

Vignesh Winner

vigneshwinner@utexas.edu | (469) 333-1796 | [linkedin.com/in/vigneshwinner](https://www.linkedin.com/in/vigneshwinner) | github.com/vigneshwinner | vigneshwinner.com

EDUCATION

The University of Texas at Austin – *Austin, TX*

B.S. in Computational Engineering (Honors) | B.S. in Mathematics (Statistics/Probability Track)

Minor in Business

Graduating: May 2027

GPA: **3.88/4.0** | SAT: **1570/1600** | ACT: **35/36**

Relevant Coursework: Probability/Statistics; Stochastic Processes; Predictive Analytics; Game Theory; Time Series/Regression; Linear Algebra; Matrix Theory; Multivariable Calculus; Real Analysis; Macro/Microeconomics; Computational Programming; Software Engineering/Design

TECHNICAL SKILLS

Languages: Python; C/C++; SQL; R; MATLAB; Java; JavaScript; Ruby; HTML/CSS

Frameworks & Development: React; Next.js; Node.js; Flask; MongoDB; Redis; Docker; Kubernetes; Jenkins; Git; Linux; REST APIs

Platforms & Tools: Dataiku; Bloomberg; Kpler; Enverus; Power BI; TACC; ANSYS (incl. STK); OpenFOAM; Abaqus; SOLIDWORKS; Simulink

EXPERIENCE

bp (Supply, Trading & Shipping) – *Quantitative Analyst Intern (Chicago, IL)*

May 2026 – August 2026

- Developed 5 Python-based OLS and time-series fair value models across multiple low-carbon products, translating regulatory, supply-demand, compliance, and fuel-market fundamentals into pricing signals that supported **\$5M+** in trading decisions
- Built a Power BI dashboard used by **20+** traders and analysts, centralizing fair values, model decompositions, coefficients, and market drivers while saving **2-3 hours** of analysis per week
- Backtested systematic trading strategies using model-derived pricing signals across 10+ years of historical data, achieving **27% annualized return** and a **1.3 Sharpe ratio** under out-of-sample and regime-based validation
- Engineered end-to-end Dataiku pipelines for data ingestion and feature engineering through model validation and production deployment via Jenkins
- Gained cross-commodity exposure to crude and refined products through strategy reviews, trading simulations, and real-world case exercises

Gradesoar – *Software Engineering Intern (Plano, TX)*

May 2025 – August 2025

- Architected and shipped **6 full-stack production features** in Next.js and React, including reusable question-bank and course-creation systems used by **thousands of students and instructors**
- Optimized RESTful APIs, MongoDB schemas, and data-access patterns across assignment and curriculum workflows, reducing retrieval latency by approximately **24%**
- Strengthened platform reliability through backend routing, validation, and automated testing, increasing test coverage by **80%** and reducing production defects by **15%**

LEADERSHIP

Texas Energy Trading – *Quantitative Trading Lead*

January 2025 – Present

- Developed an **N-BEATS** forecasting model using NeuralForecast, pandas, and EIA API pipelines to predict **WTI crude oil** futures 3 months ahead
- Formulated a multi-leg arbitrage strategy for a case comp using **WTI/WTS spreads**, contango futures, and pipeline congestion to optimize margins
- Led analyst training, case competitions, and trading-firm events while developing curriculum in derivatives pricing, energy fundamentals, and machine-learning applications to trading

Texas Marketrics – *Quantitative Finance Director*

August 2025 – Present

- Designed quant curriculum spanning Python, probability/statistics, derivatives, risk modeling, backtesting, attribution, and regime stress-testing
- Developed a 6-phase pipeline combining ARIMA forecasting, Markowitz optimization via CVXPY, and **10,000-path Monte Carlo simulations**; stress-tested under **-5%/-20%/-40%** shocks with VaR/CVaR and backtested across 4 equities using Sharpe, Sortino, Calmar, and max drawdown

Texas Spacecraft Laboratories – *Flight Dynamics Lead*

August 2024 – May 2026

- Led CubeSat mission analysis in ANSYS/Python across imaging, communications, sensor placement, and constraints within orbital configurations
- Conducted orbital trade studies comparing 500 km 28.5° and Sun-Synchronous (97°) profiles, finding **82% greater** cumulative annual downlink time for the 28.5° orbit and identifying a -105° YPR star tracker mounting configuration achieving **0% obscuration**
- Owned GNSS and ADCS subsystem testing, including OEM7600 receiver validation, pointing budgets, deorbit simulations, and interference analysis

PROJECTS

ML-Driven ETF Signal Research System (Alpha Research)

Spring 2026

- Engineered cross-sectional and temporal features across **25 ETFs**, improving signal stability under walk-forward validation and purged CV
- Identified and corrected **lookahead bias** inflating Sharpe to 16; validated signals across 15 ETFs with a **+1.04 median Sharpe** on holdout folds
- Applied Half-Kelly sizing and Benjamini-Hochberg correction across **250 model/ticker combinations** with IC decay and SHAP feature diagnostics

Weather-Signal Commodity Forecasting Model

Fall 2025

- Engineered **100+ features** from NASA POWER weather anomalies, EIA inventory deltas, and price data to forecast commodity futures returns
- Led a team of 4; trained Optuna-tuned XGBoost on 498-fold walk-forward CV across **5 futures** (Brent, Henry Hub, ERCOT, Copper, Corn), achieving **57.8% out-of-sample directional accuracy**; generated confidence-scaled LONG/SHORT/FLAT signals
- Implemented vectorized backtesting with transaction costs and slippage, yielding **13% CAGR** and positive rolling Sharpe over 3+ years

Space Launch Analytics API

Spring 2025

- Created a containerized Flask API with Redis to analyze **4,300+ space launches** via REST endpoints for timelines, maps, and sector trends
- Developed a modular Kubernetes-orchestrated job queue and caching system with Redis workers for async plot generation and scalable streaming
- Automated ingestion/analysis of launch data via Python requests, revealing **1995 crossover** to private missions using crossover and frequency

ADDITIONAL INFORMATION

Certifications: Columbia Financial Eng. and Risk Mgmt.; Dataiku Advanced Designer; Dataiku Core Designer; IBM Data Science

Awards/Honors: Eagle Scout; Survivor Texas (S7) Winner; 2nd Degree Black Belt; National Qualifier in Duet Scene and Solo Monologue Acting

Interests: Acting; Ultimate Frisbee; Rubik's Cubes; Biking to Alaska; Kansas City/Charlotte Sports; Poker; Codenames; Theta Tau; Delta Epsilon Psi