Gabe Schumm

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Research Interests: Monte Carlo Simulation, Bayesian Statistics, Data Analysis, Machine Learning

Experience

Boston University

Graduate Research Fellow — August 2020 - Present

- Developed and implemented numerical methods to study highly-correlated, quantum-many body systems. Methods used include Monte Carlo simulations, numerical integration, bootstrapping, machine learning, and statistical techniques for analyzing large datasets. Presented research findings in print and oral formats using data visualization to communicate results to broad audiences.

University of California, Berkeley

Sports Analytics Group at Berkeley (*sportsanalytics.berkeley.edu*) — August 2016 - May 2019

- Simulated MLB pitch trajectories using Statcast data, with aim of classifying pitcher skill sets using pitch motion. Collaborated with UC Berkeley Men's Division I Baseball coaching staff as analytics consultant.

Technical Skills

- Programming languages: Python, Julia, Linux, Fortran, SQL
- Libraries: PyData Stack (Numpy, Pandas, Scikit-Learn, etc.), PyBaseball, nba_api
- Computing and software: Git, LATEX, Adobe Photoshop, Microsoft Office

Education

- Ph.D in Physics, Boston University (2020 - present)
  Advisor: Anders Sandvik
- B.A. in Physics, University of California, Berkeley (2019)
  Highest Honors in Physics, High Distinction in General Scholarship

Awards, Honors, or Fellowships

- Research Fellow at the Flatiron Center for Computational Quantum Physics
  Simons Foundation, New York, NY - Spring 2024

Publications and Talks

- *Insights on Quantum Annealing of the Fully Frustrated Transverse Field Ising Model* (invited talk), Scientific Applications of Quantum Annealers and Simulators Workshop (October 2024).
- *Schumm, G.*, Yang, S., & Sandvik, A. W. Cross validation in stochastic analytic continuation. Phys. Rev. E, **110**, 055307. (2024)
- *Gabe Schumm*, Hui Shao, Wenan Guo, Frédéric Mila, and Anders W. Sandvik. Primary and secondary order parameters in the fully frustrated transverse-field ising model on the square lattice. Phys. Rev. B, **109**, L140408, (2024).