Pranay Tankala

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I am a PhD student at Harvard University advised by Cynthia Dwork. My interests lie in theoretical computer science, especially differential privacy and algorithmic fairness.

Education

Harvard University — **Cambridge, MA**

PhD in Computer Science — 2021 – Present

SM in Computer Science — 2020 – 2021

AB in Computer Science and Mathematics, *summa cum laude* — 2017 – 2021
Secondary in Statistics

Cary Academy — **Cary, NC**

High School Diploma — 2010 – 2017

Employment

Apple, Machine Learning Research Intern — **Cupertino, CA**

Supervised by Vitaly Feldman, Parikshit Gopalan, and Kunal Talwar — 2025

Honors

Phi Beta Kappa — 2020

Junior 24, first cohort of inductees from Harvard Class of 2021

John Harvard Scholar — 2019, 2020

Top 5% of class

Detur Book Prize — 2018

High academic standing among first-year students at Harvard

International Collegiate Programming Contest

2^{nd} place among North American teams at the 2019 World Finals — Porto, Portugal

3^{rd} place team at the 2020 North American Championship — Atlanta, GA

Publications & Talks

Supersimulators — 2025

with Cynthia Dwork

https://arxiv.org/abs/2509.17994

presented at

Apple Machine Learning Research, Internal Seminar — July 2025

Differentially Private Learning Beyond the Classical Dimensionality Regime 2025
with Cynthia Dwork and Linjun Zhang
Theory of Cryptography Conference (TCC)
https://arxiv.org/abs/2411.13682
presented at
Theory and Practice of Differential Privacy (TPDP), Oral Presentation June 2025
Foundations of Responsible Computing (FORC), Highlights Track June 2025
Harvard Privacy Tools Seminar May 2025

From Fairness to Infinity: Outcome-Indistinguishable (Omni)Prediction in Evolving Graphs 2025
with Cynthia Dwork, Chris Hays, Nicole Immorlica, and Juan C. Perdomo
Conference on Learning Theory (COLT)
https://arxiv.org/abs/2411.17582

Privately Estimating a Gaussian: Efficient, Robust, and Optimal 2023
with Daniel Alabi, Pravesh K. Kothari, Prayaag Venkat, and Fred Zhang
Symposium on Theory of Computing (STOC)
https://arxiv.org/abs/2212.08018
presented at
Boston University, US Census Bureau Cooperative Agreement Fall Retreat September 2023
Harvard Graduate Student Theory Seminar September 2023
Harvard Privacy Tools Seminar (with Prayaag Venkat) April 2023
Harvard CS 226, Topics in Theory for Society: Differential Privacy March 2023

From Pseudorandomness to Multi-Group Fairness and Back 2023
with Cynthia Dwork, Daniel Lee, and Huijia Lin
Conference on Learning Theory (COLT)
https://arxiv.org/abs/2301.08837
presented at
Harvard CS 226, Topics in Theory for Society: Fairness and Validity March 2024
COLT 2023 in Bangalore, India July 2023

K-Deep Simplex: Manifold Learning via Local Dictionaries 2023
with Abiy Tasissa, James M. Murphy, and Demba E. Ba
Transactions on Signal Processing (TSP)
https://arxiv.org/abs/2012.02134

Weighed $\ell 1$ on the Simplex: Compressive Sensing Meets Locality 2021
with Abiy Tasissa and Demba E. Ba
Statistical Signal Processing Workshop (SSP)
https://arxiv.org/abs/2104.13894

Teaching & Service

Teaching Fellow

Prof. Cynthia Dwork, CS 226, Topics in Theory for Society: Fairness and Validity 2022
Prof. Jelani Nelson, CS 124, Data Structures and Algorithms 2019
Prof. Boaz Barak, CS 121, Introduction to Theoretical Computer Science 2018, 2019

Certificate of Distinction in Teaching 2018, 2019, 2022
Awarded by Derek Bok Center, Harvard University

Conference Reviewer

Symposium on Foundations of Computer Science (FOCS) 2023, 2024
Conference on Algorithmic Learning Theory (ALT) 2024

Organizer

Pre-FORC, two-day event for students and postdocs prior to the Symposium on Foundations of Responsible Computing (FORC) 2024
Harvard ToC Group Spring Music Recital 2023, 2024

Other Honors

North Carolina State Piano Competition (MTNA)

2nd Place, Junior Division 2013
Honorable Mention, Senior Division 2014, 2015

North Carolina All-State Honors Band

1st Chair Clarinet 2015, 2016