Hong Suh

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EDUCATION

M.A, Mathematics 2019
Specializations: Probability, PDEs
GPA: 3.85
UC Berkeley, Berkeley, CA

B.A, Pure Mathematics, cum laude 2016
GPA: 3.89 overall, 3.93 in Mathematics
Pomona College, Claremont, CA

SELECT PROJECTS

- *Predictive model run on tennis players.* Generalized an Elo rating system for tennis players. Decreased log-loss error by about 1% from FiveThirtyEight's model and eliminated the need to set hyperparameters manually.
  - Current methods to take court surface into account are ad-hoc or complex. We simplified the integration of court surface into the model.
  - In Elo rating systems, hyperparameters have historically been hand-picked for good reason: there is no effective method to optimize for hyperparameters. We demonstrated that in a random initial set of hyperparameters, a large proportion of them perform comparably to or better than current hand-picked hyperparameters. Taking advantage of parallelization, we were able to test a massive number of hyperparameters at once, which is a new and effective idea in Elo rating systems.
- *Stochastic homogenization for an exclusion process.* Established some quantitative bounds on the distribution of a statistic of an interacting particle system similar to the totally asymmetric simple exclusion process.
- *Fringe pairs in generalized MSTD sets.* Led a project to find new ways to construct generalized MSTD sets, which are special finite sets of integers, and found the most "extreme" classical MSTD set known at the time using our new methods.

PUBLICATIONS

- 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 June 2019 – June 2020
Proof School, San Francisco, CA

- Created and executed lesson plans covering nonstandard math topics—such as college second-semester 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

Probability, statistics, neural networks, R, Python, Pandas, NumPy, Keras, SQL, Mathematica, LaTeX