Roberto Cholaky Mejía

Electrical Engineer (Intelligent Systems)

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WORK EXPERIENCE

Data Scientist   `July 2023 – Present`
Brain Food, an Artefact company

- Developed and implemented **forecasting models** to optimize demand prediction in a *Sell-in/Sell-out* context for the food industry, **achieving an error margin below 10% (Nestlé)**. Designed retail sales prediction models that **improved accuracy by 11%** over previous approaches by evaluating methods such as Prophet, tree-based models, and ARIMA.
- Processed, analyzed, and trained models on **large-scale datasets (>60 million records)** in **big data environments**, utilizing **PySpark and SQL** for model and algorithm optimization. Implemented **automated machine learning pipelines** in PySpark ML to improve scalability and efficiency in model building.
- Led the development and coding of **user classification and segmentation models** using machine learning techniques for **churn prediction, user clustering, and purchase propensity modeling**. The code was integrated into production-ready environments by the operations team, in accordance with Visa's strict security policies.
- Collaborated with **product and engineering teams** to integrate predictive models into production systems, ensuring proper implementation and providing key insights for strategic decision-making.
- Developed and productized **GenAI agents** utilizing **Retrieval-Augmented Generation (RAG)** for the automated evaluation of instructors. Designed support agents for experimental design using frameworks such as **Langchain and Langraph**, applied in companies like Femsa.
- Contributed to the winning team in a **competitive bidding process** for Nestlé by delivering robust and accurate forecasting models, **outperforming 14 competing firms**.

Senior Data Engineer   `March 2020 – June 2023`
Arkenco Marketing and Sales Analytics

- Led the modernization of Arkenco's data infrastructure through the development of **scalable and automated pipelines**, integrating multiple data sources and enhancing real-time information availability for marketing and sales strategy optimization.
- Developed **Arkenco CRM**, a robust solution based on **Docker, Python (Django), and React**, strengthening backend infrastructure to support a growing client base and improve operational efficiency.
- Innovated client interactions by integrating the platform with the **WhatsApp API** and developing **intelligent chatbots**, automating client communications and contributing to a **15% increase in client acquisition**.

Machine Learning Engineer Intern   `January – March 2020`
Asicom

- Designed a prototype chatbot capable of extracting information from national ID card images, as well as from PDF and Excel documents through automated document processing.
- Developed an internal tutorial on the use of Amazon Web Services (AWS) for training company staff on cloud technologies.

EDUCATION

Diploma in Making Data-Driven Decisions	Massachusetts Institute of Technology (MIT) IDSS
Master of Science in Engineering, Electrical Major (Computational Intelligence)	Universidad de Chile (Highest Distinction)
Minor in Data Science	Universidad de Chile
Electrical Civil Engineering (Computational Intelligence Major)	Universidad de Chile (Highest Distinction)

RESEARCH EXPERIENCE

Researcher in Reinforcement Learning and Symbolic Regression Projects   2021 – 2023
Universidad de Chile

Conducted research on cooperative agent behavior through reinforcement learning, designing and testing centralized Actor-Critic algorithms in multi-agent robotic environments. This led to a reduction of training times by at least **15%**, enabled by the integration of encoders that progressively add new capabilities — with potential applications in robotics and industrial control systems.

Additionally, designed and implemented an innovative neural network model in **PyTorch** to solve symbolic regression problems, overcoming limitations in conventional power search methods and achieving **over 25% improvement in accuracy**.

TECHNICAL SKILLS

Programming Languages
Python | SQL | Java

Frameworks
PyTorch | TensorFlow | Spark | MLflow | DVC | Pandas | Polars | Scikit-learn | FastAPI | Flask

Software
Docker | Git | Tableau | Microsoft Office | GitHub Actions | Airflow | Great Expectations

Cloud Services
Amazon Web Services (AWS) | Google Cloud (BigQuery, Vertex AI) | Azure (Azure ML)

Languages
Spanish - Native | English - Advanced B2 (TOEFL)

CERTIFICATIONS

Natural Language Processing Specialization   DeepLearning.ai
Specialization in NLP, gaining a deep understanding of advanced models such as Transformer, GPT, and BERT, applying deep learning techniques for natural language analysis and comprehension. Developed skills in applications like text generation and semantic analysis.

Machine Learning Engineer Track   Datacamp.com
Diploma in Machine Learning Engineering, covering the full cycle from development to model deployment in production. Gained expertise in MLOps, CI/CD, model versioning, and managing challenges like data drift and concept drift to ensure model reliability and efficiency in dynamic environments.