

Alan Daleth Hernández Barreto

alandaleth.hb@gmail.com | +52 735 263 6562 | github.com/Daleth-Barreto | Zacatepec, Morelos, MX

Results-driven Computer Systems Engineering undergraduate and AI Researcher with expertise in Large Language Models, RAG architectures, and neuromorphic computing. Proven track record in elite competitive programming (ICPC Mexico Finals 19th place, ICPC Gran Premio de Mexico 10th place) and international academic accepted papers(IEEE, Springer). Adept at bridging the gap between theoretical algorithm optimization and high-performance hardware-software co-design.

Professional Experience

IAMEX

Senior AI Engineer (RAG) | Mexico | Jul 2025 - Oct 2025

- Optimized the accuracy of Mexico's sovereign conversational assistant as measured by a 10% reduction in model hallucinations, by executing a complete architectural redesign of the Retrieval-Augmented Generation (RAG) system.

Confidential Multinational *Project Manager & Sr. Embedded Systems Engineer | Mar 2025 - Jun 2025*

- Decreased industrial infrastructure operational costs as measured by a 70% expenditure reduction, by leading the end-to-end lifecycle of an embedded system from initial PCB design to deployment line optimization.

Research, Projects & Competitive Achievements

Quantum Error Correction (QEC) Decoders: Achieved nanosecond-scale QEC latency via ConvSNN/GCN-SNN and ensured hardware reliability in Amaranth HDL; presented at IEEE qCCL 2026 (Denmark).

HPC Migration Open Source Models (Hugging Face): Accelerated cross-platform model deployment as measured by 263 total downloads (~17/month), by engineering the qwen-cuda2hip-lora toolkit and the qwen2.5-coder-cuda2hip model to automate CUDA-to-ROCm source migration.

Programming Contests: Secured 19th place nationally at ICPC Mexico Finals 2025, with Top 10 finishes in the Gran Premio de México and 1st place in Coding Cup Sinaloa. Achieved top national and regional rankings in the Google Programming Community Cup (2024-2025).

Algorithmic Benchmarking: Recognized for high-performance reasoning and mathematical problem-solving, ranking in the Top 22% for Irrigation Prediction and Top 45% in the AI Mathematical Olympiad (AIMO 3) on Kaggle.

Technical Skills

- AI, LLMs & Data:** RAG, LangChain, LangGraph, LoRA Adapters, Hugging Face, SNN, GNN, OpenCV, MediaPipe.
- Languages:** Python, C++, Node.js, React, Astro, Vite, LLVM.
- Hardware:** Amaranth HDL, Verilog, KLayout, FPGA, PCB.

Education

Instituto Tecnológico de Zacatepec (ITZ)

B.S. in Computer Systems Engineering (7th Semester)

- Awards:** Youth Trajectory in Science & Technology Award by the Morelos State Congress (2023, 2024).