



Federico Castro, PhD

DATA SCIENTIST

Mexico City, Mexico
fcastro.biol@gmail.com

ES | EN | DE | FR | JP

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

PHD IN BIOLOGICAL SCIENCES

2014-2022 / Germany

LUDWIG MAXIMILIAN UNIVERSITÄT OF MUNICH

M.SC. IN EVOLUTION, ECOLOGY, AND SYSTEMATICS

2011-2013 / Germany

UNIVERSIDAD NACIONAL AUTÓNOMA DE MEXICO

BACHELOR BIOLOGICAL SCIENCES

2005-2011 / Mexico

RECENT WORK EXPERIENCE

POSTDOCTORAL RESEARCHER

BIOLOGY INSTITUTE, UNAM

2022-2024 / Mexico

- 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

POSTGRADUATE PROGRAM IN BIOMEDICAL STUDIES, UNAM

2022-2024 / Mexico

- 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

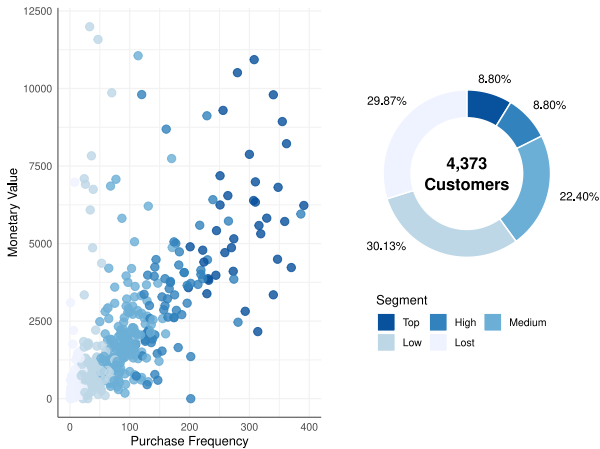
SELECTED PUBLICATIONS

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

```
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;
```

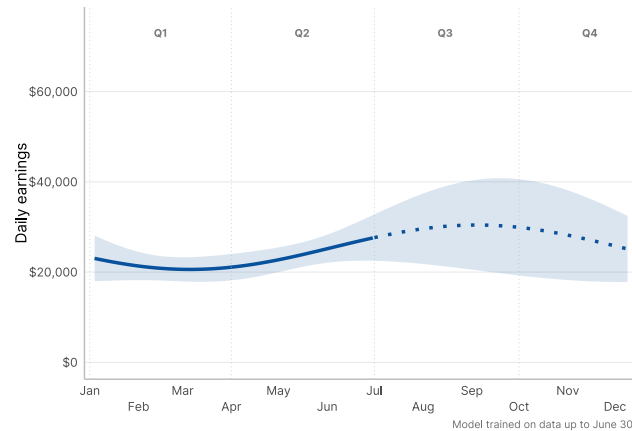
SQL Data Wrangling

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



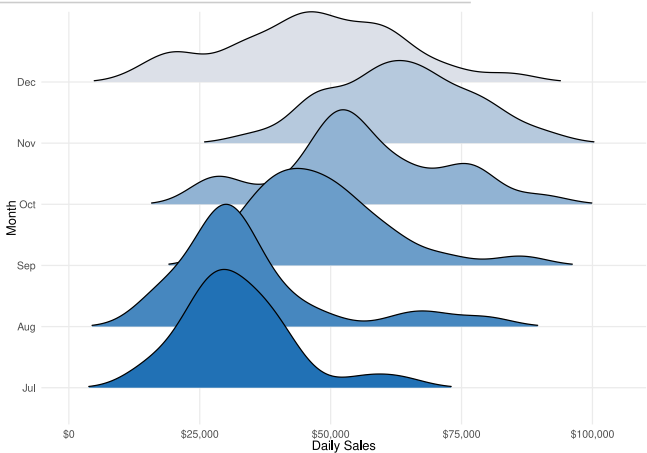
Customer Segmentation (RFM)

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



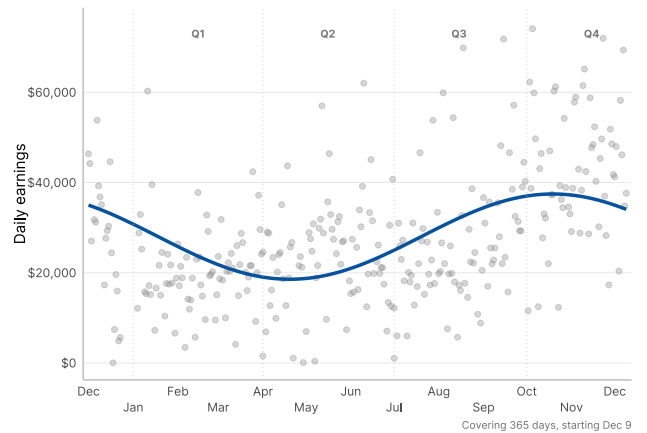
Predictive Modeling & Forecast

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



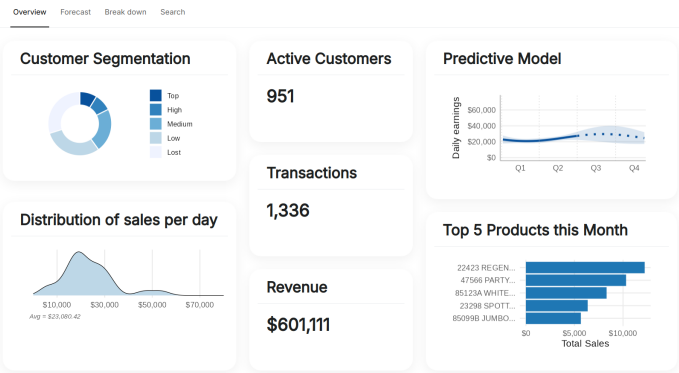
Exploratory Data Analysis (EDA)

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.