

Asher Spector
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Biosketch and research interests

I am a second year PhD student in statistics at Stanford University, where I study problems in high-dimensional statistics. I focus on developing modern methods to prevent false positives in scientific analyses and to improve robustness of machine learning algorithms. Much of my work is motivated by applications to genetic fine-mapping, drug development, and the (exploratory) analysis of clinical trial data.

Education

Stanford University Statistics, Ph.D.	Stanford, CA September 2021 - June 2026 (expected)
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Harvard University Statistics and Mathematics, B.A, <i>summa cum laude</i> . Advisor: Lucas Janson	Cambridge, MA 2017-2021
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Select Honors

National Science Foundation GRFP Fellowship	2021
Harvard Sophia Freund Prize ¹	2021
Harvard Department of Statistics Prize ²	2021
Harvard Phi Beta Kappa, class marshal (one of four)	2020
Distinction in Teaching, Harvard University	2019, 2021
First place, North American Universities Debating Championships	2019

Academic papers

[3] A. Spector and W. Fithian. Asymptotically Optimal Knockoff Statistics via the Masked Likelihood Ratio. 2022. [arXiv] [python package]

[2] A. Spector and L. Janson. Controlled Discovery and Localization of Signals via Bayesian Linear Programming. 2022. [arXiv] [python package] [R package]

[1] A. Spector and L. Janson. Powerful Knockoffs via Minimizing Reconstructability. *Annals of Statistics*, 50(1):252-276, 2022. [arXiv] [python package]

Select talks

Powerful and efficient knockoffs with knockpy: new knockoffs and feature statistics. *12th International Conference on Multiple Comparison Procedures*, August 2022.

Recent advances in Model-X Methods. *Novartis, Advanced Data Science and Methodology*, July 2021.

Invited discussion on *Whiteout: when do fixed-X knockoffs fail?* by Xiao Li (UC Berkeley). *International Seminar on Selective Inference*, July 2021. [recording]

Powerful Knockoffs via Minimizing Reconstructability. *Harvard University (Jun Liu's group)*, December 2020.

Powerful Knockoffs via Minimizing Reconstructability. *Stanford University (Emmanuel Candès' group)*, November 2020.

¹“Awarded annually to highest ranking undergraduate(s) as determined at the final degree meeting of the Faculty.”

²“Awarded to the graduating senior who has the best overall performance and has contributed significantly to the department.”

Work experience

Novartis

Remote

Intern, Advanced Methodology and Data Science Group

June 2021 - August 2021

Developed methods for exploratory analysis of clinical trial data, using recent advances in statistical machine learning, model-X inference, and multiple testing.

Facebook

Menlo Park, CA (Remote)

Data Science Intern, Auction and Delivery Team

May 2020 - August 2020

Developed methods to train Facebook's core advertising model using less private user data. This model, when trained on 500 terabytes of data, showed significant improvement over the baseline.

Bridgewater Associates

Westport, CT

Investment Associate Intern

June 2019 - August 2019

Completed a (confidential) project on the founder's personal research team.

Manhattan Institute for Public Policy Research

New York, NY

General Research Intern

June 2018 - August 2018

Wrote most of the code underlying the Manhattan Institute's report on housing policy in Texas.

Teaching

As a teaching assistant:

Machine Learning Theory (Stanford Stat 214 / CS 229M)

Fall 2022

Introduction to Statistical Inference (Stanford Stat 200)

Winter 2022

Statistical Methods in Engineering and the Physical Sciences (Stanford Stat 110)

Fall 2021

Introduction to Statistical Inference (Harvard Stat 111)

Spring 2019, 2020, and 2021

Miscellaneous:

Coach (part time) for Stanford's collegiate debate team

September 2021-present

Skills and interests

Programming languages: Proficient in Python (Pytorch), R, SQL. Familiarity with C++.

Fun facts: My twin sister, younger brother and I play in a piano trio together.