

Hong Suh
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Github: <https://github.com/hongsuh7>
Website/Portfolio: <https://hongsuh7.github.io>

EDUCATION

<i>Ph.D.</i> , Mathematics	on leave	<i>M.A.</i> , Mathematics	2019	<i>B.A.</i> , Mathematics, cum laude	2016
Specializations: Probability, PDEs		Specializations: Probability, PDEs		GPA: 3.89	
UC Berkeley, Berkeley, CA		GPA: 3.85		Pomona College, Claremont, CA	
		UC Berkeley, Berkeley, CA			

SELECT PROJECTS

☐ Neural network model for image generation.

- *Summary.* Reduced computational cost for image generation using Neural ODEs by **x percent**.
- *Results.* Neural ODEs (NODEs) are the legacy best normalizing flow models for image generation, but they require high computational cost. I developed a new type of neural network inspired by NODEs that lowered computational cost by **x percent** and can be used as a replacement for NODEs in image generation.
- *Technologies.* Pytorch, CUDA, R.

☐ Tennis win prediction model.

- *Summary.* Eliminated human **intervention** by automating hyperparameter selection while decreasing **log-loss error by about 1.5%** compared to FiveThirtyEight’s model.
- *Results.* Historically, hyperparameters have been hand-picked in Elo rating systems. Taking advantage of parallelization, I developed a tennis-specific model which automates hyperparameter selection. This model decreased log-loss error by about 1.5% compared to FiveThirtyEight’s model.
- *Technologies.* Python, Pandas.

☐ Stochastic homogenization for an exclusion process.

- *Summary.* Established new quantitative bounds on the long-term statistics of a stochastic growth model, which can model infection disease growth, forest fires, crystal growth, and more.
- *Results.*

☐ Fringe pairs in generalized MSTD sets.

- *Summary.* 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.
- *Results.*
- *Technologies.* Mathematica.

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.

EXPERIENCE

Math Teacher
Proof School, San Francisco, CA

June 2019 – June 2020

- Created and executed lesson plans covering nonstandard math topics—such as second-semester university-level linear algebra, number theory, and discrete probability—to kids who love math.

AWARDS

- NSF Graduate Research Fellowship Honorable Mention 2016
- Hugh J. Hamilton Senior Mathematics Prize, Pomona College May 2016
- Bruce J. Levy Memorial Prize in Mathematics, Pomona College August 2015
- The Llewellyn Bixby Mathematics Prize, Pomona College August 2014

SKILLS

R, Python, Pytorch, SQL, Mathematica, \LaTeX