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Aaron M. Stahl

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Adaptable, reliable, and collaborative computational scientist with ten years of professional experience, including four years in investment management and six years advancing two cutting-edge research fields in physics. Skilled in analytical modeling, programming, machine learning, and finance. Excels at developing models for understanding dynamical systems and data.

SELECTED EXPERIENCE

Graduate Research Scientist — Aug 2018 — Present

School of Physics, *Georgia Institute of Technology* **| Atlanta, GA**

Selected Awards: Herbert P. Haley Fellowship, Georgia Tech Quantum Alliance Fellowship (x2)

Plasma Physics

- Programmed highly-parallelized, 3-D computational models in C++ to study plasma dynamics and magnetospheric physics; authored peer-reviewed manuscripts on research results in leading space physics journal.
- Translated broad scientific research goals into quantitative questions that could be answered by combining computational model results with empirical data (e.g., *in situ* spacecraft time-series measurements).
- Applied advanced statistical techniques (e.g., minimum variance analysis, multivariate regression) to large, multi-dimensional datasets to extract key features of moon-plasma interaction dynamics using Python.
- Collaborated with other team members to produce a collective research project, resulting in a peer-reviewed publication and presentation at international scientific conference (AGU 2023).
- Regularly developed software and analyzed data both independently and in collaborative environments.

Quantum Physics

- Created novel deep learning model of stacked convolutional neural networks to accurately reconstruct sparsely sampled low-energy quantum states using supervised learning with Python and TensorFlow.
- Presented scientific results to both highly specialized and general audiences at several invited talks, including corporate (Google Quantum AI) and student groups (Georgia Tech Quantum Alliance).

Analyst — Oct 2008 — Sep 2011

Strategic Investment Group, LLC | Rosslyn, VA

- Collaborated with asset class managers and head portfolio manager to select optimal investments for large institutional client portfolios (> $1 bln), fulfilling a diverse spectrum of long-term investment objectives using both active and passive solutions.
- Managed performance, risk, and benchmarking calculations for several client portfolios; interfaced directly with clients to present reports, address manager-related questions, and answer analytical inquiries.
- Designed and managed development of award-winning data analytics pipeline for daily futures rebalancing; resulting product was adopted across all client portfolios, received annual company-wide "Brilliant Alpha" award.

EDUCATION

PhD in Physics, Georgia Institute of Technology — est. May 2024
BS in Physics, University of Maryland - College Park — May 2018
BA in Business, University of Southern California — May 2008

SKILLS

Programming Languages: Python • C++ • Matlab • SQL
Development Tools: SciPy • Pandas • Matplotlib • OpenAI API • GPT • TensorFlow | Keras • Git
Math: Vector calculus • ODEs | PDEs • Linear algebra • Tensor methods • Probability • Statistics
Finance: Time series analysis • Portfolio optimization • Monte Carlo • Bloomberg • Derivatives pricing

SELECTED PUBLICATIONS

[1] Aaron Stahl et al. "A Model of Ganymede's Magnetic and Plasma Environment During the Juno PJ34 Flyby". In: *Journal of Geophysical Research: Space Physics* 128.12 (2023), e2023JA032113.

[2] Aaron Stahl and Glen Evenbly. "Reconstruction of Randomly Sampled Quantum Wavefunctions using Tensor Methods". In: *arXiv preprint arXiv:2310.01628* (2023).

A complete list of publications and talks can be found in my CV on my website: **https://astahl3.github.io/cv/**