



GITHUB

CEDRIC ZARATE

Computer Science, UC Santa Cruz

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LINKEDIN

EDUCATION

University of California, Santa Cruz

Expected [Jun 2028]

B.S. Computer Science

GPA: 4.0

Relevant coursework: Machine Learning, Data Structures & Algorithms, Computer Architecture, Systems Programming in C, Classical & Bayesian Inference, Probability, Proof Writing, Linear Algebra, Discrete Mathematics, Calculus I–III (single-variable, multivariable & vector), Differential Equations, Physics: Newtonian Mechanics and Electricity & Magnetism

RESEARCH EXPERIENCE

MIRAGE: Benchmarking Copyrighted Reuse in AI-Generated Music

Sep 2026 – Present

*Researcher, Generation & Evaluation Pipeline**Mentor: Arjun Babuguna*

- Building a benchmark of AI-generated songs with verified, time-aligned reuse of a source track (voice, melody, lyrics, structure) to evaluate how well models identify the source, localize the reused passage, and classify the reuse type.
- Engineered serverless GPU pipelines on Modal chaining YuE2 / YuE v1 music generation, MelBand-Roformer stem separation, RVC voice-model training, SheetSage2 transcription, and Whisper word timing.
- Generated 72 controlled examples across four reuse types and scored every output on all four axes (lyric WER, melody agreement, ECAPA voice similarity, structure), using mean + 3σ control thresholds to expose cross-type leakage.
- Ran four pilots for \$61 of total GPU spend; showed YuE v1 audio prompting cost more compute and produced worse songs than a YuE2 + RVC voice-conversion route.

SPECTRA: Evaluating Physical Consistency Across Multiple Futures

Sep 2026 – Present

*Project Lead**Mentor: Nabid Alam*

- Proposed and named a benchmark that tests video generation models on physical tasks with ambiguous priors, where several different futures are physically valid.
- Lead a five-person team: set the research plan, delegated literature review, frontier-model cost estimation, and results analysis, and am building the dataset and evaluation pipeline.

PROJECTS

LitViz · UCSC AI Hackathon (*hack.dev*)

Oct 2026

- Interactive, chat-capable app in which a research-specialized AI agent maps how the papers in a literature review relate to and respond to one another, automating a pipeline I previously spent weeks building by hand.

Argus Touch · Cal Hacks 12.0 · *devpost.com/software/argus-touch*

Oct 2025

- Wearable that turns depth perception into touch: a YOLO detector finds nearby people and a 16-servo (4×4) waistband encodes their direction, class, and distance as pressure cues.
- Team of four; Orbbec depth camera and point clouds, ONNX Runtime, PCA9685 servo driver, Raspberry Pi 5.

Neural Network Library from Scratch · Python — reverse-mode autograd engine and CNN layers without ML frameworks

2026

Scoreshare · Founder — sheet-music practice and social app for self-taught musicians; desktop and iOS MVP

2026 – Present

LEADERSHIP & TEACHING

VP of Research & Projects, Founding Officer · Neural Hub, Diablo Valley College

2025 – 2026

- Helped found the club and taught members to train a garbage-classification model and an image segmentation model.

Technology Chair · Associated Students of Diablo Valley College (*student government*)

2025 – 2026

- Led the technology committee; built and maintained the student government website and ran technical setup for campus events.

Research Reading Group Facilitator · UC Santa Cruz, CMPM 15 — led discussion of Kim et al., “Textual Explanations for Self-Driving Vehicles”

Fall
2026

TECHNICAL SKILLS

Languages: Python, C/C++

Machine Learning & Vision: PyTorch, NumPy, CNNs, Vision Transformers, CLIP, YOLO, image segmentation, ONNX Runtime; generative audio (YuE, RVC, Whisper, Demucs, MelBand-Roformer, ECAPA)

Compute & Tools: Modal, RunPod, Google Colab, Kaggle, Jupyter, Raspberry Pi, Git, Linux, ffmpeg, Neovim

Agentic AI Tools: Claude Code, Codex