

VALERIA MARÍA SERNA SALAZAR

Monterrey, Nuevo León, Mexico (Open to relocation)

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Professional Summary

Data Engineer with hands-on experience designing and deploying scalable **AWS data architectures** (Glue, Lambda, S3, Redshift) and orchestrating ETL workflows with **Apache Airflow**. Strong mathematical foundation with a B.S. in Data Science and Applied Mathematics (96.4/100). Experienced collaborating with cross-functional stakeholders to translate business requirements into data solutions, and with international research teams across multiple countries. Published researcher and C1 English proficiency. Familiar with Agile delivery practices.

Experience

EnviaFlores.com

Jun. 2025 – Present

Jr. Data Engineer

Monterrey, N.L., Mexico

- Designed and deployed scalable ETL pipelines on **AWS** (Glue, Lambda, S3), automating data ingestion workflows processing **GBs of data daily** across 3+ sources and improving pipeline reliability for BI consumers.
- Implemented **data partitioning strategies** in S3 and Glue to optimize storage layout, reducing **query times by 25%** and **storage costs by 20%** for downstream analytics.
- Developed **data cleaning, normalization, and quality** pipelines ensuring high consistency and availability of data across reporting and business intelligence applications.
- Wrote optimized **Python** scripts and **SQL** queries for data transformation and integration; orchestrated **Apache Airflow** DAGs to automate demand forecasting pipelines, achieving **90% forecast accuracy**.
- Built end-to-end analytics workflows using **AWS Glue** and **Amazon Athena** to query and transform S3 data, powering **QuickSight** dashboards for business intelligence consumption.

ProTect

Aug. 2023 – Dec. 2023

Data Analytics Intern

Monterrey, N.L., Mexico

- Designed a **Tableau** dashboard improving real-time decision-making for 100+ employees; contributed to 12 dashboards refined through iterative stakeholder feedback.
- Developed **Power BI** reports, gaining hands-on experience with BI tooling and data visualization best practices.

Technical Skills

AWS Services: Glue, Lambda, S3, Redshift, IAM, EC2, Crawlers, Athena, QuickSight

Data Engineering: Apache Airflow, Apache Spark, ETL/ELT, Data Modeling (Relational & NoSQL), Data Partitioning, Data Governance, API Integration

Programming: Python (Polars, Pandas, NumPy), SQL, Bash, C++, Git, Docker

BI & Platforms: Power BI, Tableau, Amazon QuickSight

Projects

Secure Migrant Data Management System | Relational DB Design, AES Encryption, Power BI

June 2024

- Designed a **relational data model** and built an encrypted data platform for Casa Monarca using **AES-secured CRUD operations**, applying data governance principles to sensitive personal information.
- Integrated automated **Power BI** dashboards enabling data-driven operations and real-time reporting for NGO staff.

Real-Time Traffic Analysis Pipeline | YOLO v8, Python, Data Streaming

May 2024

- Engineered a high-throughput vehicle detection and data pipeline processing **100+ hours** of video, generating structured metadata for downstream analytics; reduced manual counting effort by **95%**.

Education

Tecnológico de Monterrey

Nuevo León, Mexico

B.S. in Data Science and Applied Mathematics — 96.4/100 | Academic Talent Scholarship

Aug. 2021 – June 2025

University of Twente

Enschede, Netherlands

International Exchange — Data Science, AI, Web Science & Graph Theory

Aug. 2024 – Jan. 2025

Relevant Coursework: Database Management, Distributed Systems, Statistical Analysis, Optimization, Data Governance

Publications

Topological Data Analysis and Convolutional Neural Networks for Gravitational Wave Detection

Springer Nature — Mexican International Conference on Artificial Intelligence (MICA), Oct. 2025

- Applied **TDA via persistent homology** to extract topological features from complex signal data, integrated into CNN models to improve detection accuracy while reducing computational complexity, demonstrating advanced data pipeline and feature engineering skills.

Knowledge Graph Representation of Open-Source Homicide Information

18th International Workshop on Value Modelling and Business Ontologies (VMBO 2025), Dec. 2025

- Co-authored research proposing **OWL ontology** and **NetworkX**-based graph models to structure and represent complex, ambiguous open-source data. It was developed in collaboration with international researchers at the University of Twente.

Volunteering

OSINT / Intelligence Analysis

Jun. 2020 – Dec. 2023

Trace Labs & Anti-Human Trafficking Intelligence Initiative (ATHI)

Remote

- Applied **OSINT techniques** across 9+ competitive events (CTFs and Darkwebathons) supporting missing persons and child trafficking investigations, contributing structured intelligence reports to non-profit organizations.
- Collaborated with **international, multicultural teams** in fully remote, high-pressure environments, developing cross-cultural communication skills and experience delivering outcomes across distributed teams.