

# PEDRO PABLO SILVA ANTILEF | Curriculum Vitae

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## SUMMARY

Geographical Engineer and M.Eng. in Informatics Engineering from the University of Santiago de Chile. Currently working as a Data Engineer at the European Southern Observatory, contributing to the design and operation of data-intensive systems for large-scale scientific infrastructure. I have experience across data engineering, machine learning, and geospatial analytics in both technical and leadership roles.

My core expertise includes Python-based data pipelines, relational and non-relational databases, API design, batch and streaming architectures, and cloud-native systems. I work with CI/CD, containerized microservices, Kubernetes-based deployments, and automated testing to build reliable, scalable, and observable data platforms.

## EDUCATION

### UNIVERSITY OF SANTIAGO DE CHILE

March 2020 – December 2022

#### M.Eng. in Informatics Engineering

Santiago, Chile

Thesis: Simulation, automation, and analysis of socioeconomic risk assessment scenarios related to Harmful Algal Blooms in the Los Lagos Region, Chile

### UNIVERSITY OF SANTIAGO DE CHILE

March 2015 – July 2021

#### Geographical Engineering

Santiago, Chile

Thesis: Connectivity analysis of a wildfire-degraded ecosystem using landscape-patch-based graph theory for Tantauco Park, Chiloé, Chile

### UNIVERSITY OF SANTIAGO DE CHILE

March 2015 – December 2019

#### Bachelor of Engineering Sciences

Santiago, Chile

## EXPERIENCE

### DATA ENGINEER

January 2025 – Present

#### European Southern Observatory

Santiago, Chile

Development and integration of data-intensive systems for highly complex scientific environments. Involved in the digital transformation of operational systems for the Very Large Telescope (VLT) and the future Extremely Large Telescope (ELT), including the design of APIs, batch and streaming data pipelines, and Kubernetes-deployed services. Focus on system interoperability, traceability, reliability, and scalability of scientific and operational workflows.

### LEAD MACHINE LEARNING ENGINEER

August 2023 – October 2024

#### MT2

Santiago, Chile

Technical leadership in machine learning and data science projects. Led the design and implementation of end-to-end data platforms covering ingestion, processing, modeling, and integration with business systems. Applied classical ML models and Large Language Models (LLMs) for customer interaction automation, segmentation, and prioritization, supporting optimized commercial decision-making.

### SPATIAL DATA SCIENTIST

April 2023 – December 2023

#### +Ciclo

Santiago, Chile

Development of a parametric tool for cycling infrastructure analysis, including data ingestion from public and private sources, geoprocessing workflows, and generation of spatial outputs and visualizations. Designed for reuse across cities using OpenStreetMap or proprietary datasets.

## DATA ENGINEER SPECIALIST

Entel Digital

October 2021 – October 2023

Santiago, Chile

Design and implementation of geospatial analytics solutions. Development of models to estimate floating population and POI-based algorithms to characterize visitor origin, sociodemographic profiles, and volumes. Integration with visualization platforms for executive decision support.

## GEOMATICS ENGINEER

CITIAPS

January 2020 – August 2021

Santiago, Chile

Development of GIS platforms for socio-natural disaster management related to Harmful Algal Blooms. Management of spatial databases using PostgreSQL/PostGIS and maintenance of map services with GeoServer and MapStore.

## SKILLS

### PROGRAMMING LANGUAGES

Python | R | SQL | Spatial SQL | Bash

### DATA & ML

Supervised and unsupervised ML models | Feature engineering | Model evaluation | Batch and online inference | Model deployment (on-premise and cloud)

### PLATFORMS & TOOLS

Git | Linux | Kafka | Kubernetes | Docker | ArgoCD | Google Cloud Platform | Jupyter | VSCode

### DATA & GIS

Pandas/GeoPandas | PostGIS | DuckDB | GDAL | OSMnx | GeoServer | Google Earth Engine

### LANGUAGES

Native: Spanish | Advanced: English

## AWARDS

### WINNER -- MAPPING HORIZONS GIS COMPETITION

2020

International Association of Young Geographers (IAYG)

Project: Supporting Decision Making Regarding Public Health by Improving Public Survey Data.