CARLOS ALEJANDRO REYES PÉREZ

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EDUCATION

Universidad de Pinar del Río Pinar del Río, Cuba
Engineering Telecommunications and Electronics *GPA: 4.4/5.0* Sep 2017 - Jun 2022

Universitat Politècnica de València Valencia, Spain
PhD Mathematics Sep 2023 - Present

PROFESSIONAL EXPERIENCE

Energesis Valencia, Spain, Remote
AI Engineer and Researcher March 2022 - Oct 2025

- Designed and implemented end-to-end ML platform serving 10+ researchers, featuring Elixir Phoenix/Liveview, PubSub, Oban, FastAPI endpoints.
- Deployed internal RAG system that reduced information retrieval time by 90%, improved support response accuracy, and saved 20+ hours weekly in documentation searches.
- Led research initiatives resulting in 3 peer-reviewed publications in high-impact journals (Computers, Mathematics, IECON), focusing on novel applications of deep learning in NLP and time series analysis.
- Engineered hybrid deep learning architecture using PyTorch for multi-variable environmental forecasting in military applications, processing sensor data from 30+ sources.

Gateway Malabo, Equatorial Guinea
Senior Consultant (Management, automation and AI) Sep 2023 - July 2025

- Developed automated daily KPI reporting system that saved 20+ hours weekly in manual work, improved data accuracy, and enabled data-driven decisions leading to 15% profit increase.
- Designed and implemented automated billing system using Python, processing 1M+ monthly transactions with 99% accuracy.
- Maintained direct communication with stakeholders, translating complex data analysis into actionable business insights.
- Led the entire NOC / Monitoring system.

Amazon AWS VP USA, Remote
AI Consultant (GenAI MVP) July 2023 - Oct 2023

- Built a RAG application for an MVP using Langchain, Azure Cloud, OpenAI Azure API
- Training sessions to executives and junior devs

SKILLS

Programming Languages:	Elixir, Python, Go
Expertise:	Data Science, Machine Learning, DevOps, Linux, Software Architecture
::	Backend Dev, Distributed Systems, HPC environments (CESGA)
Tools:	Azure Cloud, Git, Github CI/CD, Metaflow, Kubernetes, Terraform, n8n, Kafka

PAPERS

Set-Word Embeddings and Semantic Indices: A New Contextual Model for Empirical Language Analysis https://doi.org/10.3390/computers14010030
Computers - 20/1/2025

Enhancing Bearing Lifespan Predictions: Integrating Deep Learning and Higher-Order Spectral Analysis with Acceleration-Based Approaches https://ieeexplore.ieee.org/document/10905068
IECON - 2024

Indoor Air Quality Analysis Using Recurrent Neural Networks: A Case Study of Environmental Variables https://www.mdpi.com/2227-7390/11/24/4872
Mathematics - 5/12/2023

Mathematical features of semantic projections and word embeddings for automatic linguistic analysis https://www.aimspress.com/article/doi/10.3934/math.2025185
AIMS Mathematics

Defly Compass Trend Analysis Methodology: Quantifying Trend Detection to Improve Foresight in Strategic Decision Making https://doi.org/10.3390/info16070605
MDPI Information - 14/07/2025

PROJECTS

Conference speaker
Featured AI speaker at international conferences in Spain, Mexico, Equatorial Guinea, and other regions.

NixOS contributor   https://github.com/orgs/NixOS/people?query=carlos+reyes
Contributed to machine learning and data science tooling in nixpkgs repository (maintainer of Metaflow), also contributed to the Nixos Official Wiki.

Metaflow Maintainer
https://search.nixos.org/packages?channel=25.05&show=python313Packages.metaflow&query=metaflow
Maintainer of Netflix's Metaflow package in Nixpkgs.

DeflyCompass Platform development   https://defly.openfuturelab.com/
Novel AI first prospective platform.