

Juan Arturo Abaurrea Calafell

juanarturoabaurreacalafell@gmail.com | github.com/Jarturog | linkedin.com/in/j-arturo-a-c

Education

Polytechnic University of Madrid

Sep 2025 – Jun 2026, Madrid, Spain

Master's Degree in Machine Learning and Big Data. Class representative.

- **Status:** Currently enrolled.
- **Relevant Coursework:** Management of Big Data Systems (9.8), Deep Learning for Natural Language Processing and Computer Vision, Reinforcement Learning and Generative Techniques, AI Models for Time Series, Evolutionary and Bio-inspired Computing, Research Methodology and Techniques.

Beijing Institute of Technology

Jan 2026 – Jan 2026, Zhuhai, China

BIT (Zhuhai) Winter Program - Artificial Intelligence.

- **Relevant Coursework:** Unsupervised and Supervised Learning, Convolutional Neural Networks, Recurrent Neural Networks, Graph Neural Networks, Reinforcement Learning.

University of the Balearic Islands

Sep 2021 – Jun 2025, Palma de Mallorca, Spain

Bachelor's Degree in Computer Engineering – Specialized in Artificial Intelligence and Computing.

- **Grade:** 8.3 out of 10 (8 honors).
- **Relevant Coursework:** Machine Learning (9.2), Artificial Intelligence (honor), Intelligent Systems (9.0), Data Mining (7.0), Advanced Algorithms (honor), Databases I & II (7.0 and honor), Statistics (8.5).

Ulm University of Applied Sciences

Mar 2024 – Jul 2024, Ulm, Germany

Exchange semester. Completed Bachelor's thesis and three additional subjects.

- **Grade:** 9.7 out of 10.
- **Bachelor's Thesis (9.6):** Implemented a chatbot for colonoscopy preparation using NLP techniques.

Experience

MTP, Entry Machine Learning Researcher

Feb 2026 – Jun 2026, Madrid, Spain

Researching and developing anomaly detection methods in AI latent spaces as part of company-sponsored master's thesis.

TravelgateX, Entry Software Engineer

Oct 2024 – Dec 2024, Palma de Mallorca, Spain

Backend development in C# and Visual Basic using Visual Studio, GitHub, Fiddler, Postman, Elasticsearch, and Grafana.

Languages

Native: Spanish, Catalan | **C1:** English (Cambridge certified) | **A1:** German

AI & Data-Related Skills

- **Programming Languages:** Python, R, SQL (MySQL, MariaDB, PostgreSQL), MATLAB
- **Machine Learning & AI:** PyTorch, Keras, TensorFlow, Scikit-learn, Transformers (Hugging Face), OpenCV, Ultralytics (YOLO), torchvision
- **Data Science:** NumPy, Pandas
- **Data Visualization:** Matplotlib, Seaborn, Plotly, Dash, Grafana
- **Tools & Platforms:** Docker, Git, GitHub Actions, Azure, Jupyter Notebook

Relevant Projects

Spiking Neural Networks: Comprehensive Literature Review

Oct 2025 – Dec 2025

- Systematic review analyzing 50+ peer-reviewed papers on brain-inspired computing, covering neuron models, learning algorithms, and neuromorphic hardware.
- Available at: jarturog.github.io

Cybersecurity AI Datathon - 2nd Place

Nov 2025

- Achieved F1-score of 0.88424 on ransomware classification using machine learning and prompt engineering techniques.

Multi-Author Writing Style Analysis

Oct 2025 – Nov 2025

- Developed transformer-based models for detecting authorship changes at sentence level for PAN@CLEF 2025 shared task.
- Achieved 92.2% F1 score using fine-tuned DeBERTa-v3-small with weighted sampling and progressive fine-tuning strategies.

Image Classification, Detection and Segmentation Using Neural Networks

Dec 2024 – Jan 2025

- Implemented five deep learning models (ResNet50, VGG16, Inception v3, custom CNNs) achieving 90-96% F1-score with minimal training data.
- Developed object detection and segmentation pipelines using YOLOv8m and Mask R-CNN.

Real Estate Price Analysis Using Data Mining

Dec 2024 – Jan 2025

- Applied K-NN, Random Forest, and Linear Regression on 114K samples achieving <5% error for property predictions and clustering analysis.

Chatbot for Colonoscopy Preparation

Mar 2024 – Nov 2024

- Developed NLP-based chatbot using Levenshtein distance, TF-IDF, BM25, and sentence embeddings.

Other Technical Skills

- **Programming Languages:** Ada, Assembly, Bash, C, C#, C++, CSS, GoLang, HTML, Java, JavaScript, Lisp, PHP, Prolog, Visual Basic
- **Tools & Technologies:** Bootstrap, Docker, Fiddler, Git, GitHub, HubSpot, Insomnia, Jira, NetBeans, Postman, PyCharm, Visual Studio, Visual Studio Code, Wireshark, XAMPP

Soft Skills

- **Leadership & Initiative:** Class representative and international exchange participant.
- **Problem-Solving:** Methodical approach demonstrated through academic performance.
- **Perseverance and Patience:** Successfully balanced full-time internship with university coursework while maintaining high performance.
- **Teamwork and Communication:** Extensive group project experience and cross-cultural teamwork through exchange programs.