Gabe Schumm

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Computational physicist with extensive experience in statistical modeling, machine learning, and large-scale data analysis. Eager to apply a rigorous, data-driven approach to athlete evaluation and sports intelligence solutions.

Education

Ph.D. in Physics, *Boston University* (2025) – Thesis: *Static and Dynamic Properties of Quantum Magnets*
B.A. in Physics, *University of California, Berkeley* (2019) – Phi Beta Kappa, Highest Honors in Physics
Relevant Coursework: Machine Learning, Computational Physics, Statistical Mechanics, Principles and Techniques of Data Science

Technical Skills

Languages, Libraries & Tools: Python, SQL, Julia, R, Bash | Numpy, Pandas, SciPy, Scikit-Learn, PyTorch, Statsmodels, Matplotlib, Seaborn, BeautifulSoup, Peewee | Tableau, BigQuery, Git, Jupyter

Experience

Graduate Research Fellow – Boston University August 2020 – July 2025

- Designed high-performance simulation software in Julia used in 5 funded projects, implementing Monte Carlo and Bayesian inference algorithms to study quantum systems.
- Built reproducible data pipelines in Python/Jupyter for statistical analysis and visualization, supporting publication-quality results across multiple collaborations.
- Developed and maintained research codebases on GitHub, enabling version control and collaboration across 3+ research teams.
- Applied advanced statistical and machine learning techniques (cross-validation, PCA, covariance analysis, GLMs, ensemble methods) to extract insights from large-scale data and validate physical modeling.
- Published 4 papers and presented at 5 international conferences, communicating results effectively through clear data visualization and storytelling.
- Mentored 5 junior researchers in statistical modeling, programming, and data visualization, improving team proficiency and reproducibility.

Baseball Consultant – Sports Analytics Group at Berkeley August 2016 - May 2019

- Developed statistical models to evaluate pitcher performance using advanced pitch-tracking datasets and pitch trajectory modeling.
- Designed end-to-end data pipelines, developed custom metrics, and created dashboards to quantify player strengths, informing coaching decisions.
- Communicated insights effectively to coaches and staff, integrating statistical findings with practical recommendations.

Research Fellow – Simons Foundation Flatiron Institute, NY January 2024 - May 2024

- Selected as one of 12 international fellows at the Center for Computational Quantum Physics.
- Executed novel, data-intensive research projects using high-performance computing infrastructure, resulting in 2 conference presentations and a peer-reviewed publication.

Graduate Teaching Fellow – Boston University August 2020 – July 2025

- Led weekly tutorials and discussion sections across undergraduate and graduate physics courses, reinforcing lecture content and guiding students through problem-solving
- Developed instructional materials, including computational exercises, homework assignments, and tutorials emphasizing conceptual understanding and coding practice.

Selected Publications

- *Cross validation in stochastic analytic continuation*, Phys. Rev. E (2024)