

# Miguel Aréjula Aísa

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## Education

**Master in Software Engineering**, University of Southern Denmark Sept 2025 – June 2027

- **Coursework:** Advanced Software Engineering Methodologies, Advanced Software Architecture and Analysis Techniques, Big Data and Data Science Technology

**Bachelor in Software Engineering**, University of Zaragoza Sept 2021 – June 2025

- **Coursework:** Software Engineer, Distributed Systems, Software Architecture, Prerequisite Engineering, Verification and Validation, Agile Methodologies and Quality, and Artificial Intelligence.
- Achieved high honors in Information Systems II and Verification and Validation, demonstrating exceptional proficiency and understanding in these subjects.

**Cambridge English Advance**, July 2024

## Experience

**Software Engineer**, University of Zaragoza June 2024 – August 2025

- Researcher in project TED2021-130449B-I00 at the University of Zaragoza, where I led development of a custom web application for the Traumatology Department (Hospital Clínico Lozano Blesa), from requirements gathering with medical staff to architecture design and final delivery.
- Developed a full-stack system using React and PostgreSQL, with RESTful APIs in Express and FastAPI, streamlining operations and expected to support 50 patients per day, enhancing efficiency and quality of care.
- Integrated and processed structured clinical data (CSV-based surgical records) into a relational model, enabling generation and validation of clinical pathways through Petri nets and formal methods.

**Teaching Assistant (Incoming)**, SDU Starting February 2026

- Support students in understanding core software architecture concepts by assisting with lab sessions, assignments, and problem-solving, while clearly explaining technical concepts and collaborating with professors.

## Projects

**Are-Dev** are-dev.es

- Are-dev is a personal technical blog and YouTube channel focused on software development, front-end technologies, and modern frameworks.
- Publish blog posts and videos, sharing tutorials, project walk-throughs, and insights to engage the developer community. **Tools Used:** Astro, Vercel, Markdown.

**I4 Pizza Production System** github.com/I4-Pizza

- Industry 4.0 pizza production system integrating warehouse, production line, and web platform via a distributed architecture.
- Designed, validated, and documented the system architecture using ADD, covering requirements, use cases, microservice boundaries, formal verification with UPPAAL, and experimental evaluation.
- Led system-level coordination, ensured architectural consistency, and supervised implementation. **Tools Used:** Go, Python, Kafka, Docker, UPPAAL.

**AgroNet** github.com/AgroNet

- Designed and developed a full-stack collaborative web platform for farmers, integrating real-time market prices, personalized weather alerts, and interactive geospatial data visualization across Spain.
- Led the front-end team, developed the web application, and deployed it on Vercel.
- Managed communication with the backend hosted on AWS, ensuring reliable API integration and real-time data synchronization. **Tools Used:** Astro, NodeJs, TypeScript, MongoDB, AWS, Vercel.

**Energy Price Prediction** github.com/BigDataProject

- Using Danish Meteorological Institute (DMI) weather datasets and national energy consumption/price data to analyze correlations and forecast future electricity prices.
- Expected insights include: renewable energy impact, peak price periods, seasonal patterns, and cost optimization windows.
- Applying big data frameworks and machine learning models to process large-scale datasets and deliver predictive analytics. **Tools Used:** Kafka, HDFS, Kubernetes, Hive, Spark, Python.