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99 Bay State Rd.
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Education

Massachusetts Institute of Technology **Cambridge, MA**
B.S in Physics and Electrical Engineering May 2025
Relevant Coursework: Nanotechnology: From Atoms to Systems, Signal Processing (Lab Assistant), Computational Imaging, Ultrafast Photonics, Quantum Physics, and Silicon Photonics

Experiences

Astera Holdings: Trading Systems Intern July 2025 – Present
Boston, MA
- Developed and enhanced a statistical arbitrage trading algorithm, leveraging LLMs for the real-time integration of event-driven signals to identify mispriced asset pairs and optimize trade execution
- Built low-latency order routing infrastructure in Rust, achieving sub-millisecond execution speeds for high-frequency trading scenarios
- Deployed and managed infrastructure on AWS for scalable data ingestion, model inference, and backtesting pipelines

Apple: Hardware Engineer Intern – Electrical Engineering June 2024 – Aug. 2024
Cupertino, CA
- Designed and implemented an automation pipeline using Python, MATLAB, Pandas, and SCPI for testing a confidential algorithm within the Apple Watch's display electrical circuit, enabling faster validation cycles and led to improved performance and power efficiency

MIT Lincoln Laboratory: Group 87 (Advanced Imager Technology) May 2023 – Dec. 2023
Lexington, MA
- Implemented a semi-automated, Convolutional Neural Net approach to identify, classify, and report defects to engineers during the fabrication process with a ~94% accuracy
- Assisted in the production and characterization of Geiger Mode Avalanche Photodiodes in the Semiconductor Cleanroom through Photolithography and Dark Count Rate measurements

PUFFIN Research Group Feb. 2022 – Dec. 2022
Massachusetts Institute of Technology
- Modeled a triggered current pulse system for high energy density plasma diagnostics in Simulink/Simscape
- Designed (in Solidworks) and built the Helmholtz Coil, Spark Gap, and final high current pulse system

Lockheed Martin Momentum Competition Dec. 2021 – Jan. 2022
Cambridge, MA
- Created an algorithm that optimized a virtual fire-extinguishing aircraft's decision and pathfinding functionality to clear out as much fire as possible on a map given fire and water locations with varying fire sizes and limited water carrying capacity
- Optimized autonomous path-finding and decision-making functionality using both nearest-neighbor and simulated annealing algorithms using technologies and libraries such as Python, GeoJson, and Shapely
- Cleared 95% of fire in ten minutes garnering 1st place in the fire suppression competition

Accomplishments, Honors, and Awards

iQuHACK 2024 Jan. 2024
- Won 2nd place in the in-person Quandela Competition at MIT's 2024 Quantum Hackathon
- Implemented a Quantum Generative Adversarial Network (QGAN) on a photonic circuit using Perceval

Key to the City of Smyrna, TN Oct. 2020
- Earned recognition from the city of Smyrna, TN for my contributions to the environment and academic atmosphere such as my local Water Quality and Agriculture initiative

Projects
- Utilized a Xilinx-based FPGA with Vivado toolchain testbench simulations in System Verilog to make a SPI transmitter/receiver program, a DVI-based Video Generation Pipeline, and a Driving Simulator
- Created a Single-Pixel Imaging Device using NIR wavelength-dependent scattering for random-illumination patterns and Total Variation Regularization for image reconstruction