ERIC PINEDA RAMIREZ

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RESEARCH STATEMENT

AI systems are increasingly capable — but capability without inclusion is an incomplete solution. I'm a researcher and computer science student studying where that gap shows up in the real world and what it takes to close it. Relay is my active answer: on-device computer vision that reconstructs inaccessible physical interfaces, built from the ground up on lived experience.

EDUCATION

California State University, Fresno Expected May 2028
B.S. Computer Science, AI Engineer Track · GPA: 3.2 · NSF USHER Scholar

RESEARCH & PROJECTS

Relay — Accessibility AI Research Project (Primary, Active) 2026–Present
Sole Researcher & Engineer · github.com/epineda1006/Relay

- Identified a critical AI accessibility gap: physical kiosks remain unreachable for full-time power wheelchair users; designed Relay to reconstruct inaccessible UIs using on-device computer vision — no server, no data sent, no dependency on connectivity.
- Built a working Python prototype (OpenCV, PyTorch, Tesseract OCR) achieving live annotated camera feeds at 1920×1080 with real-time text detection and overlay pipeline; validating core CV pipeline before SwiftUI deployment.
- Architecting iOS/iPadOS deployment using CoreML, Vision framework, and AVFoundation — inference runs entirely on-device, ensuring user privacy by design; targeting free App Store release to maximize accessibility equity.
- Conducting user-centered research grounded in lived experience as a person with SMA Type 2, evaluating how on-device AI tools affect daily independence without requiring cloud access or compromising sensitive interaction data.

F3 Innovate — Satellite-Based Orchard Stress Mapping Challenge April 2026–Present
Team Research: Project & Research Lead · Fresno County, CA

- Conducting empirical satellite data analysis using NDVI, NDMI, and NDRE vegetation indices to map orchard stress patterns and agricultural impact in the Central Valley.
- Building time-series vegetation index models from publicly available satellite data; findings directly inform land use and food security decisions affecting rural farming communities.

F3 Innovate — Frost Risk Forecasting Data Challenge Nov–Dec 2025
Team Member (6-person) · Credential: F3i-FRFC-2025-012 · (Honorable Mention)

- Competed nationally, placing top 8 among 11 teams in a 21-day applied AI build challenge; contributed to system design and implementation under significant time constraints.

Hibiki-AI — AIIS Lab, Fresno State (Dr. Thanos) Fall 2025–Present
Undergraduate Research Assistant

- Conducted exploratory research on user authentication architecture for a web-based LLM interface, evaluating implementation approaches and best practices for secure identity management.
- Researched methodologies for training LLMs from scratch and integrating real-time deepfake avatar generation, contributing to the project's early technical planning.

EXPERIENCE

Fowler Unified School District — IT Intern March 2026–Present

- Developing eVal_V3, a PHP/MySQL employee evaluation system with role-based access control, status workflows, and autosave infrastructure serving district-wide administrative operations.

WITH-Cyber Program, Fresno State — Academic Tutor & Assistant Summers 2024, 2025

- Taught ML-based facial and audio recognition to 50–60 students using Raspberry Pi 5; introduced underrepresented students to applied AI in a cybersecurity context.

Fresno State CS Club — Event Coordinator Officer Fall 2025–Present

- Organizing workshops, speaker events, and networking opportunities, connecting CS students with industry/research opportunities.

TECHNICAL SKILLS

Languages: Python, Swift, C++, PHP, Java, JS
iOS: SwiftUI, AVFoundation, CoreBluetooth, Xcode
Platforms: macOS, iOS/iPadOS, Linux
AI/ML: PyTorch, OpenCV, CoreML, Vision, MediaPipe, pandas, Tesseract
Tools: React/Vite, MySQL, Git, Vercel, Jupyter, Raspberry Pi 5
Spoken: English (Native), Spanish (Native)

CREDENTIALS & CERTIFICATIONS

- NSF USHER Scholarship — National Science Foundation, Fresno State, 2024–Present
- Cybersecurity Certificates — Beginner & Intermediate (Network Security, Cryptography, Incident Response, Threat Analysis), 2025
- FrostBite Honorable Mention — F3 Innovate Competition, Credential F3i-FRFC-2025-012, 2025