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EXPERIENCE

YSAP Inc., AI Engineering Intern

Sep 2025 – January 2026

- Architected and deployed a production RAG system for semantic search over thousands of audio tracks and devices, achieving sub-2-second query response times
- Built a real-time UI automation system that traverses and indexes entire application UI trees (<10-second traversal), enabling programmatic element manipulation and highlighting
- Designed and implemented data pipelines for audio similarity search and cataloging, integrating vector embeddings with relational database storage to support lesson-building systems for tutors

Osgil Defense, Graduate Researcher

May 2024 – Aug 2024

- Architected and deployed production AI trustworthiness evaluation system (PAX), implementing custom search tool integration for real-time fact-checking and citation verification across web sources
- Built an end-to-end citation tracking pipeline with XML-style tagging, UUID-based source tracking, and a parallel web scraping system, processing search results for trustworthiness scoring and verification
- Developed WebSocket streaming infrastructure for real-time LLM response delivery, integrated summarization for cost optimization, and established a GPU-enabled deployment environment

PROJECTS

Go1 Voice Navigation

January 2026 – May 2026

- Built a voice-commanded navigation system on a Unitree Go1 quadruped, pairing a speech pipeline (Whisper STT → LLM tool-use → TTS) with autonomous Nav2 navigation over a Slamtec lidar SLAM map and a React web dashboard (live camera/lidar feeds, click-to-navigate)
- Integrated a distributed ROS 2 / ROS 1 stack across an onboard Mac Mini M1 (Asahi Linux) on the dog, a Dockerized Slamtec SLAM driver bridged from ROS 1 into the ROS 2 host, and a remote GPU Whisper STT server – all networked over a Tailscale mesh

Custom JetRacer

Sep 2023 – Dec 2023

- Engineered an autonomous racing vehicle using Nvidia's Jetson platform, implementing real-time computer vision and deep learning for road following capabilities, achieving 65 FPS inference
- Built an end-to-end data pipeline combining camera feeds, a click-based labeling interface, and live model evaluation for iterative model improvement

TARS

Apr 2023 – May 2023

- Engineered a multi-agent AI system (349 GitHub stars), implementing specialized agents for research, content creation, and SEO analysis – an early exploration of emergent coordination and collective intelligence across delegated agent roles
- Developed a custom Unix command execution tool with secure shell operations, integrated Docker networking with URL transformation utilities for container deployment

EDUCATION & TOOLS

Northeastern University

Exp. Dec 2026

Master of Science in Computer Science

Seattle, WA

- Thesis (in progress): *Small Models, Structured Memory: Persistent Scene-Graph RAG for Latency-Aware Indoor Navigation on the Edge* – integrating a latency-aware edge-deployed VLA policy with a hierarchical scene-graph knowledge base queried by a sub-1B VLM on a Unitree Go1 / Jetson Orin NX.

Languages & Tools: Python · Java · C++ · Git · Docker · Linux · .NET (C#, WPF, UI Automation) · React · FAISS · SQLite · Langchain · Crew.AI · Ableton Live · PyTorch · OpenCV · TensorRT · GCP (Vertex) · AWS (Lambda, S3, EC2) · Nvidia Jetson

Core Competencies: Vector Databases & Embeddings · RAG Systems & Semantic Search · ROS2 · NAV2 · SLAM · MoveIt2 · Real-time Data Processing · UI Automation & Desktop Applications · Audio Processing & Indexing · Deep Learning · Computer Vision · ETL Development · Performance Optimization