Alejandro Casillas

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Education

Virginia Tech — Blacksburg, VA
Bachelor of Science in Computer Science, Minor in Mathematics — *Aug. 2022 – May 2026*

Experience

Software Engineering Intern — June 2025 – Aug. 2025
Cvent — *McLean, VA*

- Built centralized "Match Reasons" framework for RFP Supplier Match Scoring, unifying rule evaluation, reason taxonomy, and audit trails for improved explainability and maintainability.
- Developed location debugging tools: Pinpoint Radius Debugger (validates proximity logic, compares geodesic vs. indexed distances) and Region Containment Debugger (verifies polygon containment, diagnoses SRID/precision issues).
- Optimized spatial joins and radius queries using PostgreSQL/PostGIS for high-volume performance.

IT Intern — June 2023 – Aug. 2023
Vehlo — *Knoxville, TN*

- Designed a robust web application to automate the comparison of multiple files of employee information, ensuring data consistency and up-to-date company records.
- Utilized Node.js for server-side logic and NPM libraries for enhanced functionality.
- Implemented front-end with HTML, CSS, and JavaScript to create a user-friendly interface.
- Focused on optimizing the performance of the application, ensuring quick data processing and seamless user interaction.

Research Project Intern — June 2020 – Dec. 2021
Conflict Kinetics — *Reston, VA*

- Led the mechanical design and implementation of a motion detection and tracking device to assist in training of military and law enforcement agencies.
- Utilized Raspberry Pi for the core processing unit, integrating various sensors for accurate motion detection.
- Developed and implemented PWM (Pulse-Width Modulation) control for precise movement and tracking of targets.

Projects

Sheryl Trading System | *Algorithm Development, Financial Markets, Risk Management* — June 2024 – Aug. 2024

- Developed a comprehensive machine learning-based algorithm: Joint Optimization with K-Means Reallocation (J.O.K.R.), for optimizing portfolio management and automating the investment management process.
- Designed and implemented a K-Means clustering algorithm from scratch for portfolio optimization.
- Imported data from yfinance API for cryptocurrencies and S&P 500 companies, and applied the in-house K-Means clustering and scaling techniques with the scikit-learn library.
- Integrated the portfolio optimization algorithm with Alpaca Trading API.
- Developed a Flask app for real-time portfolio monitoring and data visualization, integrated with AWS DynamoDB.
- Containerized the application using Docker, pushed it to an AWS ECR repository, and deployed on an EC2 instance to fully automate the investment management process.
- Developed a machine learning API from the ground up, integrated with the current trading system, to gain more familiarity with various ML techniques, providing full control and insight over implemented strategies.

Technical Skills

Languages: Python, Java, C, PostgreSQL, JavaScript/TypeScript, HTML/CSS
Frameworks: React, Node.js, JUnit
Developer Tools: Git, VS Code, IntelliJ, Eclipse, Linux/Unix
Libraries: pandas, NumPy, Matplotlib