Luigi Medrano

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EDUCATION

The University of Texas at Austin B.S. in Electrical & Computer Engineering – Software Engineering May 2025

EXPERIENCE

S.lang – *Founder/Lead Software Developer;* Austin, TX April 2023 – Present

- Built a sign language translation platform leveraging computer vision and deep learning for gesture-to-text and text-to-gesture translation via Generative Adversarial Networks (GAN) or Stable Diffusion.
- Trained Mediapipe + TensorFlow pipelines for real-time gesture recognition with high accuracy across multiple classes
- Developed RESTful API infrastructure in Flask to support live inference and response generation across web and mobile clients.
- Deployed services using Docker and CI/CD workflows via GitLab for continuous testing and deployment.

Dell Technologies – *Artificial Intelligence Software Development Intern;* Austin, TX May 2024 – August 2024

- Collaborated with the WW Regulatory and Compliance team to develop AI-driven tools for internal applications.
- Enhanced help desk efficiency by implementing a seamless backend development, including Machine Learning text embedding comparisons and an API completion AI model with a RAG Architecture.
- Partnered with teams across Dell and Dell EMC to leverage AI search engines for certificate tagging and issue resolution.
- Conducted data analysis to optimize AI tool performance, resulting in improved accuracy and user satisfaction by ~**30%**.

Blue Origin – *Artificial Intelligence Software Development Intern;* Kent, WA January 2023 – April 2023

- Developed and deployed BlueGPT, a secure, fine-tuned transformer model trained on internal engineering documentation and operational procedures.
- Preprocessed large-scale corpora using PyTorch and HuggingFace Transformers, leveraging The Pile for base pretraining and fine-tuning with domain-specific datasets.
- Integrated Elasticsearch-based document retrieval with an NLP ranking layer to surface relevant knowledge for engineers and managers within multiple on-site teams.
- Built APIs using FastAPI for secure querying and integrated JWT authentication for protected model access; project secured **$1M** in funding post-pilot.

Projects

- **Autonomous PTZ Vehicle Tracker – Senior Design Capstone:**
  - Built an AI-powered PTZ camera system for tracking specific vehicles in race conditions using transfer learning on a pretrained ResNet18 CNN for few-shot detection classification and YOLOv9 for object detection.
  - Enabled personalized vehicle tracking with minimal labeled data using PyTorch, ultralytics, and OpenCV.
  - Implemented multithreading processes for parallel detection/classification with GStreamer Integration to minimize latency leading to **89%** tracking accuracy and **320ms** latency between frame capture and camera response.
- **UT Campus AI Tour Guide – ECE 460J Final Project:**
  - Created a YOLOv9-based mobile web app to detect UT campus landmarks in real time and generate contextual descriptions using a REST API pipeline with ChatGPT.
  - Built object detection interface in Python + OpenCV and integrated FastAPI routes to relay detection context to the language model.
  - Tuned model and system for real-time performance on mobile hardware; inference and response cycle achieved sub-**200ms** latency.

ADDITIONAL INFORMATION

Computer Proficiency: Python, Java, C/C++, HTML/CSS, MATLAB, SQL, Terraform, TypeScript, GO
Cloud & DevOps: AWS EC2/S3, Docker, Kubernetes, GitLab CI/CD
Machine Learning: PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, Mediapipe
Data Science & APIs: Numpy, Pandas, Matplotlib, FastAPI, Flask, REST APIs, GStreamer