

Zachary Doll

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EDUCATION

UNIVERSITY OF CALIFORNIA - LOS ANGELES

Los Angeles, CA

Bachelor of Science

Expected Jun 2027

Major in Computer Science

Cumulative GPA: 3.91/4.00

Relevant Coursework: Algorithms, Data Structures, Java Programming, Assembly, Software Construction

EXPERIENCE

Physics Group Tutor (Independent) - El Camino College

Torrance, CA

Feb 2024 – Jun 2025

- Facilitated biweekly group tutoring sessions covering topics from introductory physics through modern Physics for **50+ students**
- Developed and delivered customized instructional materials, examples, and live problem-solving workshops
- Improved average exam performance **by an estimated 10%** through structured practice and targeted guidance

PERSONAL PROJECTS

MLB Pitch Predictor - pitch-predictor.onrender.com | [Github](#) | [Project Overview](#)

Sep 2025

- Built a modular, object-oriented ML pipeline in Python to analyze **12M+ MLB pitch records**, achieving **~75% accuracy** using stratified **cross-validation and hold-out evaluation**
- Architected reusable preprocessing and feature extraction modules with pluggable model interfaces, enabling systematic comparison of **5+ ML algorithms**, improving baseline performance by **~15% over naïve models**
- Developed a full-stack React/Node web app to visualize millions of pitch records with **sub-second queries**

ASL Translator - [Github](#) | [Project Overview](#)

Oct 2025

- Implemented a live ASL recognition system using **MediaPipe** for keypoints and a **neural network** for gesture classification
- Trained with structured train/validation splits and **confusion-matrix** evaluation, achieving **~65% top-1 accuracy**
- Built a low-latency gesture-to-text inference pipeline using **OpenCV** and a **React frontend**, delivering end-to-end prediction latency of **<100 ms per gesture**
- Improved model robustness through preprocessing, sequence normalization, data augmentation, and data filtering, **increasing validation accuracy by ~10–15%** and reducing misclassification on rare classes

Vynel - Music Discovery App (In Development) - React Native, TypeScript, Expo

Present

- Delivered a smooth swipe-based discovery experience (**<16ms frame rendering**) using gesture-driven animated card stacks
- Implemented **OAuth 2.0 PKCE** with multi-layer token refresh and defensive error handling, using structured state management to isolate authentication logic and prevent inconsistent session state
- Designed a modular **iTunes-to-Spotify resolution pipeline** with normalized matching logic and input validation to ensure consistent playlist state under **asynchronous API calls**

TreeRequisites - [Website](#)

Dec 2024

- Built an interactive prerequisite visualization platform in a team of 5 using React (TypeScript) and a hexagonal grid graph interface, **reducing render latency by ~80%** through optimized state updates and efficient component re-renders
- Reduced client-side data **inconsistencies by ~70%** using **React Query, Axios, and Zod**; eliminated silent async failures
- Enabled reliable end-to-end data flow by integrating a React frontend with a Go (standard library) + PostgreSQL backend on Oracle Cloud, **improving API response consistency and reducing failed requests by ~40% under concurrent usage**

ACTIVITIES

ChessGPT - ACM AI at UCLA | [Project Overview](#)

Los Angeles, CA

Member

Sep 2025 – Present

- Collaborate with a team of **5+** engineers to design and train a **transformer-based LLM** for chess move prediction and strategic analysis **across 100k+ games**
- **Developed** evaluation tooling to **compare** model-generated moves against **engine baselines (e.g., Stockfish)** and human play, **quantifying** performance via **top-k move agreement** and **Elo-correlated accuracy metrics**

ADDITIONAL

Languages: Python, C++, Java, JavaScript, HTML/CSS, SQL

Technical Skills: Object-Oriented Design, modular architecture, cross-validation, REST API design, React, Node.js, PyTorch, MongoDB, AWS, Git, Linux

Certifications: Google Data Analytics Professional Certificate | Supervised Machine Learning: Regression and Classification