

# Henry Smith

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## OVERVIEW

PhD candidate in Statistics at Stanford (Knight-Hennessy Scholar, NSF Fellow) specializing in probabilistic generative modeling and scalable Bayesian inference. My research aims to advance state-of-the-art generative models—including diffusion models, normalizing flows, and autoregressive language models—with applications to computational protein design and neuroscience.

## EDUCATION

**Stanford University**, Palo Alto, CA

2023 -

*Ph.D., Statistics*

Advisors: [Scott Linderman](#) and [Brian Trippe](#)

Relevant Coursework: stochastic processes, probabilistic machine learning, information theory, theoretical statistics, probability theory

**Yale University**, New Haven, CT

2018 - 2022

*B.S., Statistics & Data Science, Mathematics*

*summa cum laude*

Thesis: “Implicit Regularization in Deep Learning: The Kernel and Rich Regimes”

Advisor: Harrison Zhou

## WORK EXPERIENCE

**Research Assistant (full-time)**

Oct 2022 - Oct 2023

*University of Cambridge, Department of Computer Science & Technology*

*Cambridge, UK*

Advisor: [Amanda Prorok](#)

- Mathematically formalized and programmed geometric deep learning algorithms to enable close proximity flight of aerial drones (e.g., for search and rescue tasks); validated in simulation and real-world experiments

**Student Research Assistant**

Jun 2021 - Jun 2023

*Cornell University, Department of Mathematics*

*Ithaca, NY*

Advisors: [Alex Townsend](#), [Nicolas Boullé](#)

- Developed mathematically interpretable deep learning algorithms for the unsupervised discovery of linear partial differential equations (PDEs)

## AWARDS & HONORS

Departmental Teaching Award<sup>1</sup> | *Stanford Department of Statistics*

Jun 2025

Knight-Hennessy Scholarship<sup>2</sup> | *Stanford University* | \$300,000

May 2024

Graduate Research Fellowship | *National Science Foundation (NSF)* | \$147,000

Sep 2023

EDGE (Enhancing Diversity in Graduate Education) Fellowship | *Stanford University* | \$12,800

Sep 2023

Outstanding Senior Thesis Award in Statistics & Data Science<sup>3</sup> | *Yale University*

May 2022

<sup>1</sup>Remarks from students and faculty: “extremely conscientious, proactive, and well prepared”; “the strongest TA in 10 years”

<sup>2</sup>Full-ride scholarship for graduate studies at Stanford; scholars selected on the basis of independence of thought, purposeful leadership, and civic mindset; 89 scholars selected from ~8000 applicants

<sup>3</sup>One of two graduating seniors selected to receive the award by the Statistics & Data Science department faculty

Emerson Tuttle Cup <sup>4</sup>   <i>Yale University</i>	May 2022
Phi Beta Kappa   <i>Yale University</i>	Feb 2022
Research Experience for Undergraduates (REU)   <i>National Science Foundation (NSF)</i>   \$5,000	Jun 2021
Google Summer of Code Fellowship   <i>Google</i>   \$6,000	May 2020
Richter Summer Research Fellowship   <i>Yale University</i>   \$1,000	May 2020

## PUBLICATIONS

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- [1] **H. Smith**, N. Diamant, B. Trippe. Calibrating generative models. *arXiv preprint arXiv:2510.10020*, 2025.
- [2] A. Hu\*, **H. Smith\***, S. Linderman. SING: SDE inference via natural gradients. *Advances in Neural Information Processing Systems (NeurIPS)*, 2025.
- [3] **H. Smith**, A. Shankar, J. Gielis, J. Blumenkamp, A. Prorok. SO(2)-equivariant downwash models for close proximity flight, *Robotics and Automation Letters (RA-L)*, IEEE, 2024.

\* denotes equal contribution

## PRESENTATIONS

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- [1] Calibrating Generative Models. *International Conference on Machine Learning (ICML) Generative AI and Biology Workshop*, 2025. [\[Spotlight\]](#) (10% of accepted submissions selected for talk)

## TEACHING

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Teaching Assistant:

STATS 315: Modern Applied Statistics, Learning   <i>Stanford University</i>	Winter 2025
STATS 202: Statistical Learning and Data Science [Head Teaching Assistant]   <i>Stanford University</i>	Fall 2024
STATS 60: Introduction to Statistics   <i>Stanford University</i>	Spring 2024
S&DS 365/665: Intermediate Machine Learning   <i>Yale University</i>	Spring 2022
S&DS 262/562: Computational Tools for Data Science   <i>Yale University</i>	Spring 2021
S&DS 100/500: Introduction to Statistics   <i>Yale University</i>	Fall 2019

## SERVICE

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Stanford Women and Allies in Statistics   Member, Event Organizer	Fall 2023 -
Reviewer, <i>International Conference on Learning Representations (ICLR)</i>	2025
Stanford Department of Statistics Qualifying Exam Reader	Summer 2025
Reviewer, <i>Learning for Dynamics and Control Conference (L4DC)</i>	2024

## TECHNICAL SKILLS

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**Languages:** Python, R, C, MATLAB, SQL

**Frameworks:** JAX, PyTorch, TensorFlow

**Research tools:** Git, Linux/HPC, Docker, SLURM

**Open-source contributions:** Developer of **cgm** (<https://github.com/smithhenryd/cgm>) and **sing** (<https://github.com/lindermanlab/sing>) repositories

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<sup>4</sup>Presented annually at Commencement to the Davenport College senior most distinguished for scholastic attainments; there were approximately 130 students in the graduating class