Alejandro Casillas

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Education

Virginia Tech Blacksburg, VA

Bachelor of Science in Computer Science, Minor in Mathematics *Aug. 2022 – May 2026*

- **Relevant Coursework:** Data Structures & Algorithms; Computer Systems; Intermediate Software Design; Comparative Languages; Machine Learning; Linear Algebra; Applied Combinatorics; Statistics for Engineers

Experience

Software Engineering Intern June 2025 – Aug. 2025

Cvent *McLean, VA*

- Led the design and centralization of "Match Reasons" for RFP Supplier Match Scoring by building a rule-evaluation and reason-codification layer with strong auditability, versioning, and testability-improving maintainability and transparency of matching decisions.
- Developed diagnostic tools for location matching using React Leaflet (a React wrapper for the Leaflet mapping library), including a Pinpoint Radius Debugger (validating proximity logic and distance calculations) and a Region Containment Debugger (verifying polygon/multipolygon containment and edge cases).
- Leveraged PostgreSQL/PostGIS for spatial queries (e.g., ST_DWithin, ST_Distance, ST_Contains, ST_Intersects).
- Demonstrated end-to-end ownership across requirements, technical design, performance tuning, and observability to deliver scalable, reliable matching features that improve accuracy and debuggability.
- Utilized Git/GitHub for version control, leveraging CI/CD pipelines for automated deployments.

IT Intern June 2023 – Aug. 2023

Vehlo *Knoxville, TN*

- Developed an automated web platform 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.

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.

Personal Website | *Web Development, UI/UX Design* Aug. 2025

- Designed and developed a responsive personal portfolio website to showcase projects and experience, using Next.js, TypeScript, and Tailwind CSS.
- Implemented dynamic routing, reusable UI components, and responsive layouts for both desktop and mobile.
- Deployed and configured the site on Vercel, integrating custom theming and reusable design tokens for maintainability.

Technical Skills

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