

Anav Sood

Website: <https://anavsood.github.io/> Email: anavsood@stanford.edu

Phone: +1 (216) 406-3130

Education

Ph.D. in Statistics 2020 - 2025 (anticipated)

Stanford University

Advisor: Prof. Trevor Hastie

B.A. in Mathematics 2016 - 2020

M.S. in Statistics

Stanford University

Professional Experience

Data Science Intern 2022

Wayve

- Developed framework and methodology for measuring correlation between vehicle performance in real world and simulation
- Developed new A/B tests (currently deployed) for comparing different self driving model's real world performance.

Quantitative Research Intern 2019

Citadel

- Evaluated modern feature selection methods' efficacy in settings with high dimensional time series data
- Ran event studies to determine if bond rating changes were significant indicators of stock price movement

Software Engineering Intern 2018

Cruise Automation

- Invented patented algorithm for the naively NP-hard problem of identifying the k avoidance areas which most negatively impact routability

Data Science/Machine Learning Consultant 2020 - current

Multiple Clients

- Consultant for Sequoia Capital. Worked on automating talent search.
- Consultant for Customer Value Fund at General Catalyst. Worked on quantifying uncertainty surrounding consumer churn.
- Consultant for Coframe. Worked on strategies for comparing and evaluating LLM agents.
- Consultant for Snorkel. Worked on developing math problems that stumped LLMs.

Research

Research interests: Interpretable machine learning; Adaptive statistical inference; Precision medicine.

First authorship indicated by *

Articles

5. Sood, A. and Hastie, T. (2025+) A Statistical View of Column Subset Selection . *Accepted at the Journal of the Royal Statistical Society: Series B.* [arXiv:2307.12892](https://arxiv.org/abs/2307.12892)
4. Sood, A. (2024) Selective inference is easier with p-values. *Submitted to the Annals of Statistics.* [arXiv:2411.13764](https://arxiv.org/abs/2411.13764)
3. Sood, A. (2025) Powerful rank verification for multivariate Gaussian data with any covariance structure. *Preprint available.* [arXiv:2503.01065](https://arxiv.org/abs/2503.01065)
2. Mayer, A. T*, Holman, D. R.*, Sood, A*, Tandon, U., Bhate, S. S., Bodapati, S., ..., and Rogalla, S. (2023). A tissue atlas of ulcerative colitis revealing evidence of sex-dependent differences in disease-driving inflammatory cell types and resistance to TNF inhibitor therapy. *Science Advances.* [sciadv.add1166](https://doi.org/10.1126/sciadv.add1166)
1. Bates, E*, Morrison, B*, Rogers, M*, Serafini A*, and Sood, A* (2025). A new combinatorial interpretation of sums of m -step Fibonacci numbers [arXiv:2503.11055](https://arxiv.org/abs/2503.11055).

Books

1. Sun, D., Kim, G., and Sood, A. (2024). The Art of Chance: A Beginner's Guide to Probability. *Preprint available [here](#).*

Patents

1. Sood, A., Swofford, M., Rech, L. O. M., and Bowe, A. Analysis of network effects of avoidance areas on routing. U.S. Patent 10,962,380. Filed December 20, 2018. Issued March 30, 2021. [US10962380B2](https://patents.google.com/patent/US10962380B2)

Talks

Selective inference is easier with p-values

<i>International Seminar on Selective Inference</i>	February 2025
<i>Art Owen's Group Meeting</i>	January 2025
<i>Stanford Industrial Affiliates Conference</i>	November 2024
<i>Stanford-Berkeley Joint Colloquium</i>	October 2024

A Statistical View of Column Subset Selection

<i>STATS 305C: Applied Statistics III Lecture</i>	May 2024
<i>Stanford Industrial Affiliates Conference</i>	November 2023
<i>Stanford-Berkeley Joint Colloquium</i>	October 2023
<i>Joint Statistical Meetings</i>	August 2023

Transformers, LLMs, and what statistics can offer

<i>Statistical Learning Group Meeting</i>	February 2024
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- Slides available [here](#)

Perspectives on Frequentism and Bayesianism

Stanford Statistics Department Retreat

May 2024

- Slides available [here](#)

The modern dimensionality reduction toolkit

STATS 305C: Applied Statistics III

May 2024

- Slides available [here](#)

Posters

Selective inference is easier with p-values

Statistics Empowering Data Science

January 2025

- One of three poster award winners

A note on binary words avoiding given subwords

Joint Mathematics Meetings

January 2018

Software

- **pycss**, developer, <https://github.com/AnavSood/CSS>
Python package for column subset selection methods developed in my dimensionality reduction work
- **seldom**, developer, <https://github.com/AnavSood/seldom>
Python code for running experiments in my selective inference work

Service and Teaching Experience

Instructor

STATS 216V: Introduction to Statistical Learning

Summer 2023

STATS 208: Bootstrap, Cross-Validation, and Sample Re-use

Winter 2023

- Designed course material, available [here](#), from scratch to accommodate remote learning

STATS 110: Statistical Methods in Engineering and the Physical Sciences

Fall 2021

- Designed course material, available [here](#), from scratch to accommodate remote learning

Teaching Assistant

STATS 216V: Introduction to Statistical Learning

Summer 2024

STATS 305C: Applied Statistics III

Spring 2024

STATS 116: Theory of Probability

Autumn 2023

STATS 315B: Modern Applied Statistics: Learning II

Spring 2022

STATS 100: Mathematics of Sports

Spring 2021

STATS 207: Introduction to Time Series Analysis

Fall 2020

- Recipient of Departmental Teaching Assistant Award for 2023-24

XCS224N: NLP with Deep Learning

2019-2020

- Member of teaching staff for Stanford Center for Professional Development's course XCS224N
- Designed and built all course assignments relating to transformers and double descent

Service

Member of Stanford Statistics PhD Admissions Committee 2024 - 2025

- Among first PhD students to join the committee

Member of Stanford Department of Music Search Committee for Director of Jazz Studies 2024 - 2025

References

Trevor Hastie

John A. Overdeck Professor of Mathematical Sciences
 Professor of Statistics
 Professor of Biomedical Data Science
 Stanford University
hastie@stanford.edu

Robert Tibshirani

Professor of Statistics
 Professor of Biomedical Data Science
 Stanford University
tibs@stanford.edu

Stephan Rogalla

Clinical Assistant Professor, Medicine - Gastroenterology & Hepatology
 Member, Maternal & Child Health Research Institute (MCHRI)
 Stanford University
srogalla@stanford.edu

Jonathan Taylor

Professor of Statistics
 Stanford University
jonathan.taylor@stanford.edu

Dennis Sun

Associate Professor (Teaching) of Statistics
 Stanford University
dlsun@stanford.edu