



Álvaro TONA RIBAS CRUZ

2 Rue Galvani – Massy, Île-de-France, France – 91300

+33 06 46 86 26 37

✉ alvarotribas@gmail.com

in alvarotribas

alvarotribas.github.io

Summary — Master's student at Institut Polytechnique de Paris, I look for a PhD position starting September 2027 or later. My research interests lie in physical layer wireless communications, stochastic geometry, radio mapping and machine learning.

Education

Télécom SudParis & Institut Polytechnique de Paris

M.Eng. (M1): Electrical and Optical Engineering & M.Sc. (M2): Radio Systems

2024 - 2026

Palaiseau, Île-de-France, France

Universidade Estadual de Campinas (Unicamp)

B.Sc. Electrical Engineering – interrupted in 2024-26 for double degree program

2021 - 2027

Campinas, São Paulo, Brazil

Experience and Projects

Chaire C²M (LTCI/Télécom Paris)

Winter Research Intern

- Combination of stochastic geometry and machine learning.

Oct 2026 – Jan 2027

Palaiseau, Île-de-France, France

Orange Innovation

Research Intern

- Summarized a model of wireless networks using stochastic geometry and queueing theory.
- Proposed physics-informed machine learning algorithms to predict relevant KPIs in Orange's network.
- Improved SOTA results in simulations and demonstrated prediction limits for current 4G/5G traffic with real data.

Mar 2026 – Sep 2026

Châtillon, Île-de-France, France

Hyperfrequency Lab (EPH/Télécom SudParis)

Summer Research Intern

- Proposed a method to measure vital signs using a Novelda UWB proximity sensor.
- Simulated a multi-path receiver signal processing chain, including an ADC/DAC, using Matlab.
- Developed an algorithm to isolate breathing pattern signals from impulse-radio data, and then identify sleep apnea.

Jul 2025 – Sep 2025

Palaiseau, Île-de-France, France

“Gleb Wataghin” Institute of Physics (IFGW/Unicamp)

Student Researcher for Scientific Tournament

- Member of Brazil's top competition team for the International Physicists' Tournament (IPT).
- Extensive use of Python and Mathematica for numerical simulations in fluid mechanics and electromagnetism.
- Review and discussion of scientific papers, construction of low-cost experimental setups, and technical presentations.

Apr 2021 – Feb 2023

Campinas, São Paulo, Brazil

Deep learning-based uplink transmit power prediction in 4G/5G networks

- Structured a dataset with measurements of an 4G/5G network and combined it to metrics from ANFR to build ground truth dataset, then created a simplified architecture that combined it to images and a propagation model to predict uplink power.

Oct 2025 – Feb 2026

Indoor positioning system using ultra-wideband (UWB) signals

- Deployed a wireless system using an ESP32 and DW1000 with up to 40cm precision, allowing localization for single and multi-user cases, using an original protocol. The project involved programming with Arduino and C/C++.

Feb 2025 – Jun 2025

“Linear Systems Analysis” teaching assistance

- Created a comprehensive review material, including 35 detailed problems & solutions, for 50+ students.
- Main topics: Laplace/Z transforms, linearization, frequency response, state equations, controllability.

Feb 2024 - Jul 2024

Skills

Radio: Waves, antenna design, MIMO, instrumentation, radar, satellites and UAVs, GNSS, digital communications, PHY/MAC.

Coding: Python (PyTorch, Keras/Tensorflow, Scikit-learn, Numpy, Sympy, Scipy), Matlab, Mathematica, Arduino, C/C++.

Software: Advanced Design System (ADS), Quartus II Altera, Git/GitHub/GitLab, LaTeX, Word/Excel/PowerPoint/Office.

Soft: Public speaking, oral presentations, self-learning, rigor, teamwork, collaboration, organization, resilience, and curiosity.

Languages: Portuguese (native), English (C2), French (C2), Spanish (C1), Mandarin Chinese (HSK1).

Selected Awards and Prizes

BRAFITEC Fellowship

- The most prestigious merit-based fellowship the Brazilian government offers for studies in France, covering all costs.

2024

2nd Place - XIV International Physicists' Tournament (IPT)

- Highest average (8.33), second-best presentation (9.00), and fifth-best review (8.75) out of 86 participants. As a team, it was the best result in Brazil's history in the competition, overcoming universities such as ETHZ, EPFL, UCL, DTU, Polimi.

2022

Silver Honor - International Youth Math Olympiad (IYMC)

- Scored 19/30 in the final round, achieving an overall result in 3 rounds among the world's top 7% while in high school.

2020