Fernando Sepulveda

[Q Clearance]

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EDUCATION

The University of Texas at El Paso (UTEP)

- Master of Science in Computer Science — GPA: 3.5 | Expected : 05/2027
  - Thesis: Algorithms and Explainability for Computer Vision (Advisor: Dr. Martine Ceberio)
- Bachelor of Science in Computer Science — GPA: 3.03 | Graduated : 12/2024

Coursework

Deep Learning Fall 2026 | Advanced Algorithms Spring 2026 | Matrix Algebra Spring 2023

PROFESSIONAL EXPERIENCE

U.S. Army Engineer Research & Development Center (ERDC) — Alexandria, VA

AI Research Intern – Geospatial Research Laboratory — 05/2026 – Present

- Designed and tested 5 distinct computer vision architectures to extract and validate structural terrain bottlenecks from high-resolution RGB satellite imagery using PyTorch and Ultralytics FastSAM enabling automated path detection
- Deployed a containerized autonomous navigation system for a terrain scanning robot using Docker, ROS, and real-time LiDAR sensor arrays to dynamically map and route through complex physical environments

Kansas City National Security Campus - Honeywell — Kansas City, KS

Student Engineering Intern III – Data Scientist (Q level Clearance) — 06/2024 – 08/2024

- Implemented an automation script for smart factory operations using machine and factory data inputs
- Leveraged tools such as Hadoop, Dataiku, and Python to output a recommended action plan for the factory manager, demonstrating cost savings of $250,000+ annually using POLCA fundamentals
- Documented feasibility of implementing a security-first semantic search system using embedding models SBERT

Oracle Cloud Infrastructure (OCI) - Oracle — Austin, TX

Software Engineer Intern — 05/2023 – 08/2023

- Engineered a Java-based command-line interface to manage and dynamically organize cloud hypervisors by region based on maximum pool capacity and shape requirements
- Automated the workflow by building a reusable API façade class to process RESTful calls between front-end interfaces and backend computation, enabling efficient data segmentation and retrieval

Smart Autonomous Mobility Systems (SAMS) Lab - UTEP — El Paso, TX

Undergraduate Research Student — 08/2023 – 12/2024

- Published research paper at flagship conference evaluating the impact of strategic, false data injection cyberattacks on autonomous vehicle platoons, analyzing safety (TTC), mobility (ASV), and energy consumption metrics
- Developed Python-based simulation frameworks to analyze mixed traffic flow dynamics, implementing the Intelligent Driver Model (IDM) for human-driven vehicles and the OVRV model for autonomous vehicles

PROJECTS/ LEADERSHIP

Mike Loya Center for Innovation and Commerce — El Paso, TX

AI Graduate Research Fellow — 01/2026 – Present

- Organizing UTEP's largest Hackathon for 2027; an open-source/AI theme integrating real interdisciplinary research
- Built and pitched "Polyglot Tracker", a multilingual translator with AI integration to simplify language learning
- Led a research team to develop a multi-phase AI business commercialization pipeline; hosted outreach events and networked with hackathon students to identify 6 candidates to provide 1-on-1 startup mentorship

AI and Computer Vision Research (UTEP) — El Paso, TX

AI Graduate Researcher — 01/2025 – Present

- CR2G Lab: Developing a novel Explainable AI (XAI) mathematical framework that extracts sparse, causal spatio-temporal explanations from black-box computer vision models analyzing dynamic video streams.
- ML Course: Implemented a TensorFlow/Keras-based CNN architecture for facial recognition, mitigating severe overfitting by integrating Batch Normalization and Dropout layers to achieve 98% test accuracy

SKILLS

- **Programming:** Python, Java, Modern C++ (17/20), SQL, TypeScript, Shell Scripting/ Bash, ROS2
- **Machine Learning & AI:** Transformer-based LLMs, Computer Vision (CNNs), TensorFlow, PyTorch, scikit-learn, Pandas & NumPy, SBERT, Sensor Fusion (LiDAR/Camera), Diffusion Models
- **Cloud & Databases:** Oracle Cloud Infrastructure (OCI), Amazon Web Services (AWS), Database Systems (MySQL, Neo4j, PostgreSQL, MongoDB)
- **Languages:** Spanish (C2), English (C2), French (C1), Portuguese (A2)