

# Carles Trullàs

Data Scientist

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## Profile

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Mathematics graduate with a Master's in Advanced Mathematics and solid skills in programming, analytical thinking, and modelling. Ranked first in class throughout high school, university, and graduate studies, showcasing strong motivation and achievement. Currently building a career in Data Science while pursuing a Master's in the field to strengthen both theory and practice.

## Education

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<b>MSc</b>	<b>Universitat Oberta de Catalunya</b> , Data Science	Sept 2023 – Present
	<ul style="list-style-type: none"><li>Pursuing a Master's degree that directly complements and enhances my professional experience.</li></ul>	
<b>MSc</b>	<b>Polytechnic University of Barcelona</b> , Advanced Mathematics and Mathematical Engineering	Sept 2022 – June 2023
	<ul style="list-style-type: none"><li>The final qualification of the master's degree is 9.8 (best of the promotion).</li><li>Awarded with 6 Honorable Mentions, including Master's Thesis.</li></ul>	
<b>BSc</b>	<b>Autonomous University of Barcelona</b> , Mathematics	Sept 2018 – June 2022
	<ul style="list-style-type: none"><li>Extraordinary award for the best academic record of the promotion.</li><li>Awarded with 10 Honorable Mentions, including BSc final Thesis.</li></ul>	

## Experience

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<b>UVE Solutions</b> , Data Scientist	Manresa, Spain
<ul style="list-style-type: none"><li>Designed and deployed an AI-powered search engine capable of finding Points of Sale with photos and reviews most similar to a given image or short text input.</li><li>Delivered client-focused analytics to identify high-potential points of sale, supporting international companies in optimizing their commercial strategies.</li><li>Collected data from multiple sources via scraping and performed ETL processes to produce clean, structured datasets ready for analysis and decision-making.</li><li>See <i>Expertise Areas on Data Science</i> for technical details.</li></ul>	Sept 2024 – Present
<b>Autonomous University of Barcelona</b> , Assistant Lecturer (Faculty of Mathematics)	Bellaterra, Spain
<ul style="list-style-type: none"><li>Taught courses in Statistics, Differential Equations, Linear Algebra, and Calculus.</li></ul>	Sept 2023 – Aug 2024
<b>Center of Mathematical Research (CRM)</b> , Scholarship	Bellaterra, Spain
<ul style="list-style-type: none"><li>I received a scholarship to work on my master's thesis in advanced mathematics.</li></ul>	Jan 2023 – Aug 2023
<b>Group on Dynamical Systems, UAB (GSDUAB)</b> , Research Intern	Bellaterra, Spain
<ul style="list-style-type: none"><li>Intern at the <i>Group on Dynamical Systems of UAB</i>, which belongs to the Mathematics Department at the Autonomous University of Barcelona.</li></ul>	July 2021 – Sept 2021

## Honors & Awards

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<b>Best Academic Record, Master's Degree in Advanced Mathematics</b>	July 2023
<b>Extraordinary Award, Bachelor's Degree in Mathematics</b>	July 2022
<b>Honorable Mention, Spanish Baccalaureate</b>	June 2018

## Technologies

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**Programming:** C, C++, R, Python, PySpark, Spark, SQL.

**Microsoft Azure Ecosystem:** Data Factory, Databricks, Azure Storage, Microsoft SQL Server & Azure Cosmos DB.

**Vector DB:** PostgreSQL.

**Version Control & Repositories:** Git, GitHub, Bitbucket.

**Machine Learning & AI Platforms:** Hugging Face.

**IDEs:** VS Code, Cursor, GitHub Copilot.

**Data Engineering Tools:** Docker, Kubernetes, Lens, Azure DevOps, Kibana (Elastic), RabbitMQ, FastAPI.

**Project Management & Agile:** Scrum, Agile Methodologies, Jira, Atlassian Ecosystem, Notion, Kanban.

## Expertise Areas on Data Science

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**Search AI Engine:** Designed and deployed an *AI-powered search engine* capable of finding Points of Sale with photos and reviews most similar to a given image or short text input.

- Applied CLIP models (e.g., *SigLIP*, *Jina*) to generate embeddings for images and reviews.
- Utilized *GPUs* to accelerate embedding computation and *vector databases* (*PostgreSQL + HNSW indexing*) for efficient similarity search.
- Deployed a *production-ready API on Kubernetes* to integrate the AI search engine with the company's main platform, making it accessible to users.
- Developed an internal *Streamlit-based frontend* for the Data Science team, also used for client demos.

**Web Scraping:** Designed and maintained robust scrapers to extract information from multiple websites using Python libraries such as *BeautifulSoup* and *Selenium*. Ensured scalability, reliability, and adaptability to website changes.

**Data Pipelines & ETL:** Designed and implemented complex *ETL pipelines* to process large volumes of raw data into clean and structured datasets. Leveraged tools such as *Azure Storage*, *Azure Data Factory*, *Databricks*, and *Azure Cosmos DB* to orchestrate and optimize workflows.

**Client Ad-hoc Projects (CPG sector):** Developed tailored analytics solutions for international clients in the *Consumer Packaged Goods (CPG)* industry. Built ML models (*Linear/Logistic Regression*, *Naive Bayes*, *Decision Trees*, *XGBoost*, *Neural Networks*, *Clustering*, etc.) to identify Points of Sale (PoS) with the highest potential or specific characteristics, supporting commercial strategy.

## Publications

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**Quadratic differential systems with a WF1 and a finite saddle-node**

August 2023

*International Journal of Bifurcation and Chaos*. Joan C. Artés & **Carles Trullàs**

## Languages

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**Catalan and Spanish:** Native proficiency.

**English:** Full professional proficiency.