

Mariona Jaramillo Civill

PH.D. STUDENT

Boston, Massachusetts

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About

Ph.D. student in Computer Engineering at Northeastern University, specializing in Bayesian machine learning, federated learning, and GNSS security. I hold dual Bachelor's degrees in Mathematics and Computer Science from CFIS, a selective high-performance center at the Polytechnic University of Catalonia (UPC).

With a strong background in probability theory, statistical modeling and optimization, I develop principled and robust machine learning models, currently focused on jammer localization.

Education

Northeastern University

Boston, Massachusetts

PH.D. STUDENT IN COMPUTER ENGINEERING

Sep 2024 – May 2029 (expected)

- **Research interests:** Probabilistic Machine Learning, Federated Learning, Deep Learning, Jamming Interference Mitigation, GNSS Signal Processing.
- **Advisor:** Prof. Pau Closas.

Northeastern University

Boston, Massachusetts

M.S. IN ELECTRICAL AND COMPUTER ENGINEERING

Sep 2024 – May 2026 (expected)

- **Concentration:** Computer Vision, Machine Learning and Algorithms.
- **Relevant coursework:** Advanced Machine Learning, Robotics Sensing and Navigation, Probability and Stochastic Processes.

Northeastern University

Boston, Massachusetts

RESEARCH VISITING SCHOLAR

Oct 2023 – May 2024

- Thesis supervised by **Prof. Deniz Erdoğan**, on Bayesian inference and RNNs for Retinopathy of Prematurity detection.
- Recipient of the **Best Thesis Award in Computer Science** at UPC, out of 300+ students.

Polytechnic University of Catalonia (UPC), Faculty of Mathematics and Statistics (FME)

Barcelona, Spain

B.S. IN MATHEMATICS

Sep 2019 – May 2024

- **Relevant coursework:** Mathematical Optimization, Probability Theory, Statistics, Numerical Methods, Linear Algebra, Differential Equations, Real Analysis, Topology.

Polytechnic University of Catalonia (UPC), Faculty of Informatics of Barcelona (FIB)

Barcelona, Spain

B.S. IN COMPUTER SCIENCE ENGINEERING

Sep 2019 – May 2024

- **Relevant coursework:** Algorithmics, Object-Oriented Programming, Artificial Intelligence, Databases, Computer Architecture.

Publications

- [1] **Mariona Jaramillo-Civill**, Peng Wu, Andrea Nardin, Tales Imbiriba, Pau Closas. "Jammer Source Localization with Federated Learning". In: *Proceedings of the IEEE/ION Position, Location and Navigation Symposium (PLANS)*. 2025. [Oral Presentation, nominated for Best Paper Award].

Talks

Apr. 2025. **Jammer Source Localization with Federated Learning**, *IEEE/ION Position, Location and Navigation Symposium (PLANS)*, Salt Lake City, Utah, USA.

Experience

Albora Technologies

Barcelona, Spain

ML AND GNSS ENGINEER INTERN

Jun 2024 – Aug 2024

- Developed a robust outlier detection algorithm for RTK GNSS positioning using Kalman filtering and RTKLIB, improving smartphone navigation accuracy with Google Smartphone Decimeter Challenge datasets.
- Delivered a project within the Neuropuls initiative, part of the **European Union's Horizon Europe** program, focused on neuromorphic technology for jammer classification in GNSS bands using machine learning.

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DATA ANALYST AND SOFTWARE DEVELOPER INTERN

Barcelona, Spain

Jul – Sep 2022, Sep 2023

- Built and designed a data-driven marketing optimization app using R and Shiny, enabling advertisers to maximize budget allocation efficiency. Deployed backend services on dedicated servers for live analytics.

Wikiloc Outdoor Navigation

Girona, Spain

WEB DEVELOPER INTERN

Jun 2021 – Sep 2021

- Developed static personalized maps on the backend team using NodeJS, VueJS and JavaScript.

Accomplishments

Nova Talent

Spain

TOP 10 COMPUTER SCIENCE AWARDEE, NOVA 111 STUDENT LIST

Mar 2025

- Recognized among the **top 10** students in **Computer Science** in **Spain**, as part of the Nova 111 Student List selecting the 111 most promising students **under 25** nationwide.

Faculty of Informatics of Barcelona (FIB), Polytechnic University of Catalonia (UPC)

Barcelona, Spain

FIB ALUMNI PRIZE FOR BEST BACHELOR'S THESIS

Nov 2024

- Recipient of the **Best Thesis Award in Computer Science**, granted by the Faculty of Informatics of Barcelona (FIB) Alumni Association at the Polytechnic University of Catalonia (UPC), **awarded among more than 300 students**.

CFIS, Polytechnic University of Catalonia (UPC)

Barcelona, Spain

FELLOWSHIP RECIPIENT

Sep 2019

- Awarded a fellowship to study at the Interdisciplinary Higher Education Center (CFIS), a selective program offering dual bachelor's degrees at the Polytechnic University of Catalonia (UPC). Selected among the **top 30 out of 300 applicants in Spain**.

PAU Catalan University Entrance Exams

Catalonia, Spain

TOP 6 RANKING OUT OF 30,000

Jun 2019

- Scored **9.7/10** in the University Entrance Exams (PAU), ranking **6th out of 30,000** students in Catalonia.

Weizmann Institute of Science

Rehovot, Israel

RESEARCH SCHOLAR, INTERNATIONAL SUMMER SCIENCE INSTITUTE

Jul 2018

- Awarded a scholarship to conduct research under Dr. Aviv de Morgan at the **Weizmann Institute of Science**. Completed a thesis titled "*Studying the Effect of GTSF1 on Chromatin Changes in Acute Myeloid Leukemia*".

International Baccalaureate (IB) and CiMs+Cellex Program

Girona, Spain

FELLOWSHIP RECIPIENT

Sep 2017 – Jun 2019

- Awarded a full fellowship by Fundació Cellex as one of **24 students out of 600 applicants** across Catalonia to complete the **International Baccalaureate (IB)** with Higher Level Mathematics and Physics.

Institute for Research in Biomedicine (IRB) and Fundació Catalunya La Pedrera

Barcelona, Spain

RESEARCH SCHOLAR, CRAZY ABOUT BIOMEDICINE AND YOUTH AND SCIENCE PROGRAMS

2017 – 2019

- Top 50 out of 1,000 Catalan students** awarded a competitive research scholarship (Youth and Science Program).
- Completed research in cell and computational biology, and structural chemistry at Institute for Research in Biomedicine (IRB).

Skills

Languages: Catalan (Native), Spanish (Native), English (Proficient)

Programming: Python (PyTorch, NumPy, Scikit-learn), C/C++, R, MATLAB, ROS, Java, SQL, JavaScript

Machine Learning: Deep Learning, Probabilistic Modeling, Bayesian Inference, Variational Inference, Federated Learning, Neural Networks (CNNs, RNNs)

GNSS Signal Processing: Jammer Localization and Classification, RTK GNSS Positioning, Kalman Filtering, Sensor Fusion

Extracurricular Activities

Road Cyclist

2021–2023

Massi Tactic Academy and Catema.cat — Winner of Catalan Road Cycling Cup U23 2022

Track and Field Athlete

2010–2021

Esportiu Penedès — Qualified for the Spanish Track and Field Championship (2015, 2016, 2017, 2020)