Yvonne Hong

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EDUCATION

University of California, San Diego **2021 – 2025**

B.S., Mathematics-Computer Science *San Diego, CA*

- Relevant Coursework: Machine Learning Algorithms, Reinforcement Learning, Data Structures & Algorithms (C++, C, Java, Python), Probability & Statistics, Stochastic Processes, Applied & Computational Linear Algebra, Numerical Analysis, Differential Equations & Dynamical Systems, Discrete Math & Combinatorics, Artificial Intelligence: Probabilistic Reasoning & Decision-Making, Systems Programming (C, UNIX, gdb, valgrind), Abstract Algebra, Theory of Computability (Formal Languages, Turing Machines, Undecidability).

EXPERIENCE

Tristero **Jul 2024 – Sep 2024**

Business Operations Intern *Remote*

- Designed and optimized automation workflows in **HubSpot**, **Notion**, and **Coda**, enhancing operational efficiency by 30%
- Organized high-profile networking events, ensuring flawless execution, budget adherence, and elevated brand visibility, driving significant client engagement and partnerships
- Analyzed operational data to identify bottlenecks, implementing data-driven process improvements that boosted team productivity and informed strategic business decisions
- Actively participated in cross-functional meetings, providing feedback on inefficient processes, documenting key discussion points, and contributing actionable suggestions that led to measurable operational improvements

Sagepoint Financial **Oct 2021 – Dec 2021**

Financial Analyst Intern *San Diego, CA*

- Conducted in-depth analysis of mutual funds, equities, and real estate using **Morningstar**, leveraging advanced data analytics to formulate high-impact investment strategies that optimized client portfolio performance
- Authored comprehensive quarterly performance reports, synthesizing complex market trends and actionable insights to empower client decision-making and enhance investment outcomes
- Revamped client newsletters and communications, integrating quantitative insights and market forecasts to elevate engagement and align with client objectives

PROJECTS

Risk Parity Portfolio Optimization Model (in-progress) — Python, CVXPY, Pandas, RL **May 2025**

San Diego, CA

- Engineered a convex optimization-based risk parity portfolio using CVXPY, equalizing risk contributions across assets (e.g., SPY, TLT, GLD) with robust covariance constraints
- Integrated reinforcement learning (Q-learning) to dynamically adjust portfolio weights based on market states, optimizing risk-adjusted returns in a simulated environment
- Developed a backtesting framework incorporating transaction costs and slippage, evaluating advanced risk metrics (Sharpe, Sortino, Omega, CVaR) for performance analysis
- Built a scalable data pipeline using Alpha Vantage and Pandas for robust quant finance data acquisition and processing

Cross-Asset Volatility Arbitrage Engine (in-progress) — Python, CVXPY, Pandas, Matplotlib **May 2025**

San Diego, CA

- Developed a volatility arbitrage strategy to exploit mispricings between asset pairs (GLD/GDX) using historical price data for realized volatility
- Generated z-score-based trading signals and optimized portfolio weights with CVXPY, backtesting with transaction costs
- Visualized and saved strategy results for performance analysis and evaluation

Rolling Factor Model For Alpha Attribution (in-progress) — Python, Statsmodels, Seaborn **April 2025**

San Diego, CA

- Built a rolling Fama-French 5-factor + momentum model using Python, Pandas, and statsmodels to estimate dynamic alpha and betas for a portfolio (AAPL, MSFT, GOOGL)
- Designed a factor timing strategy with 5 bps transaction costs, optimizing returns via high-alpha periods, backed by Sharpe, return, and drawdown metrics
- Engineered a data pipeline with yfinance and Fama-French datasets for robust time-series alignment and regression analysis
- Visualized rolling alpha, betas, and performance with interactive Plotly and Matplotlib charts for intuitive portfolio insights

Quantitative Portfolio Strategy SMA Backtester — Python (Pandas, NumPy, yFinance) **March 2025**
San Diego, CA

- Built a Python-based stock portfolio management system, implementing an SMA-driven trading strategy to actively manage user-selected stocks, optimizing for risk-adjusted returns using Sharpe and Sortino metrics
- Created a comparative analysis tool to benchmark portfolio performance against the S&P 500, integrating yfinance data and Matplotlib visualizations for Buy-and-Hold and active strategies across custom date ranges
- Utilized Pandas to process multi-indexed financial time series, modeling transaction costs and quantifying risk exposure (e.g., Max Drawdown), ensuring robust evaluation under diverse market conditions

Birdwatching App — Python (Django), React (Vite) **Dec 2024 - Ongoing**
San Diego, CA

- Developed a gamified birdwatching platform using Python (Django) and React (Vite) with real-time bird sighting data via external APIs.
- Enabled users to log sightings, upload photos, and track hotspots with an interactive map; included features to filter by rarity, endangerment, and location.
- Introduced a competitive system with tiered achievements based on common, rare, and epic birds, driving user engagement and promoting environmental awareness.

Bayesian Kriegspiel Chess Agent — Team Member — Bayesian Networks, Stockfish, Heuristics **Nov 2024**
San Diego, CA

- Built a probabilistic chess agent using Bayesian networks and inference engines to handle uncertainty in Kriegspiel.
- Integrated **Stockfish** to select optimal moves on likely board states and implemented heuristics to prune the belief state space.
- Demonstrated improved win/draw/loss ratio and latency over a baseline agent through PEAS analysis and benchmarking.

SKILLS

Technical Skills: Python, JavaScript/TypeScript, C, C++, Java, React.js, Node.js, Express.js, Next.js, HTML/CSS, Tailwind CSS, MongoDB, Supabase, Render, Git, CI/CD, Postman, MATLAB, JSON Web Tokens (JWT), Google Cloud Suite, Adobe, AWS, Websockets, RESTful APIs, Docker, Flask
Languages: English (Native), Chinese (Fluent)
Interests: Birdwatching, hiking, swimming