

# Hong Suh

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## EDUCATION

### University of California, Berkeley

*Ph.D., Mathematics*

Specializations: Probability, Partial Differential Equations

Qualifying exams passed on April 9th, 2018

Berkeley, CA  
on leave

### University of California, Berkeley

*M.A., Mathematics* (GPA: 3.85)

Graduate coursework: Probability, Numerical Differential Equations, Partial Differential Equations

Berkeley, CA  
May 2019

### Pomona College

*B.A., Mathematics* (GPA: 3.89), cum laude, 3 department awards

Coursework: Fundamentals of CS (functional programming), Data Structures & Algorithms

Claremont, CA  
May 2016

## SKILLS

*Programming:* Python, R, SQL, Java, Mathematica

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

*Theory:* Deep Learning, Machine Learning, Probability, Numerical Differential Equations, Data Structures, Algorithms

## SELECT PROJECTS

- ◇ *Tennis win prediction model.* (Individual project) March – August 2020
  - Designed and implemented a prediction model for professional tennis player matchups using **Pandas**, **NumPy**.
  - Eliminated human supervision by automating hyperparameter selection using GPU optimization with **CuPy**.
  - Decreased log-loss error by about **1.5%** compared to FiveThirtyEight's model.
  - Created interactive graphics for users to experiment with predictions using **Plotly**.
- ◇ *Neural network model for image classification and generation.* (Individual project) June – August 2020
  - Developed a new normalizing flow architecture using masked convolutions and a modified **neural ODE (NODE)** model for image generation using **PyTorch** and Google Colab.
  - Conducted rigorous statistical tests on my modified NODE classifier model with **adversarial training** to demonstrate its training speed-up and similar adversarial robustness compared to the vanilla NODE model.

## EXPERIENCE

### Math Teacher (grades 6-12)

Proof School, San Francisco, CA

June 2019 – June 2020

- ◇ Created and executed daily 2-hour lesson plans for 8 to 16 students covering advanced math subjects—such as university-level linear algebra, number theory, and discrete probability—to kids who love math.
- ◇ Created and supervised mathematical programming projects involving fast matrix multiplication, singular value decomposition, pseudorandom number generators, and more.

### Graduate Student Instructor (GSI) and Researcher

UC Berkeley, Berkeley, CA

August 2016 – May 2019

- ◇ 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 research on stochastic interacting particle systems and presented at three seminars.

## PUBLICATIONS (AUTHORS IN ALPHABETICAL ORDER)

- ◇ M. Asada, S. Manski, S. J. Miller, H. Suh, *Fringe pairs in generalized MSTD sets*, Int. J. Number Theory 13.10 (2017): 2653-2675.
- ◇ P. Burkhardt, A. Z.-Y. Chan, G. Currier, S. R. Garcia, F. Luca, H. Suh, *Visual Properties of Generalized Kloosterman sums*, J. Number Theory 160 (2016), 237-253.