Jacob P. Villanueva

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EDUCATION

University of Texas at Austin — Bachelor of Science in Computer Science and Applied Mathematics — May 2025
Certificate (Minor) in Applied Statistical Modeling
Overall GPA: 3.84/4.0 | SAT Score: 1500/1600
Coursework: OOP, Data Structures, Discrete Math, Linear Algebra & Matrices

EXPERIENCE

Polkadot — Arbitrage Engineer Intern — June 2022 – August 2022
- Building an arbitrage bot to front run XCM messages on the Polkadot ecosystem to find profitable windows across different parachains
- Developing an auto balancing, node querying, and operational program in JavaScript and Rust to interact with the Polkadot XCM system

Karline — Founder — March 2021 – June 2022
- Developed a startup to automate elementary school pickup dismissal systems through geofencing technology and software application
- Implemented Radar. IO's SDK and API ecosystem in a Firebase backend, behind a JavaScript, React Native, Expo CLI application stack

University of Texas at Austin Student Government — College of Natural Sciences Representative — February 2022 – Present
- Elected as 1 of 8 College of Natural Sciences' Representative to delegate, propose, and vote on University of Texas bills and legislation
- Acting as 1 of 5 representatives on the Governmental Affairs Committee to stand as the final approval for all university-wide legislation

Pupil — Software Engineer Intern — December 2021 – March 2022
- Developed with software engineering team to build a Google Cloud, Firebase, JavaScript, and React Native platform for the Pupil app
- Built the application's user interface in collaboration with Pupil's Product Design team to implement Figma designs into React Native

RESEARCH

McCombs School of Business — Research Assistant for Negative Beta Forecasting — January 2022 – Present
- Acting as research assistant under Prof. Ehud L. Ronn to assist in forecasting the negative beta on long-term interest rate term premiums
- Utilizing Bloomberg Terminal data extraction to interpolate IV points through modified CAPM model to create accurate beta prediction

PROJECTS

Quantitative Algorithmic Trading Program (*Link:* https://github.com/ja-pavi/MR-Paper-Trading) — December 2021 – Present
- Implemented Alpaca Trading API into Python Program for faster order execution and indicators for Mean Reversion Strategy
- Collected live order book pricing through webhooks to estimate momentum trading to identify profitable trading windows

Python Options Risk Profiles (***Link*:** https://github.com/ja-pavi/POP) — July 2021 – Present
- Implemented option trading strategies for multiple risk profiles correlated to an asset's trading patterns, volatility, and profitability index
- Utilizing NumPy, Matplotlib, and Panda's libraries to create a Python3 program that evaluates an assets csv data for an option risk data

Stock Sector Algorithmic Financial Analysis (***Link*:** https://github.com/ja-pavi/Stock-Market-Analysis) — June 2021 – Present
- Utilized Pandas libraries to import historical stock information of car manufacture stocks into Matplotlib charting of the financial Greeks
- Incorporated financial analysis through a daily percentage change algorithm that allowed visualization in scatter matrix plots correlations
- Collected daily return historical data to engineer a Daily Cumulative return that showcased an investor's return against a time series index

AWARDS AND HONORS

University Honors (2 semesters) — Fall 2021 – Summer 2022
Recipient of Expedition EY Scholarship: $5,000 Scholarship — June 2022
Recipient of Earl and Kathryn Congdon Family Scholarship: $18,000 Scholarship — April 2022
Citadel Terminal Live 2021 AI Programming Competition – Top University of Texas at Austin Team — November 2021
Hispanic Scholarship Fund Scholar 2021, 10,000 of 127,000 Selected — July 2021
2021 Klein Hacks Hackathon 1st Place in Two Categories — March 2021
Texas Boys State, Recommendation, Invitation, and Election to Delegate — July 2020

ADDITIONAL INFORMATION

Software: Java, Python3, JavaScript, React Native, Rust, Solidity, C, HTML, CSS, TypeScript, Swift
Technologies: Git, Bloomberg Terminal, Excel, Pandas, NumPy, Matplotlib, React, React Native, Expo CLI, Firebase, GitHub
Interests: Cattle Farming, MLB Baseball, Fountain Pens, Custom Mechanical Keyboards, Go (Game), Poker, Venture Capital
Programs: Google's 6th Annual Latinx Leadership Summit (130 of 870 Selected), IBM Accelerate 2022 Software Engineering Track, Expedition EY 2022 Software Track Program, Quantlab Catalyst Summit 2022 (25 Selected)