Bernardo Villalba Cahue

Senior Software Engineer | Data-Intensive Systems & FinTech

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Summary

Senior Software Engineer with 9+ years of experience specializing in data-intensive systems and FinTech. Expertise in architecting and scaling distributed full-stack applications, complex data pipelines, and modern cloud infrastructure. Proven ability to lead technical projects from concept to production, translating complex business needs into robust and efficient software solutions.

Technical Skills

- **Languages**: Python, Kotlin, Java, TypeScript/JavaScript, Scala, SQL, Matlab
- **Cloud & DevOps**: AWS, Docker, Kubernetes, Terraform, Jenkins, Argo Workflows, Ansible, TeamCity, uDeploy, SBT
- **Data Science**: Pandas, NumPy, DuckDB, Scikit-learn, NLP, Time-Series Analysis
- **Backend**: Spring, Flask, PostgreSQL, Cassandra, Apache Storm, Jinja2
- **Frontend**: React, Angular/AngularJS, Bootstrap, Ui-Grid
- **Developer Tools**: Git, Github, Bitbucket, SVN, Jira, Pytest, Cypress, Salesforce, Intellij, Linux

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Experience

Founder & Lead Software Engineer

Narranomics | Minneapolis, Minnesota, United States | May 2023 - Present

- Led the development of an AI-driven, sentiment-based trading platform from concept to production, achieving and maintaining near 100% uptime.
- Developed and deployed a daily automated job to scrape and ingest publications from the Federal Reserve, expanding the platform's data sources to include key macroeconomic signals.
- Owned the entire front-end development lifecycle using React and TypeScript, including a specialized data-labeling application that improved the quality of our NLP model training data.
- Designed and implemented a parallelized simulation framework using Docker, Argo Workflows, and AWS to backtest thousands of trading strategy parameters, reducing the R&D cycle from days to hours—an efficiency gain of over 90%.
- Translated business goals into a technical roadmap, led full-stack architectural decisions, and presented the platform's strategy and performance to prospective investors and key stakeholders.

Software Engineer, Science and Modeling

CIBO | Minneapolis, Minnesota, United States | June 2021 - May 2023

- Maintained and scaled a complex data processing pipeline to support the science and modeling

team's research and development efforts.
- Developed Python scripts to automate data tabulation and analysis, improving the efficiency of data preparation for modeling.
- Built and executed custom simulations using a variety of data inputs to deliver key modeling insights for external clients.

Full Stack Software Developer

CarVal Investors | Minneapolis, Minnesota, United States | June 2020 - May 2021

- Played a key role in a small agile team that migrated software development from a third-party vendor to an in-house team.
- Contributed across the full product lifecycle, including product ownership, UX design, and full-stack software engineering.
- Focused on the development, maintenance, and strategic consolidation of internal business and investment analysis applications.

Software Engineer

Virgin Pulse | Minneapolis, Minnesota, United States | January 2019 - June 2020

- Developed and maintained features for a complex rules engine that executed gamified rewards to nudge members towards healthier behaviors.
- Served as a key contributor on the team that built the company's live services coaching platform.
- Engineered solutions that incorporated third-party software, including Salesforce Health Cloud, into the core platform.

Technology Analyst (Software Engineer)

Deutsche Bank | Cary, North Carolina, United States | July 2016 - September 2017

- Implemented new features and documented code for DB Entitlements, the bank's largest internal authorization application.
- Developed a new UI for the Distressed Products Group to visualize and edit complex financial instruments.
- Automated the generation of three weekly reports for the trading team, saving approximately 9 person-hours per month.

Projects & Ventures

Narranomics - AI-Powered Market Analysis Platform (Founder & Researcher)

September 2018 - May 2023

- Led the technical development of a research project to predict financial market movements by analyzing sentiment in news articles, culminating in a successful funding round.
- Developed the proof-of-concept in Python, using n-gram frequency analysis and time-series modeling to discover a strong correlation between news sentiment and US index performance.
- Scaled the platform's architecture for advanced data processing, migrating the system from a local distributed computing cluster to a serverless model on AWS Lambda.
- Enhanced the core natural language processing (NLP) model by replacing the initial n-gram approach with a sophisticated, transformer-based architecture to improve analytical accuracy.

- Forged and managed data-sharing relationships with premier financial publishers, including the Financial Times and Dow Jones, to secure a robust pipeline of research data.

Education

UCL

Master's degree, Cognitive and Decision Making Sciences (2017-2018)

University of Minnesota-Twin Cities

Bachelor's degree, Mathematics with a focus on Computer Applications (2012-2016)

Minor, Computer Science (2012-2016)

Additional Information

Languages: English (Native or Bilingual), Spanish (Native or Bilingual), French (Professional Working)

Publications: Predicting PAC from UPDRS Scores

Certifications: Series 3