# Xavier Morales Rivero

Delft, The Netherlands  xavier.mlrv@gmail.com  Xavier Morales Rivero

## Education

**Delft University of Technology, TUDelft** — *Delft, Netherlands*
*MSc Electrical Engineering, Microelectronics* — *Sept 2023 – Sept 2025*

**Coursework:** MEMS Technology and Microsystem Integration, Analog Circuit Design, Microelectronics Reliability, Advanced Microelectronics Packaging, Semiconductor Device Physics, Nyquist and Oversampled ADCs, Digital IC Design.

**Universitat Politècnica de Catalunya, UPC-BarcelonaTech** — *Barcelona, Spain*
*BSc Electrical Engineering, Telecommunications Systems* — *Sept 2019 – July 2023*

**Coursework:** Mathematics, Physics, Electronics, Electromagnetic Waves, Signal Processing, Antennas, Radio Communications, Advanced Codification Techniques.

## Experience

**EDA Engineer / Analog Researcher.** — *Eindhoven/Delft, Netherlands*
*TUDelft, NXP Semiconductors* — *Sept 2024 – Jul. 2025*

- Improving tools used by Analog Designers to streamline and speed up the design workflow as an intern in NXP Semiconductors.
- Conducted an initial study on technology porting applications, gaining expertise in IC design, Process Design Kits (PDK), Design Mapping Files (DMF), and Electronic Design Automation (EDA) tools, including Cadence Virtuoso and SKILL scripting
- Research and Development of tools for circuit classification based on sub-graph isomorphism, studying algorithms as VF2, VF2++, RI or VF3 using Python scripting. Study of potential AI/ML approaches, as Transfomers, LSTMs or GCNs. Creating testing data using Cadence Virtuoso and LTSpice.

**Post Quantum Cryptography Researcher.** — *Barcelona, Spain*
*Universitat Politènica de Catalunya - UPC, Entrust Datacard* — *Sept 2022 – July 2023*

- Conducted research and development of Cryptography tools as an intern, focusing on the Post-Quantum Cryptography (PQC) algorithms.
- Implemented a novel command-line tool based on Ubuntu 22.04 and Java to enable signature and verification of PDF documents with PQC algorithms: CRYSTALS-Dilithium, Falcon and SPHINCS+; Published as thesis. Compatible with Adobe Reader and cryptographic standards (CMS, PKCS7).

## Publications

**(*2025*) Identification of Functional Structures within Analog Circuits** (Master's thesis, TUDelft).link

**(*2023*) Seamless Transition to Post-Quantum Resistant: Implementing Digital Signatures for PDF Documents Using PQ Algorithms** (Bachelor's thesis, Universitat Politècnica de Catalunya).link

## Projects

**Open PocketQube Kit**

- Project focused on the development of PocketQube satellites in NanoSat Lab UPC. Responsible of the communication between the Camera Module and the On-Board Central Computer using C language.
- Obtained a functional communication protocol, enabling reliable future progress for the team.

**Tools Used: C, STM32**

**Ubuntu FE Simulator**

- Developed a Finite Element (FE) simulation tool using SfePy and GMSH using python.
- Designed and implemented 3D thermal expansion simulations for multi-material connectors and package models.
- Integrated CAD files from public repositories (NXP Semiconductors, Nexperia, and Philips).

**Tools Used: Python, SfePy, GMSH.**

## Languages

**Spanish**-Native  **Catalan**-Native  **English**-Cambridge C1  **French**-DELF B1