



Federico Castro, PhD

DATA SCIENTIST

Mexico City, Mexico

fcastro.biol@gmail.com

SUMMARY

PhD-trained scientist specialized in data analysis and statistical modeling. Proficient in R programming and data visualization, with a strong record of interdisciplinary collaboration on complex data-driven projects. Author of peer-reviewed publications with experience across Europe and Asia, adept at adapting to diverse environments. Eager to apply quantitative expertise to advance evidence-based decision-making in industry.

EDUCATION

FREIE UNIVERSITÄT, BERLIN

2014-2022 / Germany

PHD IN BIOLOGICAL SCIENCES

LUDWIG MAXIMILIAN UNIVERSITÄT OF MUNICH

2011-2013 / Germany

M.Sc. IN EVOLUTION, ECOLOGY, AND SYSTEMATICS

UNIVERSIDAD NACIONAL AUTÓNOMA DE MEXICO

2005-2011 / Mexico

BACHELOR BIOLOGICAL SCIENCES

RECENT WORK EXPERIENCE

POSTDOCTORAL RESEARCHER

2022-2024 / Mexico

BIOLOGY INSTITUTE, UNAM

- Conducted epidemiological and data-driven research using large-scale biological datasets.
- Applied advanced statistical modeling and predictive analytics in R to identify trends and correlations.
- Published findings in high-impact international journals.
- Collaborated with interdisciplinary teams across Europe and Latin America.

LECTURER

2022-2024 / Mexico

POSTGRADUATE PROGRAM IN BIOMEDICAL STUDIES, UNAM

- Taught graduate-level courses in statistical analysis and data visualization using R.
- Supervised projects and mentored students how to perform data wrangling and hypothesis testing.
- Oversaw data analysis projects, defining goals, deliverables, and review checkpoints.
- Developed course materials that integrated theory with applied case studies and real-world datasets.

SKILLS

CORE ANALYTICAL SKILLS EDA | Modeling | Hypothesis Testing | Trend Analysis | Data Visualization

PROGRAMMING & TOOLS R | Bash | Excel | SQL | GIT

DATA MANAGEMENT Data Cleaning | ETL | Database Querying | Reproducible Research | Dashboard Design

PROJECT MANAGEMENT SCRUM | KANBAN

LANGUAGES Native: Spanish | Academic: English | Conversational: German, Japanese

SELECTED PUBLICATIONS

- Tracking *Batrachochytrium dendrobatidis* infection across the globe. [Link](#)
- Batrachochytrium salamandrivorans'* amphibian host species and invasion range. [Link](#)
- Crypticity in Biological Invasions [Link](#)

End-to-End Data Analysis:

From Raw Data to Insight

Work Portfolio

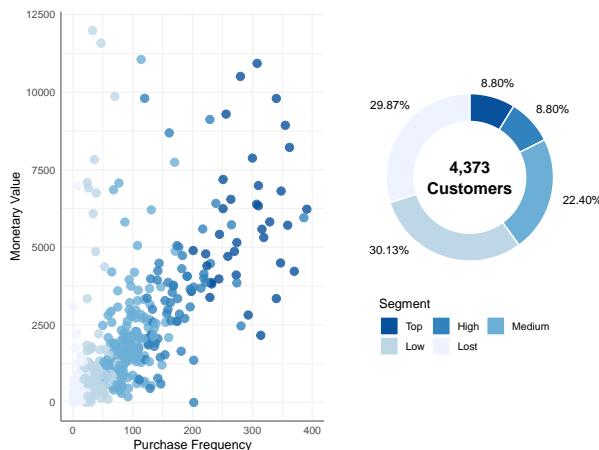


SELECT

```
DATE(InvoiceDate) AS sale_date,  
ROUND(SUM(Quantity * UnitPrice), 2) AS daily_sales  
FROM sales_data  
WHERE InvoiceNo NOT LIKE 'C%'  
AND Quantity > 0  
AND UnitPrice > 0  
AND CustomerID IS NOT NULL  
AND InvoiceDate IS NOT NULL  
GROUP BY sale_date  
ORDER BY sale_date;
```

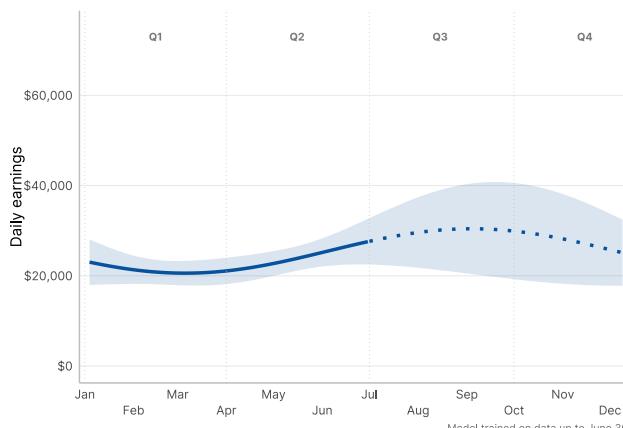
SQL Data Wrangling

This SQL query aggregates valid daily sales while filtering out returns, nulls, and zero values to ensure clean, reliable data for analysis.



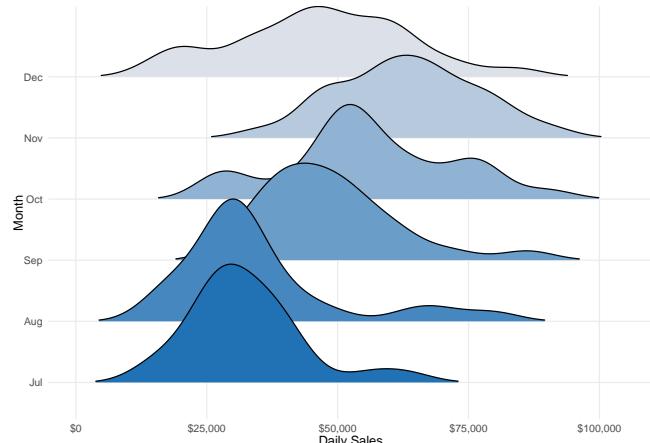
Customer Segmentation (RFM)

Customers are segmented by Recency, Frequency, and Monetary value. The scatterplot shows behavioral clusters, and the donut chart visualizes their proportions.



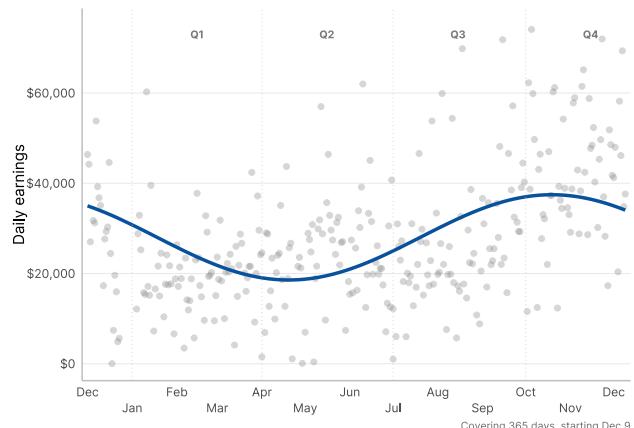
Predictive Modeling & Forecast

A predictive model trained on Q1Q2 data forecasts Q3Q4 sales, providing forward-looking insights for inventory and marketing decisions.



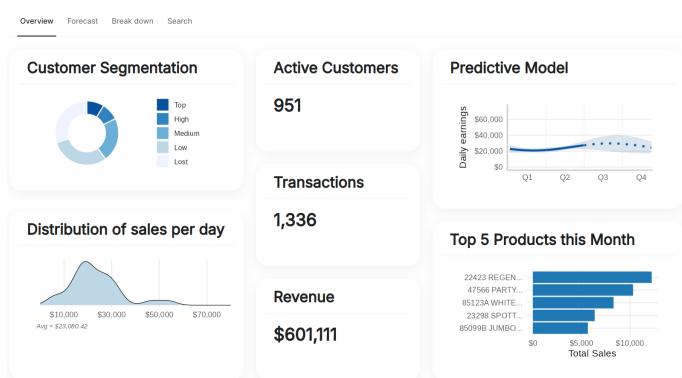
Exploratory Data Analysis (EDA)

The ridge plot reveals monthly sales patterns, showing cyclical behavior and highlighting months with unusual spikes or dips.



Explanatory Modeling

A regression model captures seasonal fluctuations, showing an upward trend during peak months and confirming recurring demand cycles.



Interactive Dashboard

The interactive dashboard combines multiple analyses, enabling stakeholders to explore trends and uncover actionable insights.