

Hong Suh

hong.suh7@gmail.com ◇ 408-807-1472 ◇ San Francisco, CA
https://hongsuh7.github.io ◇ https://github.com/hongsuh7

SKILLS

Programming: Python, R, SQL, Mathematica, L^AT_EX

Tools/Packages: PyTorch, scikit-learn, NumPy, CuPy, Pandas, tidyverse, plotly

Theory: Deep Learning, Machine Learning, Probability, Statistical Mechanics, Numerical Differential Equations, Algorithms

SELECT PROJECTS

- ◇ *Neural network model for image classification and generation.*
 - Developed a **new normalizing flow architecture** using **masked convolutions** and a modified **neural ODE (NODE) model** for image generation.
 - Conducted rigorous statistical tests on my modified NODE model with **adversarial training** to demonstrate its training speed-up and similar adversarial robustness compared to the vanilla NODE model.
- ◇ *Tennis win prediction model.*
 - Designed and implemented a prediction model for professional tennis player matchups.
 - Eliminated the need for human supervision by **automating** hyperparameter selection using **GPU optimization**.
 - Decreased log-loss error by about **1.5%** compared to FiveThirtyEight's model.
 - Created **interactive graphics** for users to experiment with predictions.
- ◇ *PhD research on stochastic homogenization for an exclusion process.*
 - Established **previously unresolved quantitative bounds** on the long-term statistics of a stochastic growth model, which is a class of models encompassing infection disease growth, forest fires, crystal growth, and more.
- ◇ *Undergraduate research on fringe pairs in generalized MSTD sets.*
 - Developed new algorithm to construct generalized MSTD sets, which are special finite sets of integers.
 - Discovered the **most “extreme” MSTD set** known at the time using the algorithm.

EXPERIENCE

Math Teacher June 2019 – June 2020
Proof School, San Francisco, CA

- ◇ Created and executed daily 2-hour lesson plans covering advanced math subjects—such as university-level linear algebra, number theory, and discrete probability—to kids who love math.

Graduate Student Instructor (GSI) and Researcher August 2016 – May 2019
UC Berkeley, Berkeley, CA

- ◇ Executed lectures and discussions as a GSI or primary lecturer to 20-50 undergraduate students in single-variable calculus, multivariable calculus, and linear algebra.
- ◇ Conducted theoretical research, presented at three seminars, and published one paper.

EDUCATION AND AWARDS

<i>Ph.D, Mathematics</i>	on leave	<i>M.A, Mathematics</i>	2019	<i>B.A, Mathematics, cum laude</i>	2016
Specializations: Probability, PDEs		Specializations: Probability, PDEs		GPA: 3.89	
UC Berkeley, Berkeley, CA		UC Berkeley, Berkeley, CA		Pomona College, Claremont, CA	

- ◇ NSF Graduate Research Fellowship Honorable Mention 2016
- ◇ 3 Pomona College Mathematics Department Prizes 2014, 2015, 2016