

# ARIEL AARON ARGOMEDO MADRID

☎ +569 42679796 · ✉ ariel.madrid.inf@gmail.com · 🌐 github.com/ariel-madrid

Software Engineer (AI Systems)

## PROFESSIONAL PROFILE

---

Computer Engineering professional with a Master's degree in Computer Engineering and strong experience in Machine Learning, Deep Learning, and MLOps. Focused on applying predictive models (PyTorch, TensorFlow) to generate business value in e-commerce and scientific research. Experienced across the full data analytics lifecycle, from data modeling and structuring using SQL, PySpark, and BigQuery, including relational database design and query optimization, to deploying scalable ML systems on Cloud platforms (GCP/AWS). Solid background in systems engineering (Golang) and Full-Stack development (ReactJS/NextJS).

## EXPERIENCE

---

### Software Engineer (AI Systems)

Nov 2025 - Present

*Autivo*

- Developed high-availability backend APIs using **FastAPI**, focused on rapid and stable production deployments.
- Implemented frontend applications with **React**, integrated with backend services through decoupled architectures.
- Designed and modeled **relational databases**, optimizing schemas and queries for high-traffic applications.
- Built **intelligent agents** using **LangGraph**, including state management, tool execution, and complex conversational flows.
- Implemented **RAG (Retrieval-Augmented Generation)** systems using **Pinecone** as a vector database.
- Integrated and orchestrated multiple **LLMs**, including **OpenAI**, **Anthropic**, and **Gemini**, selecting models based on cost, latency, and output quality.
- Containerized and deployed services using **Docker**.
- Used **GitHub** for version control, code reviews, and collaborative development workflows.

### Cloud Systems Engineer & Data Scientist

Jan 2025 - Present

*SFL Consulting*

- **Full-Stack & Cloud Systems Engineer** (*May 2025 - Present*)

- Designed and developed a Retail Operations System (ROS) to centralize control of thousands of devices (POS terminals, scales) across large retail chains.
- Developed the main management application (ReactJS/NextJS) and optimized performance using Redis to achieve high availability and sub-second response times.
- Designed a diagnostic pipeline using Golang to execute remote routines running scripts on POS systems for automated log extraction and real-time health diagnostics.
- Established robust infrastructure monitoring by configuring Zabbix agents across all devices and integrating webhooks with the Next.js backend.

- Modeled and built PostgreSQL databases and later created BigQuery tables to feed Power BI dashboards, including data ingestion, schema design, and query optimization.
- Built and maintained data workflows by creating DAGs in Cloud Composer (Apache Airflow) for scheduled ETL and data synchronization tasks.
- Deployed a resilient 24/7 API using Cloud Run Services and configured Cloud Run Jobs for scheduled and batch processing tasks.

- **Data Scientist – E-commerce Optimization** (*Jan 2025 - May 2025*)

- Contributed to the development of a neural-network-based recommendation system using PyTorch.
- Designed distributed training pipelines with SLURM and PyTorch DDP, reducing model training time by 40%.

**Research Assistant: AI for Astronomy (Part-Time)**

Sep 2024 - Present

*University of Santiago of Chile (USACH)*

- Developed a Swin Transformer-based model to infer physical parameters of protoplanetary disks from interferometric images.
- Built a robust preprocessing pipeline for FITS image data using NumPy and PyTorch.
- Implemented multi-GPU training using SLURM and DDP on an HPC cluster.

**Research and Development (Part-Time)**

Jun 2023 - Jan 2024 / Aug 2023 - Dec 2023

*USACH & TrafficGo*

- **Research Assistant: Bayesian Modeling of Disks**
- **Backend Developer (Computer Vision)**

## EDUCATION

---

**M.Sc. in Computer Engineering**

2023 - 2025

*University of Santiago of Chile, Chile*

- Coursework: Machine Learning, Bayesian Inference, Deep Learning, Cloud Computing

**B.Sc. in Computer Engineering**

2019 - 2024

*University of Santiago of Chile, Chile*

## TECHNICAL SKILLS

---

- **Machine Learning & Data Science**

- Languages: Python, PySpark, SQL, Go
- Frameworks: PyTorch, TensorFlow, Scikit-learn

- **Cloud & Software Engineering**

- Full-Stack: ReactJS, NextJS
- APIs: FastAPI, Flask, Django
- Databases: PostgreSQL, MongoDB, Redis
- MLOps & DevOps: Docker, Kubernetes, Git, SLURM