Jeremy Hsu

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Education

Pennsylvania State University — University Park, PA
Bachelor of Science, Computer Science — *Aug. 2025 – Dec. 2028*

- **Relevant Coursework:** Applied Regression Analysis, Discrete Mathematics for Computer Science, Linear Algebra, Multivariable Calculus & Vector Analysis, Data Structures

Experience

Founder & Quantitative Researcher — Jan. 2026 – Present
Weaver Capital LP — *West Chester, PA*

- Operating a multi-strategy systematic portfolio across futures and equities, spanning intraday, swing, and macro horizons
- Engineered execution infrastructure in Python and C#, with automated strategy synchronization, enforced risk limits, and sub-second order handling
- Built portfolio optimization pipelines allocating capital dynamically across uncorrelated sleeves and balancing risk at the portfolio level

Undergraduate Researcher — Aug. 2026 – Present
Locomotion in Biology and Robotics (LiBR) Lab, Penn State — *University Park, PA*

- Researching locomotion and gait optimization in unconventional robot morphologies under Dr. Baxi Chong

Research Team — Aug. 2025 – Present
Penn State Quantitative Finance Club — *University Park, PA*

- Produce weekly market outlooks, technical analyses, and trade ideas for equity index futures
- Developed forecasting models focused on macroeconomic cycles and market regime shifts

Founder & Technical Lead — June 2019 – Apr. 2025
FTC #16468 Green Lemons Robotics — *West Chester, PA*

- Achieved #1 OPR globally among 8,000+ teams at the 2024 FTC World Championships
- Founded and led a 14-member competitive robotics team across six seasons; built autonomous control software including vision-based navigation and path planning

Projects

Rime — deployed strategy, Weaver Capital LP | *Python, pandas, NumPy, Alpaca API, Streamlit* — 2025 – Present

- Built a systematic daily allocator rotating leveraged Nasdaq ETFs, a volatility hedge, and cash via a shallow regime tree, a cross-asset macro overlay, and a volatility circuit-breaker with hysteresis
- Unified research and production behind a single decision function with persisted state, so live orders cannot diverge from the backtest; data-quality checks and a rebalance deadband to reduce turnover
- Validated via walk-forward folds, pre/post-2020 splits, slippage/commission stress, and block bootstrap; 47 pytest tests over the signal tree and risk overlays
- Historical simulation 2012–2025 at ∼44% average gross exposure: Sharpe 1.86 vs. 0.92 for SPY, max drawdown −17% vs. −34%; excluding 2020, Sharpe 1.58. Live on Alpaca since Apr. 2026

Fifth Sanctuary — deployed strategy, Weaver Capital LP | *Python, C#/NinjaScript, MQL5* — 2025 – Present

- Built an intraday gold volatility-expansion system with independent long and short risk sleeves, each scaled by a macro state vector
- Filtered the short sleeve out of the macro regimes where research showed it was structurally unfavorable; shipped a lookahead-safe Python macro script (FRED/Yahoo, T+1 shifted) feeding daily sleeve weights to the live C# strategy
- Dual-series routing analyzes gold futures while executing on micro contracts under account-size constraints
- Simulated on spot XAU hourly bars over 22 years (2004-2025): profit factor 1.48, Sharpe 1.38, ∼18% time in market at a 42% win rate and 2:1 payoff. Live since Jan. 2026.

Technical Skills

Languages: Python, C++, C#, Java, Pine Script, SQL
ML / Statistics: scikit-learn, Statsmodels, walk-forward validation, Monte Carlo, block bootstrap
Data Analysis: pandas, NumPy, SciPy, TA-Lib, Matplotlib, Plotly, Parquet
Platforms & Tools: Alpaca API, QuantConnect, Backtrader, TradingView, Streamlit, pytest, Git, Linux