

Haofeng “Fred” Zhang

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EDUCATION

- **University of California, Berkeley** Berkeley, CA
Ph.D. in Computer Science *September 2019 –*
 - Advisor: [Jelani Nelson](#)
- **Harvard University** Cambridge, MA
Ph.D. in Computer Science (transferred to UC Berkeley with advisor) *August 2018 – May 2019*
- **Duke University** Durham, NC
B.S. in Computer Science, with Highest Distinction *May 2018*
B.S. in Mathematics *May 2018*

ACADEMIC EXPERIENCE

- **Simons Institute for the Theory of Computing** Berkeley, CA
Visiting Graduate Student *August 2020 – December 2020*
 - Participated the Fall 2020 program on [Probability, Geometry, and Computation in High Dimensions](#).
- **Department of Computer Science, Duke University** Durham, NC
Undergraduate Research Fellow *May 2017 – August 2017*
 - Research in online algorithms for competitive caching, advised by [Rong Ge](#) and [Debmalya Panigrahi](#).

PROFESSIONAL EXPERIENCE

- **Google** New York City, NY
Research Intern *May 2023 – August 2023*
 - Research in clustering latent activations in neural networks and mechanistic interpretability of language model.
 - Mentored by [Matthew Fahrbach](#), [Neel Nanda](#) and [Peilin Zhong](#).
- **Google** Pittsburgh, PA
Research Intern *May 2022 – August 2022*
 - Research in sketching methods, efficient online learning, robust streaming algorithms at [Google Brain](#).
 - Mentored by [Richard Zhang](#) and [David P. Woodruff](#).
- **Google** Mountain View, CA
Software Engineering Intern *May 2016 – August 2016*
 - Applied machine learning and natural language processing at [Google Research](#).

TEACHING EXPERIENCE

- **Department of Electrical Engineering and Computer Sciences, UC Berkeley** Berkeley, CA
Graduate Student Instructor *January 2020 – December 2020*
 - Teaching assistant for [CS 294-165: Sketching Algorithms](#) (Fall 2020).
 - Teaching assistant for [CS 170: Efficient Algorithms and Intractable Problems](#) (Spring 2020).
- **Department of Computer Science, Duke University** Durham, NC
Undergraduate Teaching Assistant *January 2016 – May 2018*
 - Teaching assistant for CompSci 330: Design and Analysis of Algorithms for 5 semesters: [Spring 2016](#), [Fall 2016](#), [Spring 2017](#), [Fall 2017](#) and [Spring 2018](#).

SELECTED PUBLICATIONS

** Authorships are in alphabetical order, as is customary in theoretical computer science, unless specified otherwise.*

- [1] **Privately Estimating a Gaussian: Efficient, Robust and Optimal**
with Daniel Alabi, Pravesh K. Kothari, Prayaag Venkat and Pranay Tankala
ACM Symposium on Theory of Computing (STOC), 2023.
- [2] **Online Prediction in Sub-linear Space**
with Binghui Peng
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2023.
** Winner of Best Student Paper.*
- [3] **Faster Fundamental Graph Algorithms via Learned Predictions**
with Justin Y. Chen, Sandeep Silwal and Ali Vakilian
International Conference on Machine Learning (ICML), 2022.
- [4] **Robust and Heavy-Tailed Mean Estimation Made Simple, via Regret Minimization**
with Samuel B. Hopkins and Jerry Li
Neural Information Processing Systems (NeurIPS), 2020.
- [5] **A Fast Spectral Algorithm for Mean Estimation with Sub-Gaussian Rates**
with Zhixian Lei, Kyle Luh and Prayaag Venkat
Conference on Learning Theory (COLT), 2020.
- [6] **Minimum Cut and Minimum k-Cut in Hypergraphs via Branching Contractions**
with Kyle Fox and Debmalya Panigrahi
ACM-SIAM Symposium on Discrete Algorithms (SODA), 2019.
ACM Transactions on Algorithms (TALG), 2023.

INVITED TALKS

- [1] Online Prediction in Sub-linear Space. *Algorithms Seminar, Google Research*, June, 2023.
- [2] Online Prediction in Sub-linear Space. *Algorithms Seminar, University of Illinois Urbana-Champaign*, April, 2023.
- [3] Online Prediction in Sub-linear Space. *Theory Seminar, Toyota Technological Institute at Chicago*, April, 2023.
- [4] Online Prediction in Sub-linear Space. *Theory Seminar, Northwestern University*, April, 2023.
- [5] Online Prediction in Sub-linear Space. *Theory Lunch, UC Berkeley*, March, 2023.
- [6] Optimal Robustness-Consistency Tradeoffs for Learning-Augmented Online Algorithms. *Foundations of Data Science Institute Retreat, Simons Institute for the Theory of Computing*, January, 2022.

SELECTED AWARDS

- Best Student Paper Award, ACM-SIAM Symposium on Discrete Algorithms (SODA 2023) 2023
- Outstanding Reviewer, Conference on Neural Information Processing Systems (NeurIPS 2022) 2022
- Karina A. Chen Graduate Student Research Fellowship, Harvard University 2018–2019
- Deans' Summer Research Fellowship, Duke University 2017

SKILLS

- **Programming Languages:** Python, C++, MATLAB, HTML/CSS
- **Machine Learning:** PyTorch, NumPy, TransformerLens (mechanistic interpretability)