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: Econometrics, Fixed-Income Markets, and Machine Learning

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

SKILLS & PROFESSIONAL CERTIFICATIONS

Technical Skills: Python (NumPy, Pandas, Scikit-learn, Polars and Numba), SQL, and Git
Certifications: SOA Exam QFIQF
Other Skills: Prompt Engineering, Monte Carlo Simulation, and Data Cleaning

PROFESSIONAL EXPERIENCE

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

- Built a data-quality pipeline to clean high-frequency option quotes, detecting anomalous prints and ensuring consistent time series inputs for systematic backtesting and downstream risk analytics.
- Engineered an OOP Python backtesting framework to evaluate option strategies across large parameter grids and market regimes, supporting scalable experimentation, performance attribution, and reproducible research workflows.
- Monitored and decomposed daily PnL by strategy and risk drivers, producing diagnostics aligned with greeks-based explanations to guide iterative remediation of model and data issues.

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

- Developed automated pricing tools in VBA to run multi-scenario profitability analysis, improving evaluation efficiency by 50% while strengthening controls, documentation, and repeatability of production reporting.
- Applied sensitivity and scenario analysis to quantify impacts of new rider features, translating assumptions into decision-ready risk tradeoffs that supported launch recommendations and improved ROE by 10%.
- Analyzed 100K+ historical claim records to recalibrate pricing assumptions, emphasizing data cleaning, statistical validation, and segmentation to improve stability and accuracy of group health valuations.

PROJECTS

Voice-Based AI Financial Discord Chatbot

- Architected an end-to-end voice assistant integrating speech-to-text, local LLM inference, tool-calling, and streaming text-to-speech, forming an API-driven pipeline to retrieve and process financial information reliably.
- Deployed a local Qwen-8B model with an MCP tool interface, using prompt design and deterministic function calls to reduce hallucination risk and improve consistency of structured outputs.
- Implemented a low-latency audio stack with Librosa, VAD, and Fast-Whisper plus CUDA-accelerated TTS streaming, optimizing responsiveness for real-time interactive analytics and query workflows.

Implied Volatility Surface Modelling in Crypto Options

- Built an end-to-end time series analytics workflow on Deribit BTC/ETH options (2019–2025), inferring forwards, extracting implied volatilities, and calibrating surfaces across maturities for consistent market data inputs.
- Implemented a nanosecond-level implied volatility solver in Rust using the Jäckel framework, achieving 140ns runtime and 20% speed improvement while maintaining $< 5 \times 10^{-9}$ error.
- Calibrated arbitrage-free SSVI, SVI, and B-spline surfaces with constrained optimization and regularization, improving robustness under sparse strikes and illiquid conditions typical of noisy market time series.

COMPETITIONS

Annual IAQF Academic Affiliate Membership Student Competition

- Developed a 30-day Single-Stock VIX (SSVIX) measure using additional maturities, improving volatility time series quality and reliability when near- and next-term options are illiquid.
- Integrated SSVIX for the top 50 S&P 500 constituents to enhance index implied correlation modeling, supporting more theoretically grounded diagnostics for correlation and crash risk.
- Simulated volatility spillovers and market-shock impacts using a one-factor Student-t EGARCH model and Constant Conditional Correlation framework, evaluating model behavior under stress scenarios.