

# Gerardo Lopez Jr.

Software Engineer | Backend & Data

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## EXPERIENCE

### Software Engineer

Jan 2024 – Present

Digital Learning Lab | Irvine, CA | Full-time

- Reduced DynamoDB query runtime from 30 minutes to 3 seconds by redesigning NoSQL access patterns to retrieve only relevant items from the largest tables using targeted filters.
- Cut Lambda compute cost 60% month-over-month by eliminating long-running download jobs and optimizing batching/pagination by enforcing required frontend filters.
- Built an LLM evaluation platform enabling researchers to run 10,000+ messages from a CSV across 40+ models, exporting structured results and saving hours per study.
- Implemented Canvas LTI 1.3 launches and SSO using TypeScript and AWS (API Gateway, Cognito/OAuth, JWT, DynamoDB multi-tenant), enabling seamless access from Canvas across institutions.
- Served as release owner/on-call: approved merges, ran code reviews, and authored onboarding documentation (engineers and non-technical IT) for new institution rollouts.

### Data Analyst

Jan 2024 – Nov 2024

CP-LEADS | Irvine, CA | Part-time

- Analyzed 100,000+ student messages (60 controlled users; 2 classrooms) with topic modeling and sentiment analysis (Python/R), surfacing guidance that helped instructors teach effective AI usage.
- Co-authored publication in *Computer Science Education* (DOI: 10.1080/08993408.2024.2396749).

### Software Engineer Intern

Jun 2023 – Sep 2023

CodeAI | Remote | Full-time

- Shipped an internal Python package that generates complete HTML pages/sites from Google Colab notebook code, enabling non-web users to publish content quickly.
- Prevented regressions with 99% unit test coverage by implementing a comprehensive test suite.

### Private Python Tutor

Nov 2021 – May 2023

Independent | Irvine, CA | Part-time

- Tutored 3–5 UCI students per session in Python (OOP, APIs, data analysis), building project-based lessons and repeatable debugging checklists to accelerate mastery.

## SELECTED PROJECTS

### Custom Warehouse Management System (Commissioned; Web + Mobile)

Aug 2025 – Present

- Built NFC-driven inventory tracking for a Virginia warehouse (Expo/React Native + React/TypeScript + Supabase), supporting 1,000+ scans/day and reducing lost-item risk tied to multi-million-dollar contracts.

### Multi-Mortgage Tracker (Commissioned; Web App)

Oct 2023 – Feb 2024

- Delivered a paid tracker for 6 users to manage multiple mortgages with shared status, amortization, and projections (React/TypeScript + Python + MongoDB; deployed on Google Cloud).

## TECHNICAL SKILLS

Languages: Python, TypeScript/JavaScript, SQL, R

Cloud/Backend: AWS (Lambda, DynamoDB, API Gateway, Cognito, S3, Bedrock), AWS CDK, Docker

Data & Testing: pandas, NumPy, ggplot2, unit testing, performance/load testing

Tools: Git, GitHub, Postman, CloudWatch

## EDUCATION

### University of California, Irvine

Irvine, CA

B.S. Mathematics | AI in Education Research

Expected Sep 2026

Coursework: Data Structures & Algorithms; Statistical Modeling; Linear Algebra; APIs/Sockets/Protocols

## CERTIFICATIONS

### AWS Certified Cloud Practitioner

Expected Jan 2026

### Git Certification

Apr 2025

### CITI Program Certification

Mar 2024