

JOSÉ CARLOS DEL VALLE LÓPEZ

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EXPERIENCE

DATA SCIENTIST | BBVA México

EXPERT: MAR 2024 - PRESENT

- Ensure adherence to regulatory requirements while meeting operational goals and objectives.
- Implement business and expert-defined rules using a combination of supervised and unsupervised models, **anomaly detection**, and descriptive statistics. Some techniques include Isolation Forest, goodness-of-fit tests based on Benford's Law, and **interpretability algorithms** such as Inside Forest.
- Design an algorithm to predict clients' claim probabilities—reducing the evaluation pool from 1 in 450 to 1 in 34—and identify the key factors that lead to claims. This method detects fraud by highlighting cases where the algorithm predicts very low claim rates but real-world claims are high.
- Deploy LLMs to translate the bank's internal regulations into user-friendly responses.

Result: Improved accurate fraud detection from 19% to 37%, reduced false positives, and mitigated reputational risk.

ASSOCIATE: MAY 2022 - MAR 2024

- Classify customers into profiles to prioritize outreach, using InsideForest for classification and interpretability, and OpenAI API to extract detailed insights from the customer base.
- Develop a supervised learning model—"Best Time to Call" (BTC)—to identify customers' optimal contact times. Then, formulate a strategy to integrate it with current Recommendation Systems into the daily workflow of bank executives as groups.

Result: Identified high-value customer segments (valued at MXN \$80,000 per client) with a high likelihood to engage, while filtering out low-value groups (MXN \$102 per client).

ANALYST: MAY 2021 - APR 2022

- Evaluated and adapted ML models and ETL processes for collecting, distributing, and forecasting the demand for banknotes and coins for BBVA's financial subsidiaries.
- Identified market potential, competitive landscape, and KPIs to support decisions on deploying or decommissioning ATMs and branches, using methods such as DBSCAN and k-nearest neighbors, using Tableau alongside GCP APIs.
- Deployed a decision-support tool for business stakeholders to pinpoint optimal growth opportunities

Result: The developed ATM distribution model is now used to site new BBVA ATMs in Mexico, saving MXN 1 million per redistributed ATM—with annual savings of 20 to 50 cases.

DATA SCIENTIST BUSINESS CONSULTANT | Management Solutions

SENIOR: JUL 2020 - MAY 2021

- Banking: Forecasted monthly mainframe operations costs using Bayesian linear regression. Developed a ML model and an interactive dashboard with PySpark and MicroStrategy to predict false clarification.
- Collaborated with the fraud prevention team to prioritize customer clarifications via ML—integrating expert insights into the algorithm

Result: Achieving quarterly savings of up to MXN 1.8 million. Increase daily capacity from 25 to 120 cases per analyst and establish a data-driven threshold.

ASSISTANT II: NOV 2019 - JUL 2020

- Development: Contributed to the migration of corporate tools to Salesforce by translating business rules into front-end development and conducting A/B testing on the deployed solution.
- Data Quality: Supported the migration team in transferring financial data from a data lake to a data warehouse by defining layouts, formats, relationships, and ensuring information consistency.

Result: Achieved a successful data migration of 20,000 million rows.

ASSISTANT: OCT 2017 - MAR 2019

- Designed KPIs for fraud detection related to excessive sales and prescriptions using PCA and outlier detection techniques—including the development of a custom R package—which are currently used to identify fraudulent activity.
- Insurance: Defined KPIs to assess the insured's willingness and ability to pay via unsupervised learning.

Result: Identified 8 cases per month and a user friendly app for monitoring. Ensuring the health of the insurance portfolio by selecting the cleanest target group during campaign creation.



EDUCATION

BSc Actuarial Science | UNAM - FES ACATLÁN

AUG 2013 - DIC 2018

Professor Assistant, Focused on Statistics, Risk Theory, Multivariate and Mathematical Analysis.

For my thesis project, I developed an algorithm to identify multimodal distributions using Goodness-of-Fit tests and published it on CRAN (R) for multi modal distributions.

MSc Data Science | UNIV. PANAMERICANA

JUN 2023 - DEC 2024

Storytelling, Machine & Deep Learning, Cloud Computing, Ethics, NLP, Business Intelligence.

For my thesis project, I developed and implemented a Recurrent Neural Network (RNN) to identify the best product to offer to new bank clients, reducing Time to Market by six months and generating a monthly benefit of 400,000 MXN.



SKILLS

Soft Skills

Communication • Creativity • Active Listening • Storytelling • Time Management • Teamwork • Problem Solving • Self-Learning • Empathy • Adaptability • Critical Thinking

Hard Skills

AI • LLMs • Python (ML, NLP, DL) • R (caret, tidyverse) • SQL • Apache Spark • VBA • Google Cloud Platform (Vertex, Cloud Storage, BigQuery, Looker Studio) • AWS (SageMaker, ERM, CloudWatch, Athena) • Development & Deployment (CRISP-DM, Git, GitHub, VS Code, BitBucket, Linting, Testing, A/B Testing)



SIDE PROJECTS & ACHIEVEMENTS

- Movilidad Social en México [App](#)
- Python Library (Author): pip install [InsideForest](#) ([demo](#))
- Movie Recommendation ChatBot on GCP [Linkedin](#), [Cloud Function](#), [Front End](#)
- **Hackathon BBVA 2021** – Profitable entailment Challenge **1st place** [Note](#)
- R Packages (Author): [FitUltD](#): fit multimodal distributions
- IMEF student group: recycling campaign (21,000 plastic caps), talks to high school students
- Database management online [App](#)
- Time Series Analysis in R [App](#)



COURSES & CERTIFICATIONS

- Rutgers University - **Supply Chain Logistics** (Transportation, Warehousing, Networks)
- **HarvardX** CS50's Introduction to **Computer Science** (C, Memory, Algorithms, Data Structures, SQL)
- **HarvardX** CS50's Introduction to **Artificial Intelligence** (Probability, Optimization, ML, CNN, NLP)
- **Salesforce Certified** Einstein Analytics and Discovery Consultant (Auto ML, Reporting Apps)
- **Tableau** Desktop Specialist **certificate** (Data Wrangling, Data Visualization, Dashboards)
- English C1: ISI English Language School - **Dublin 2019, TOEFL iBT 2022** (99)
- **AWS** Sage Maker – edX (chalice, lambda, deployment of ML models)