed method for performing weakly supervised machine learning in non-stationary environments by leveraging ideas from Bayesian changepoint detection.
- Implemented method using Python and Stan and performed evaluation on real and synthetic data sets.
- Developed a proof of generic identifiability for a generative model of multi-class labels from multiple labeling sources.

Brown University, Dept. of Applied Math **Providence, RI**
Honors Thesis *Jan 2020 – May 2022*
Advisor: Charles (Chip) Lawrence

- Developed method that leverages Gaussian processes and state space models to infer historical sea levels using geological proxies.

Brown Center for Biomedical Informatics **Providence, RI**
Undergraduate Researcher *Sep 2018 – Jan 2020*
Advisor: Elizabeth Chen

- Used Python to create predictive models for suicide risk and compared performance of various data oversampling techniques.
- Applied association rule learning to FDA data using Julia to discover drug-drug interactions that increase suicide risk.

Brown University, Dept. of Economics **Providence, RI**
Research Assistant *Sep 2019 – Dec 2019*
Advisor: Emily Oster

- Summarized key findings of hundreds of scientific papers related to biology and public health.
- Performed preliminary steps of meta-analysis by calculating standardized mean difference using results of published studies.

Industry

Amazon **New York, NY**
Applied Scientist Intern *Summer 2024*

- Developed game theory models to improve supply chain optimization strategies.

Johns Hopkins University Applied Physics Laboratory **Remote**
Machine Learning Research Intern *Summer 2020*

- Adapted contrastive learning methods to object detection setting and developed prototype model by combining ideas from YOLOv4 (Bochkovskiy et al., 2020) and BYOL (Grill et al., 2020).
- Trained and applied calibration methods to improve estimates of object detector uncertainty.
- Designed algorithm to apply hierarchical classification methods to object tracking setting and improved accuracy by 13% compared to baseline methods.
- Collaborated with other interns to develop heuristic-based algorithm for device deduplication using WiFi access data.

Facebook, Inc. **Menlo Park, CA**
Data Science Intern *Summer 2019*

- Analyzed large datasets using SQL and Python and created useful metrics and data visualizations to help track user growth.

Fellowships and Awards

NSF Graduate Research Fellowship *2022-Present*
National Science Foundation

Jerome L. Stein Memorial Award for Undergraduate Excellence *May 2021*
Brown University, Dept. of Applied Math

2nd Place, East Coast Regional Datathon *Sep 2020*
Citadel and Citadel Securities
- Awarded $2,500 cash prize for identifying the optimal target audience for maximizing movie profitability.

Outstanding Paper, Interdisciplinary Contest for Modeling *Feb 2020*
Consortium for Mathematics and Its Applications
- One of 18 winners out of 7,000+ teams in international math modeling competition.

1st Place, Brown Math Contest for Modeling *Nov 2019*
Brown University, Dept. of Applied Math

Rewriting the Code Fellow *Jun 2018 – May 2021*
Rewriting the Code

Grace Hopper Scholar *Oct 2019*
AnitaB.org

Teaching Experience

Graduate Student Instructor
University of California, Berkeley
- STAT 153: Introduction to Time Series (Fall 2024)
- DATA 102: Data, Inference, and Decisions (Spring 2022)

Undergraduate Teaching Assistant
Brown University
- DATA 2080: Data and Society (Spring 2021)
- DATA 1050: Data Engineering (Fall 2019)
- CSCI 0040: Introduction to Scientific Computing and Problem Solving (Spring 2019)
- CSCI 0170: Computer Science: An Integrated Introduction (Fall 2018)

Talks

1. "How Should We Construct Prediction Sets? Insights from Conformal Prediction" Invited talk at *Machine Learning in Montpellier, Theory & Practice* seminar. March 2025. [slides]
2. "Learning to Localize: Practical Algorithms for Online Weighted Conformal Prediction." Joint Statistical Meetings, August 2024.
3. "Privacy Can Arise Endogenously in an Economic System with Learning Agents." Fifth Annual Symposium on Foundations of Responsible Computing. June 2024. [slides]
4. Invited discussion on "Self-Consistent Conformal Prediction" by Lars van der Laan and Ahmed Alaa. *International Seminar on Selective Inference*. March 2024. [recording]
5. "Class-Conditional Conformal Prediction with Many Classes." Invited talk at *Alaa Lab Rising Stars Series*. February 2023. [recording][slides]

Outreach and Service

Finance and Sponsorship Chair *May 2023 – Aug 2023*
ICML 2023 WiML Un-Workshop, Women in Machine Learning

Diversity Committee Chair *Sep 2022 – Present*
Statistics Graduate Student Association, University of California, Berkeley
- Organize community-building events for women in statistics, ranging from undergraduate students to professors.

Co-organizer *Sep 2022 – Present*
Berkeley Statistics Fellowships Workshop, University of California, Berkeley

Reviewer *Jul 2022 – Present*
Transactions on Machine Learning Research

Service Committee Member *Sep 2021 – Present*
Statistics Graduate Student Association, University of California, Berkeley

Mentor *Nov 2021 – Present*
Statistics Graduate-Undergraduate Program, University of California, Berkeley

Mentor *Sep 2022 – Oct 2022*
NSF GRFP Workshop, Office of Graduate Diversity, University of California, Berkeley

Judge *Feb 2022*
ENVISION Research Competition by WiSTEM

Undergraduate President *Jun 2020 – May 2021*
Association of Women in Mathematics, Brown University

Mentor *Sep 2018 – May 2021*
Women in Science and Engineering, Brown University

Mentor *Sep 2019 – May 2021*
Women in Computer Science, Brown University

Mentor *Sep 2019 – May 2021*
Matched Advising Program for Sophomores, Brown University

Mentor *Aug 2020 – May 2021*
Rewriting the Code

Computer skills

Coding languages:
- Advanced: Python
- Intermediate: R, MATLAB, SQL, Julia
- Beginner: C, Scala, HTML/CSS, OCaml, Java

Additional Skills: TensorFlow 2.0, PyTorch, Git, bash, Stan, Tableau, Microsoft Excel, Adobe Photoshop, LaTeX

Last updated Mar 2025