Luis Larota, M.Sc.

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Profile Summary

Accomplished Data Analytics Engineer with 4 years of professional experience and a track record of simplifying and accelerating data access, usability, and management across diverse teams. Key achievements include crafting in-house Python tools used by 20+ Data Engineers and Analysts at Tesla and designing metric control panels for 100+ data mining professionals. Skilled in blending operations research with AI, with expertise spanning machine learning, big data analytics, and visualizing complex data through user-friendly dashboards, all grounded in solid software engineering.

Professional Experience

TESLA – California, USA 09/2023 – 12/2023

Battery Data Sourcing Intern: Focused on data-driven projects to optimize the battery supply chain and reduce GHG emissions in cathode production and mentored undergraduates in data tool application and battery minerals basics.

- Built a Python web scraper to assess battery mineral suppliers, reducing computing time by over 80% (day to 30 minutes).
- Boosted data collection efficiency by 40% through Python-based PDF parsers and APIs, streamlining access to global battery mineral reserves and ESG risk metrics for + 20 sourcing engineers and supply chain analysts.
- Devised strategies to cut supplier emissions by 30% by analyzing metrics from peer-reviewed papers using a Python scraper.
- Developed a Visual Basic script that interconnected Excel sheets and enhanced data wrangling efficiency by 100% for ongoing and future Impact Reports.

RIO TINTO – California, USA 06/2023 – 08/2023

Data Engineering Intern: Managed cross-functional initiatives involving equipment dispatch and short-term operations planning.

- Constructed an informative digital twin, reducing haul truck operational delays and standbys by 15%, transforming real-time data from fleet management systems (incl. Foundry, SQL, Python, and Power BI).
- Redefined operations phase design in Maptek with Python, cutting the stripping ratio by 50% and boosting borate quality by 10%.

SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY – South Dakota, USA 01/2022 – 06/2023

Graduate Research Assistant: Led a multidisciplinary team of students from engineering and computer science majors to work on a proof of concept to manage traffic and data flow in nonmetal mines for a well-known OEM.

- Streamlined mine fuel dispatch with an AI-driven approach, achieving 90% accuracy with an Artificial Neural Network and boosting truck-shovel match factor by 10% through a binary integer programming model.
- Implemented a Gurobi-Python-based scheduling system for on-highway trucks, achieving a 20% reduction in idle time.

TIMINING – Santiago, Chile 11/2020 – 12/2021

Data Engineer: Responsible for calibrating algorithms within state-of-the-art digital twin software for surface mining operations. Blended mining knowledge with data science/engineering and reported to the CTO and Product Owner.

- Increased real-time surface modeling efficiency by 15% (Python, SQL), adding USD 0.1 revenue per tonne.
- Optimized a map-matching algorithm for the extractive industry's digital twin, reducing GPS variance by 20% with Python and Go, enhancing speed heatmaps for fuel and time savings in water trucks.

Education

MSc. in Mining Engineering, South Dakota School of Mines & Technology – SD, USA 01/2022 – 12/2023

- Subjects Include: Operations Research, Probability & Statistics and Artificial Intelligence | GPA: 3.9/4.0
- Awarded the Caterpillar Minestar Consortium Graduate Research Award, providing full funding for graduate studies.

Exchange Student, Pontifical Catholic University of Chile – Santiago, Chile 07/2017 – 12/2017

- International scholarship from the Santander Universities. Exhibitor at the XXIII Seminar on Asset Management

B.Sc. in Mining Engineering, Santa Maria Catholic University – Arequipa, Perú 03/2013 – 12/2017

- Awarded the Outstanding Student Award in 2013. Graduated in the top 20 percent

Skills & Extra-curricular

Software: Proficient in Python-based AI frameworks (Tensorflow, Keras, Scikit-learn), Database Management (SQLServer, SQLite, MySQL), Data Pipelines (Palantir, PySpark, Power Query), and Data Visualization (Power BI, Tableau).
Programming Languages: Advanced in Python, Git, Visual Basic, DAX; Competent in Go, LaTeX.
Languages: Spanish (native), English (fluent), Portuguese (beginner)