

Martín Ramírez Espinosa

Research Engineering · Machine Learning Systems · Reliable Software

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Electronic Engineering and Mathematics student and undergraduate GCPDS member building inspectable research and ML systems, local-first software, and reliable engineering tools.

Available for remote internships, part-time engineering roles, and focused contracts alongside my studies in Colombia.

EDUCATION

B.Eng. Electronic Engineering Universidad Nacional de Colombia (UNAL)	Jan 2024 – expected Nov 2028
B.Sc. Mathematics Universidad Nacional de Colombia (UNAL)	Jul 2026 – expected Dec 2028

RESEARCH & EXPERIENCE

Undergraduate Research Group Member · GCPDS · Universidad Nacional de Colombia Participate in research training and project development across reproducible ML experimentation, digital signal processing, and research software within LIA-UNAL.	Sep 2024 – present
Open-source contributor · ANE2-Calibration-SDR Integrated a self-contained spectral node-calibration runtime with artifact provenance, PSD-frame calibration, and integration tests in an upstream-approved and merged pull request.	Mar 2026
Mathematics Tutor · Social service · Colsemenor Supported students in grades 5–7 with adapted explanations and exercises, progress monitoring, and clear mathematical communication.	Jun 2022 – Aug 2023

SELECTED PROJECTS

RAGdoll · Python · Textual · SQLite FTS5 · Pydantic
- Designed an explainable scholarly-research workspace with explicit plan, curation, and full-text approval; provenance, evidence levels, and passage citations remain inspectable. - Recorded run: 24 candidates, six curated papers, five full texts, one abstract fallback, 307 chunks, seven dossier sections, and 23/25 directly supported claims; 98 tests and >90% coverage.
smaLLM · Python · PyTorch · Experiment design
- Built an end-to-end GPT-style laboratory from corpus provenance and tokenizers through training, checkpoint identity, controlled baselines, and one-shot sealed evaluation. - Final preregistered capacity-controlled panel matched parameters within 0.40%; ByteBPE512 won 8/9 comparisons against char136 while preserving the reversal and limitations; 182 tests, 90.49% branch coverage.
Additional work: insIGht, a local-first Rust/Tauri privacy product · AudioLab, an STM32/USB-audio hardware and firmware platform.

SKILLS & LANGUAGES

Programming: Python, Rust, C/C++, TypeScript, SQL
Research: PyTorch, information retrieval, design of experiments, digital signal processing
Systems: SQLite, GitHub Actions, Linux, strict typing, automated testing
Languages: Spanish — native · English — professional working proficiency, B2 (210 hours)