

# AGUSTIN ARIAS

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📍 Buenos Aires, Argentina

## PROFESSIONAL SUMMARY

Senior AI Architect & Applied Mathematician (UBA graduate) specializing in high-density agentic orchestration (LangGraph, PydanticAI) and autonomous reasoning loops. Expert in scaling RAG architectures for 2GB+ monolithic systems and implementing MCPs for enterprise-grade tool integration. Proven track record of accelerating migration velocity by 10x through mathematical optimization and self-healing multi-agent pipelines.

## EXPERIENCE

**Senior Devex Architect & AI Lead** | *Python, LangGraph, and Graph Theory algorithms.* Oct. 2025 – Present  
*La Nacion* Buenos Aires, Argentina

- Architectural Intelligence: Designed and implemented a TDA-based (Topological Data Analysis) engine to map code dependencies in a 2GB monolithic codebase, accelerating migration velocity by 10x.
- Agentic Orchestration: Built multi-agent systems using LangGraph and PydanticAI to automate complex engineering workflows, including self-healing documentation pipelines across 200+ repositories.
- Modernization Leadership: Successfully leading the architectural transition of massive legacy systems into a modular, maintainable ecosystem using Applied Mathematics and AI.

**Senior AI Engineer** | *Python, PySpark, Kafka, LangChain* (1yr) Oct. 2024 – Oct. 2025  
*Remitz* Remote

- Scalable Architecture: Engineered and optimized large-scale ETL pipelines using PySpark and Kafka Streams to process complex medical datasets (EDI, HL7, CSV), significantly reducing ingestion latency.
- LLM-Powered Automation: Designed and deployed NLP systems leveraging GPT to automate medical claims analysis, transforming unstructured billing data into actionable insights and increasing processing throughput.
- Security & Compliance: Architected secure data handling protocols ensuring full HIPAA compliance, implementing OAuth 2.0 and SFTP integrations for privacy-preserving AI workflows.

**Machine Learning Engineer** | *Python, Pytorch, Tensorflow, Pyspark, SparkSQL* (1yr 4mo) Jul. 2023 – Oct. 2024  
*Revelen.ai* Buenos Aires, Argentina

- Proficiently trained deep learning models in the field of computer vision, specializing in tasks such as instance segmentation, classification, and pattern recognition.
- Integrated transformer models from Hugging Face for advanced generative AI and content protection solutions.
- Executed data visualization and annotation processes through the utilization of a premium labeling tool, like Labelbox.
- Integrated LangChain and LlamaIndex to develop scalable AI applications, enhancing conversational AI capabilities.
- Leveraged Pinecone for efficient vector search and retrieval, improving the performance of semantic search applications.
- Hands-on experience with transformer models, including GPT, and fine-tuning them for specific use cases.

**Machine Learning Engineer** | *Python, TensorFlow, Scikit-learn, PyTorch, Airflow* (1yr 8 mo) Dec. 2021 – Jul. 2023  
*Vairix - Nearshore Software Development Boutique* Montevideo, Uruguay

- Designed and implemented generative AI pipelines for US-based clients, including applications in synthetic content creation and advanced analytics.
- Developed and deployed machine learning models using TensorFlow and PyTorch, improving data-driven decision-making for clients.
- Utilized AWS and Google Cloud platforms for scalable model deployment and distributed training.

## EDUCATION

**Master's in Mathematics** Buenos Aires, Argentina  
*University of Buenos Aires (UBA)* Aug. 2019 – Dec. 2024  
**Mechanical Engineering** Buenos Aires, Argentina  
*Instituto Tecnológico de Buenos Aires (ITBA)* Jan. 2016 – Dec. 2018

## TECHNICAL SKILLS

**Agentic Architectures & Autonomous Orchestration:** Knowledge Graphs, LangGraph, PydanticAI, Multi-Agent Orchestration, RAG Architectures, Vertex AI.

**Backend & Languages:** Python (NumPy, Pandas, Scikit-learn), .NET (Roslyn API), C#, FastAPI, Pydantic.

**Mathematics:** Topological Data Analysis (TDA), Graph Theory, Optimization, Statistical Modeling.

**Infrastructure & Cloud:** AWS, Azure, GCP, Docker, Kafka, PySpark, Vector Databases (Pinecone, pgvector).