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Education

Harvard University Cambridge, MA
A.B. Degree in Physics. GPA: 3.89/4.0. Expected May 2025
Selected coursework: Quantum Computation and Information, Computational Learning Theory, Theoretical Computer Science, Information Theory, Systems Programming, Compilers.

Vocational experiences

Jane Street NYC, United States
Quantitative Research Intern (return offer) Jun-Aug 2024

- Full-stack development of the firm's first deep-learning based weather model for commodity pricing.
- Applied differentiably enforced physical conservation laws to standard autoregressive models, addressing catastrophic rollout instability and suboptimal bias-variance tradeoff in autoregressive tasks.

Technical Experiences

Harvard University
Undergraduate Researcher Oct 2023-Nov 2024

- Advisor: Kaifeng Bu. Both works undergoing review for publication.
- "Fermionic Gaussian Testing and Non-Gaussian Measures via Convolution", first author (Oct 8).
- "Displaced Fermionic Gaussian States and their Classical Simulation", first author (Nov 27).

Semeghini Lab in Applied Physics
Undergraduate researcher April 2022 – Oct 2024

- Spearheaded the design and implementation of a control system for cutting-edge quantum computing systems, currently operational in Harvard's Yb-Rb and Atom Array II groups.
- Designed an acousto-optic modulator (AOM) double-pass system, using Toptica 399nm laser to empower 2D and 3D magneto-optical traps and Zeeman slowing for ytterbium atoms.
- Designed a micron-resolution length measurement apparatus using interference from a 1064nm laser, used to probe the critical optical path for precise control of atoms.
- Utilized COMSOL Multiphysics to simulate the compensation ability of electrodes, informing the final design to best minimize the Stark shift of atoms.

Kaggle Cambridge, United States
Competitions Master 2019-2022

- Top placement in Bengali.AI grapheme classification challenge (0.03 percentile), Google Landmark Recognition (2%), Rainforest species audio detection (2.5%), Steel defect detection (3.2%), among others.
- Competition Master status, representing the top percentile of 200k participants in global machine learning challenges in cutting-edge industrial and research problems.

Technical Skills

Computational Libraries: COMSOL Multiphysics, National Instruments Library, PyTorch, JAX
Programming Languages: C++, OCaml, Rust, Python