

# ALFONSO MORENO VICTORIA

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## EDUCATION

### University of California, Berkeley

Expected May 2026

B.S. Electrical Engineering and Computer Science, Minor in Data Science

Relevant Coursework: Internet Architecture and Protocols (**Python**), Operating Systems and System Programming (**C**), Data Structures (**Java**), Designing Information Devices and Systems, Probability Theory, Advanced Algorithms, Computer Architecture (**C, RISC-V**), Data Mining & Visualization (**Pandas**), Convex Optimization (**CVXPY**), Large Language Model Agents, Introduction to Machine Learning (**PyTorch**)

## EXPERIENCE

### Daxe | Software Engineering Intern

June - October 2025

- Designed Neo4j graph database schema for support tickets, mapping relationships between issues, customers, and resolution patterns
- Developed FastAPI service to ingest and transform support ticket data into graph format for BMO integration pipeline
- Collaborated with Google engineer to architect scalable data pipeline for enterprise ticketing system supporting major banking client
- Identified 12 data governance gaps during SOC2 compliance audit, documenting remediation steps that accelerated certification timeline

## PROJECTS

### AgentBeats WebShop Agent | Python, A2A Protocol, Docker

December 2025

- Architected agent evaluator assessing autonomous agents on 1,000-product WebShop environment across 40+ validation test cases
- Orchestrated agent-environment interactions (search, click, purchase) using structured A2A protocol for e-commerce task completion
- Identified text-matching flaw causing false negatives in product evaluation; proposed SBERT semantic similarity for 20% accuracy gain
- Submitted agents to Phase 1 of AgentX-AgentBeats competition, an open-source agentic AI benchmarking challenge

### NBA Fantasy Analytics Chrome Extension | Python, Pandas, JavaScript, sklearn, SQL

January 2026

- Chrome extension overlaying win probability on ESPN fantasy basketball; projects outcomes for all 450+ active NBA players daily
- Engineered gradient boosting model achieving 11.43 RMSE and  $R^2$  of 0.40 using 18,650 player-game records with 128 features
- Automated daily ETL pipeline ingesting player statistics via nba\_api and updating production database with fantasy point projections
- Designed end-to-end pipeline from data ingestion and feature engineering to model inference and real-time browser display

### PintOS | C, Docker, GDB

January - May 2025

- Constructed 18 syscalls spanning process control (fork, exec, wait), file operations (read, write, seek), and subdirectories (chdir, mkdir)
- Created simplified POSIX pthread library for user threading with primitives including pthread\_create, lock\_acquire, and sema\_up
- Deployed strict priority scheduler with priority donation preventing priority inversion across 100+ thread scheduling test cases
- Implemented buffer cache reducing disk I/O by 500x through write optimization and operation coalescing for sequential file access

### Optimized Convolution | C, SIMD, OpenMP, Open MPI

April 2024

- Optimized a naive implementation of 2D convolutions with SIMD vectorization through the help of Intel's Intrinsic Guide
- Furthered optimization by parallelizing the convolutions with OpenMP's multi-threaded directives to achieve a 8.96x speedup
- Increased speedup by 5.23x with Open MPI to pass data between programs and establishing a manager/worker framework

### NBA Player Points Model | Python, Pandas, sklearn, nba-api

October 2025

- Built a gradient boosted model for predicting player points that achieved an RMSE of 5.98 and  $R^2$  of 0.52 across over 250,000 samples
- Using a dataset built from the nba-api, trained and validated the model on samples with 211 features across 10 seasons
- To find optimal hyperparameters, used scikit's GridSearchCV on 288 unique combinations to minimize the root mean squared error

### S1XT33N | Arduino, Closed-Loop Control, PCA

November 2023

- Built a four-wheeled robotic car capable of following four voice drive commands: drive far, drive close, turn left, and turn right
- Installed a first-order low-pass RC filter onto the breadboard to isolate frequencies that correspond to human speech
- Implemented a closed-loop control strategy into Arduino to allow for self-correcting straight-driving through imperfect terrain
- Gathered audio samples and used principal component analysis to classify voice commands through k-means clustering

## LEADERSHIP & ACTIVITIES

### Theta Tau Engineering Fraternity

February 2024 - Present

- Rush Chair:** Directed recruitment selecting 15 new members from 100+ applicants; coordinated 4 events with cross-functional officers
- Treasurer:** Managed \$10,000 semester budget and collected dues from 40+ members; exceeded savings target by 200% ending with \$3,000
- Brotherhood Chair:** Organized yacht party, technical mixer, retreat, and banquet; gathered member feedback to improve event selections
- Fundraising Chair:** Led weekly Krispy Kreme fundraising operations across SF and Berkeley, generating nearly \$1,000 in chapter funds

## TECHNICAL SKILLS

- Programming Languages:** Java, Python, C, JavaScript, SQL
- Libraries and Frameworks:** PyTorch, Numpy, Pandas, FastAPI, sklearn, seaborn, CVXPY, Parallel Computing (SIMD, OpenMP, MPI)
- Tools and Technologies:** GitHub, Docker, AgentBeats, Neo4j, Railway, GDB, Regex, Logisim, Arduino, Jetpack Compose,  $\LaTeX$