

# Duane Cabahug

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## Education

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### California State University Northridge

Expected May 2027

B.S. in Computer Science, Minor in Data Science (GPA: 3.56 / 4.00)

Northridge, CA

- **Relevant Coursework:** Data Structures and Algorithms, Advanced Data Structures, Software Engineering, Computer Architecture, Discrete Structures, Automata Theory, Programming Languages
- **Involvement:** Tau Beta Pi Engineering Honor Society; Society of Software Engineers

## Experience

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### Ventura County Department of Child Support Services

June 2024 – August 2024

Software Engineering Intern

Camarillo, CA

- Automated software deployment across 100+ machines using SCCM workflows, increasing update reliability by 50% and eliminating repetitive manual installs.
- Diagnosed recurring hardware and software failures, implemented long-term fixes, and reduced helpdesk tickets through root-cause analysis.
- Redesigned legacy ASP.NET intranet pages for 200+ internal users, improving accessibility compliance, navigation clarity, and maintainability.
- Coordinated authentication upgrades with cross-functional teams, strengthening Imprivata integration reliability and streamlining daily workflows.

## Projects

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### ASLingo | React Native, FastAPI, MediaPipe, Supabase, OpenAI

February 2026

AI-powered ASL learning platform

- Led a 5-member team at Code for a Cause 2026 (sponsored by Northrop Grumman) in a 48-hour accessibility competition to build a camera-based ASL training app with real-time gesture recognition and feedback.
- Designed modular architecture separating computer vision processing, API layers, and frontend logic to support scalable ML inference.
- Integrated MediaPipe hand landmark detection and a Random Forest classifier for live ASL letter prediction, logging attempts via Supabase for progress tracking.

### TopicTutor | Next.js, Supabase, OpenAI, Tailwind

October 2025

Adaptive AI learning platform

- Built an adaptive learning system generating personalized 10-chapter courses from placement tests with dynamic quizzes and mastery checks.
- Reduced malformed AI responses by 70% by enforcing strict output schemas and validation layers for OpenAI responses.
- Implemented Supabase auth, optimized Postgres schemas with RLS policies, and tracked analytics across 100+ test sessions to validate learning performance.

### Argus | Python, YOLOv8, OpenCV, Raspberry Pi, Supabase, Next.js

April 2026

Real-time person detection system with automated clip capture and remote dashboard

- Built an end-to-end computer vision pipeline on a Raspberry Pi 5 using YOLOv8 nano and OpenCV to detect people in real time and automatically capture short video clips on high-confidence detections.
- Engineered an event-driven storage pipeline that uploads video clips to Supabase Storage and saves only the resulting URLs to Postgres, avoiding binary data in the database.
- Developed a Next.js dashboard with Supabase Realtime subscriptions to display live detection events, clips, and thumbnails with push notification support.

## Technical Skills

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**Languages:** JavaScript, TypeScript, Python, SQL

**Frameworks:** React, React Native, Next.js, Node.js, Express, FastAPI, .NET

**Databases:** PostgreSQL, Supabase, MySQL, Firebase

**AI/ML:** OpenAI API, MediaPipe, Scikit-learn, YOLOv8

**Tools:** Git/GitHub, Vercel, Netlify, Expo, Supabase Edge Functions, Microsoft SCCM