WEI (WILLIAM) CHEN

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EDUCATION

UCLA Anderson School of Management — Los Angeles, CA
Master of Financial Engineering — GPA: 3.38/4 — December 2025
Relevant Courses: Machine Learning, Derivatives, and Econometrics

The Chinese University of Hong Kong — Hong Kong
B.A., Insurance, Financial and Actuarial Analysis, Minor in Statistics — December 2022
Relevant Courses: Time Series, Deep Learning, and Non-Parametric Statistics

SKILLS & PROFESSIONAL CERTIFICATIONS

Technical Skills: Python (NumPy, Pandas, Scikit-learn, Polars and Numba), SQL, and Git
Certifications: SOA Exam QFIQF
Other Skills: Machine Learning, Natural Language Processing, and Prompt Engineering

PROFESSIONAL EXPERIENCE

Vertex Capital Management — United States
Quantitative Research Intern — June 2025 – September 2025

- Developed a robust data pipeline to clean high-frequency option quotes, standardizing inputs for portfolio analytics, backtesting workflows, and production-ready research datasets used by stakeholders.
- Engineered a high-performance Python backtesting framework to evaluate option strategies across large parameter grids and market regimes, accelerating iteration cycles while improving systematic strategy performance measurement.
- Monitored and decomposed daily PnL by strategy and risk drivers, translating risk analytics into actionable insights that refined trading algorithms and improved communication with non-technical decision makers.

Pacific Life Insurance — Hong Kong
Actuarial Analyst — January 2023 – September 2024

- Developed automated pricing tools to evaluate profitability under multiple scenarios, improving operational efficiency by 50% and creating repeatable analytics workflows for cross-functional product stakeholders.
- Applied sensitivity and scenario analysis to quantify financial impacts of new rider features, supporting launch decisions that improved ROE by 10% and strengthened model governance and transparency.
- Analyzed 100K+ historical claim records to recalibrate pricing assumptions, improving valuation accuracy while strengthening data quality checks and scalable reporting for management decision making.

PROJECTS

Voice-Based AI Financial Discord Chatbot

- Architected a full-stack voice AI assistant integrating speech-to-text, local LLM inference, tool-calling APIs, and real-time text-to-speech streaming, delivering an interactive user experience with reliable workflow orchestration.
- Deployed a local Qwen-8B model with an MCP tool interface to enable deterministic financial function calls, improving system resilience by reducing hallucination risk and enforcing structured outputs.
- Built a low-latency audio pipeline using Librosa, VAD, and Fast-Whisper plus CUDA-accelerated TTS streaming, optimizing end-to-end responsiveness while standardizing interfaces via docstring-driven function calling.

Implied Volatility Surface Modelling in Crypto Options

- Built an end-to-end implied volatility surface system for BTC/ETH options using Deribit data (2019–2025), covering forward inference, IV extraction, and calibration across maturities for portfolio risk analytics.
- Implemented a nanosecond-level IV solver in Rust using the Jäckel framework, achieving 140ns runtime and 20% speed improvement versus baseline while maintaining $< 5 \times 10^{-9}$ error.
- Calibrated arbitrage-free SSVI, SVI, and B-spline surfaces with constrained optimization and regularization, improving stability under sparse strikes and volatile regimes using liquidity-aware objective functions.

COMPETITIONS

Annual IAQF Academic Affiliate Membership Student Competition

- Developed a 30-day Single-Stock VIX (SSVIX) measure by incorporating additional maturities, improving risk-neutral volatility estimation reliability when near- and next-term options are illiquid.
- Enhanced index implied correlation modeling by integrating SSVIX for the top 50 S&P 500 constituents, providing more theoretically sound insights for correlation dynamics, tail risk, and crash risk analysis.
- Leveraged a one-factor Student-t EGARCH model and Constant Conditional Correlation framework to simulate volatility spillovers, translating market shock scenarios into option risk analytics and portfolio implications.