Cristóbal **Alcázar**

MACHINE LEARNING · GENERATIVE AI

Santiago, Chile

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Work Experience

Vendie   *Santiago, Chile*
COFOUNDER   *Oct. 2023 - Today*

- Vendie is an AI end-to-end e-commerce solution through WhatsApp.
- LLM framework with support for OpenAI, AWS Bedrock, GCP Vertex and Anthropic APIs.
- AI multi-agent solution with function calling and structured outputs for the company's e-commerce application.

European Southern Observatory - Paranal Observatory   *Paranal, Chile*
MACHINE LEARNING ENGINEER (GRADUATE INTERNSHIP) - SOFTWARE GROUP   *Aug. 2023 - Jan. 2024*

- Engineered a RESTful API to streamline access to diverse data sources in the observatory, including Jira tickets and software version control logs, fostering enhanced accessibility and integration of user information across various platforms.
- Devised and implemented a reporting tool application using Streamlit Python's library, featuring customizable summarization levels tailored to user perspectives through utilizing Large Language Models (LLMs).
- Spearheaded prototyping initiatives utilizing vector databases focusing on OpenSearch and the Retrieval Augmented Generation (RAG) pattern. Contributed to developing projects showcasing applications such as similarity search, chatbots, and Q&A apps.

Compraquí - BancoEstado subsidiary   *Santiago, Chile*
MANAGER PAYOPS AND ANALYTICS   *Oct. 2020 - May. 2021*

- Oversight of the complete payment process for merchants, leading a team of four analysts to ensure a seamless end-to-end payment workflow.
- Create and lead the analytics teams to provide data and insights to different company areas and the management team, facilitating informed decision-making for the business. Push forward initiatives to train people and evangelize the company using scripting languages like Python and R for analytics and developing a data products mindset.
- Designed, developed and documented the critical processes within the Payops and Analytics area in the company's early stage.

PAYOPS AND RISKFRAUD LEAD   *Oct. 2019 - Oct. 2020*

- Led the Payops and RiskFraud team in processing payments for over 50k merchants nationwide, focusing on minimizing fraud and preventing service misuse in the card payment network.
- Developed various data products, including reports and dashboards, utilizing code to automate data extraction, preprocessing, and presentation.
- Implemented the risk and fraud process, creating features based on transaction details like transaction amount, deviation from average tickets by merchant category, and transaction frequency. Developed an outlier detection model to calculate a transaction score.

Central Bank of Chile   *Santiago, Chile*
ECONOMIC FINANCIAL ANALYST - MACROECONOMIC STATISTIC DIVISION   *Oct. 2016 - Oct. 2019*

- Responsible for deploying and maintaining the statistical data process to elaborate the local fixed-income quarterly publications. Includes processing multiple data sources using technologies such as SQL, Python, and R. Translating from granular data to macro-financial concepts consistently with other macroeconomic statistics.
- Write technical reports, publish statistics, and make periodic presentations to stakeholders about local fixed-income markets' economic and financial scenarios.
- Implement and publish the *Handbook of Securities Statistics for Chile*, one of the nine Special Data Dissemination Standards (SDDS plus) items, the most advanced standard for economic-financial statistics dissemination worldwide **[Announcement]**

Research & Teaching Experience

RESEARCH

2024	**Avoiding mode collapse on diffusion models finetuned with reinforcement learning ,** Research Assistant worked with **@Felipe Tobar** and @Roberto Barceló [**arXiv**]	*Santiago, Chile*
2022	**SegPlantFormer,** An automatic cell plants segmentation from high-resolution microscope images using transformer-based approach. Collaboration with researchers of Worcester Polytechnic Institute (US) [**GitHub**] [**Poster**]	*Santiago, Chile*

Teaching Experience & Talks

2024	**European Southern Observatory**, Building LLM-based Systems & Products at Paranal **[Slides]**	*Santiago, Chile*
2023	**Universidad de Chile - FCFM**, Graduate course: Deep Generative Models (Teaching Assistant - Syllabus design)	*Santiago, Chile*
2023	**European Southern Observatory**, Talk: Sequence Models with Transformers. A Journey Through Language Models, Current Insights, and Practical Applications at Paranal Observatory (with @Camilo Carvajal). **[Slides]**	*Paranal, Chile*
2022/23	**Universidad Tecnológica Metropolitana**, Diploma course: Modelamiento de datos (Teaching Assistant - Syllabus design)	*Santiago, Chile*
2021	**Women in Data - Guatemala Chapter (NPO)**, Data Visualization with Python **[Slides] [GitHub] [Recording]**	*Webinar - Remote*
2019	**Universidad de Chile - FCFM**, Undergraduate course: Data Journalism with Python (Part-time Professor)	*Santiago, Chile*
2019	**Ministry of Social Development and Family**, A five-session Data Visualization Workshop using R (Instructor - Syllabus design)	*Santiago, Chile*
2018	**Universidad de Chile - FCEI**, Undergraduate course: Data Analysis with R Programming (Part-time Professor)	*Santiago, Chile*
2018	**Universidad de Chile - FCFM**, Undergraduate course: Data Journalism with R (Teaching Assistant)	*Santiago, Chile*

Education

Universidad de Chile — *Santiago, Chile*
MSc in Data Science — *2022 - 2024*
- **Thesis:** *Extending Reinforcement Learning Techniques for Diffusion Models*, supervised by **@Felipe Tobar**

Universidad Adolfo Ibañez — *Viña del Mar, Chile*
B.S. in Business Administration, MSc in Finance — *2009 - 2015*

Skills

Programming	Python scientific stack (numpy, pandas, scipy, matplotlib), PyTorch, JAX, open-source ML ecosystem (HuggingFace, W&B), R (tidyverse, ggplot2), SQL, fastapi, pydantic
Languages	Spanish (native), English
EDX	Introduction to Computer Science and Programming Using Python, Introduction to Computational Thinking and Data Science, Artificial Intelligence (CSMM.101.x), Machine Learning (CSMM.102.x), Robotics (CSMM.103.x)
Coursera	Introduction to Machine Learning in Production, Machine Learning, "Graph Search, Shortest Paths, and Data Structures", "Divide and Conquer, Sorting and Searching, and Randomized Algorithms", The Data Scientist's Toolbox, R Programming, Getting and Cleaning Data, Exploratory Data Analysis, Reproducible Research, Statistical Inference, Regression Models, Managing Big Data with MySQL

Writing

Digital literacy, computational thinking, and literate programming — *Lom Ediciones*
Author — *Oct. 2019*
- A chapter published in the book *"Inteligencia Artificial y Bienestar de las juventudes en America Latina"* **(Brossi, 2019)** that reviews and reflects on ideas such as computational thinking and literate programming, particularly highlighting the importance of establishing programming as an elementary skill in Latin America.