

BYRON DELANEY JR

QUANTITATIVE FINANCE · DATA SCIENCE · APPLIED MATHEMATICS

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TECHNICAL SKILLS

Languages

Python, SQL, C / C++, TypeScript, R

Quant Finance

Options & volatility surfaces (eSSVI), variance risk premium, dealer gamma (GEX), Monte Carlo, credit risk, VaR / CVaR

ML & Statistics

scikit-learn, XGBoost, SHAP, NumPy, pandas, Gibbs sampling

Data Engineering

ETL design, market-data pipelines (Databento OPRA, FRED), Databricks, Polars, Parquet, SQLite

Tools & Web

Git, Jupyter, Streamlit, Plotly, React / Next.js

HIGHLIGHTS

0.788 AUC

Credit-default model over 50,000+ loans, with SHAP explanations

8.2M / sec

Option contracts priced by the C++ volatility engine

~55 signals

Six-family volatility taxonomy mapped at Coers

5,000

Monte Carlo portfolios mapped to the efficient frontier

6 markets

SPX · VIX · SPY · QQQ · ES · OEX covered by vega-lab

EDUCATION

M.S. Mathematics

California State University, East Bay — In progress

B.A. Applied Mathematics

University of California, Berkeley — 2024

Selected coursework

Real & Complex Analysis · Probability Theory · Numerical Analysis · Abstract & Linear Algebra

FOCUS AREAS

Volatility-surface modeling (eSSVI) · variance risk premium & dealer gamma (GEX) · signal research · market-data infrastructure · system / API architecture · credit-risk modeling

LANGUAGES

English — native
Spanish — native

EXPERIENCE

Coers Corporation *Quantitative Researcher & Platform Architect*

Jul 2026 – Present

Five-person options-volatility research firm | concurrent with MaritAlme

- Design and validate the firm's volatility-signal set — variance risk premium, dealer gamma (GEX), skew, term structure, dispersion, and regime — computed against a deterministic C++ options-volatility engine (eSSVI) on Databento OPRA data.
- Build the signals-service that turns raw OPRA options and FRED rates into a ~55-signal, six-family library, each signal scored for provenance and confidence.
- Backtest signals over historical replays to measure stability and predictive edge before they enter the production registry.
- Write the research memos that decide which signals ship to the product and which get cut.

MaritAlme *Solutions Architect*

Jun 2026 – Present

Remote | early-stage analytics platform

- Design and build the data pipelines behind the analytics platform, ingesting telemetry and operational data into a unified store and owning features from design through deployment.
- Ship Python and SQL tooling that ingests, validates, and models data, replacing manual spreadsheet reporting and cutting turnaround time.

Pixonomi *Data Science Intern*

Jul 2024 – Jan 2025

- Built and validated machine-learning models (scikit-learn, XGBoost) on datasets of 50,000+ records, evaluated with AUC and precision / recall.
- Engineered features and used SHAP to make predictions explainable, and automated data cleaning and ETL across the analysis workflow.

Independent Mathematics Tutor *Self-employed*

2020 – Present

- Teach algebra through multivariable calculus, linear algebra, statistics, and SAT / ACT math; bilingual instruction in English and Spanish.

SELECTED PROJECTS

vega-lab — Options Volatility Analytics Engine

Python · C++ · OpenMP · Polars · SciPy · Databento · Dash

Native C++ Jäckel IV solver (OpenMP, zero-copy NumPy) pricing 8.2M contracts/sec, with arbitrage-free eSSVI surface calibration and live smile, term-structure, and arbitrage diagnostics across SPX, VIX, SPY, QQQ, ES, OEX.

Credit Risk Scoring & Loan-Default Prediction

Python · scikit-learn · XGBoost · SHAP

Loan-default classifier reaching 0.788 AUC and 85% precision on 50,000+ records, with SHAP explanations behind every prediction.