Stockhom, Sweden

Íñigo Aréjula Aísa

+34 601246939
arejula27@gmail.com
https://github.com/arejula27

Education

Stockholm, Sweden **KTH** **June 2025**

- MSc Software Engineering of Distributed Systems. GPA: 4.56/5

Zaragoza, Spain **University of Zaragoza** **June 2023**

- Bachelor in Software Engineering. GPA: 7,96/10
- Achieved high honours in Programming Theory course, ranking in the top 5% out of a class of over 70 students.

Employment

Master thesis student **KTH/Qbeast** **January 2025 – June 2025**

- Investigating existing storage layer systems for **data lakes** with the aim of enhancing the robustness and efficiency of data ingestion protocols, in partnership with the Qbeast data lakehouse.
- Researched concurrency control mechanisms in modern data lake implementations.
- Aimed to optimize collision detection algorithms by reducing false positives transaction conflicts.
- Designed and implemented a benchmark to identify concurrency-related anomalies.
- Modified and extended an open-source benchmark developed by **Microsoft**.

Teacher assistant **KTH** **January 2025 – March 2025**

- Assisted students by addressing their questions, preparing lab sessions, and explaining assignments.
- Developed virtual environments using **Docker** to enable students to complete assignments seamlessly.
- Designed and led the final course project, where students implemented the required logic to support scalability and reliability in a key-value distributed database deployed on **Kubernetes**.

Software Engineer, Intern **Ericsson** **June 2024 – August 2024**

- Automated the **virtual networks** creation process, reducing the lead time of network engineers by **2 days**.
- Developed a **Jenkins** DevOps pipeline that integrates with three different services and Elastic Search as the database to orchestrate the process.
- Worked under **agile methodologies**, maintaining continuous communication with stakeholders to discuss and agree on all features.

Research assistant **University of Zaragoza** **January 2023 – August 2023**

AI-on-Demand Platform

- Developed and implemented a highly scalable and efficient REST API using **Python**, FastAPI, and MySQL.
- Actively contributed to architectural discussions, providing valuable insights to enhance the entire system's design, including the dedicated metadata server. Proposed and implemented a new design for the metadata server, resulting in a **30% reduction in the time required to add a new endpoint** to the API.

Academic researcher, Intern **University of Zaragoza** **January 2022 – June 2022**

- Developed and implemented novel approximate computing techniques in **Python** to significantly reduce energy consumption and execution time for **video analysis pipelines**, resulting in improved efficiency and performance.
- Developed and integrated a containerized solution for seamless invocation of the application from a **Function-as-a-Service** (FaaS) platform, designing and deploying the whole infrastructure on **Kubernetes**.

Technical Experience

Projects

- **Distributed Database for MMO Game**: Developed a distributed database prototype in **Rust** for an MMO game. Key aspects of the project included ensuring atomic updates, implementing a local-first policy to prevent input lag, enabling rollbacks, and using the Omnipaxos consensus algorithm for data and state replication.
- **Library Web Service**: Designed and developed a web application to enable users to share books while only covering delivery costs. Built with **Go**, **HTMX**, and **Sqlite**. Implemented features such as user authentication using **Google OAuth2**, book recommendation based on tags and user preferences, and interactive book timelines to track ownership and reviews. Integrated external APIs such as **Google Books** and **Open Library** to fetch book metadata. Employed a relational data model to distinguish between physical books and their digital representations (volumes), and managed the full-stack development from frontend to backend.
- **Data-intensive workflow**: Designed and implemented a data-intensive workflow to predict the results of the USA 2024 elections. The process involved extracting data by scraping Twitter using specific keywords, placing the messages into a **Kafka queue**, consuming them via **Spark**, and using **sentiment analysis** to determine whether the tweets support Trump or Kamala Harris. Finally, the results were stored in a MongoDB database. The entire workflow operated in real-time using data streaming technologies. All the project was contained and deployed using **Docker compose**.
- **Machine learning pipeline**: Developed a bike availability prediction model for Barcelona's public bike service using weather and station data. Implemented feature engineering, trained an XGBoost model, and deployed an inference pipeline for real-time predictions in a serverless environment.

Skills

- **IT**: Golang, Python, JavaScript/TypeScript, Sacala, Rust, Git, Github, Unix administration, Docker, Kubernetes, Nix, Helm, Bash, Jenkins, SQL, MongoDB, FastAPI, Kafka, RabbitMQ, Github Actions, Spark, Networks, Jupiter Notebook, ML pipelines, SLURM, HPC
- **Languages**: Native Spanish speaker, fluent in English (C1 proficiency).
- **Soft skills**: Leadership, Problem-Solving, Critical Thinking, Team Collaboration, Research.