ELAINE HONG

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EDUCATION

Cornell University   Aug 2024 – May 2028

B.Eng. in Operations Research & Information Engineering, Minor in Computer Science

- **Relevant Courses**: Multivariable Calculus, Linear Algebra, Object-Oriented Programming, Probability & Stats, Data Structures
- **Activities**: NCAA Div I Athelete, Residence Hall Council, STEM Alliance E-Board

PROJECTS

Quantitative Trading Strategy Backtester | *Python, Pandas, NumPy, TypeScript, Next.js*

- Developed a full-stack backtesting engine to simulate and evaluate quantitative trading strategies on CSV data
- Implemented momentum and mean-reversion strategies, achieving a Sharpe ratio of **1.8** with **12%** higher returns than buy-and-hold over a 3-year period
- Built a **Next.js + TypeScript** dashboard for strategy selection and parameter tuning, backed by a Python engine for trade simulation and performance tracking

AI Image Generation Automation Platform | *Python, Stable Diffusion, Forge UI, Next.js, TypeScript*

- Engineered a web platform to automate AI-driven game asset generation using **Stable Diffusion**
- Designed an responsive interface with **Next.js and Tailwind**, integrated with a Python backend to streamline prompt workflows
- Increased the company's content production speed by **40%**, reducing manual workload and improving asset consistency

Competitive Intelligence Database for Fencing | *Node.js, Python, Firebase, RESTful API, Google Cloud*

- Built full-stack fencing scouting platform for **20+** teammates with opponent profiles, tactical analysis, and automated pre-bout briefings
- Processed **300+** annotated bout clips across **50+** opponents using structured data models; automated insights reduced pre-match prep time by **30%**
- Implemented secure team-only access with Firestore + Cloud Functions; optimized queries deliver instant search results

TECHNICAL SKILLS

Languages: Python, C++, Java, TypeScript, LaTeX
Data Tools: Pandas, NumPy, SciPy, PyTorch, Next.js, Node.js
Quantitative Methods: Probability, Stochastic Modeling, Optimization, Machine Learning

LEADERSHIP & ACTIVITIES

STEM Alliance At Cornell

Major Representative – E-Board   *2024 – Present*

- Spearheaded outreach and programming for a community of **200+ STEM students**, increasing event participation by **40%** semester-over-semester
- Organized **10+ academic workshops** and networking events focused on research prep, exam strategies, and career development.

JEart Mental Health Association

Co-Founder   *2020 – 2024*

- Led a youth-led non-profit with **15+ volunteers**, reaching **400+ students** nationwide
- Boosted participation **35% Year-over-Year** by driving social media campaigns and website marketing
- Coordinated logistics for **20+ workshops and initiatives** across Canada
- Mentored peers and built a collaborative, high-performance team

Canadian National Fencing Team

National Team Athlete   *2022 – 2024*

- Represented Canada in international competitions around the world, balancing elite athletic training with academic rigor
- Demonstrated **resilience and persistence** through years of intensive training, injury recovery, and high-stakes competition