## Xicu Marí Prats

### PROFILE

Research Engineer at the Barcelona Supercomputing Center with a focus on RTL digital design for hardware acceleration in RISC-V.

Proven ability to improve system performance and lead teams toward technical objectives, including leadership in Formula Student.

### CONTACT DETAILS

- 📍 Barcelona, Spain
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### PERSONAL INFORMATION

Languages:
- **Catalan** (native)
- **Spanish** (native)
- **English** (B2 certificated)

### KEY SKILLS

*Hardware & HDL*

**SystemVerilog**  **FPGA Design**
**OpenPiton**  **VHDL**  **Vivado**

*Software & Tools*

**C/C++**  **Python**  **Qt**  **KiCad**  **Git**
**Cadence Virtuoso**

*Soft Skills*

**Project Management**
**Team Leadership**

## PROFESSIONAL EXPERIENCE

- **RESEARCH ENGINEER**                    **Dec 2024 - Present**
  HPDSA Group at Barcelona Supercomputing Center
  - Implemented and integrated a Tensor Marshaling Unit, a state-of-the-art decoupled access-execution accelerator, into the OpenPiton many-core framework.
  - Achieved a 1.66x geometric speedup on SpMV (Sparse Matrix-Vector) multiplication by leveraging hardware-software co-design.

- **SOFTWARE ENGINEER TRAINEE**            **Feb 2022 - Jul 2022**
  Floox (Premium PSU) - *L'Hospitalet de Llobregat*
  - Developed embedded firmware utilizing C++ and Qt, alongside automation solutions (Python scripting) for EV charging stations.

## ADDITIONAL EXPERIENCE

- **FORMULA STUDENT ENGINEER & LEAD**      **Feb 2022 - Sep 2024**
  BCN eMotorsport (UPC) - *Barcelona*

  **TEAM LEADER**                          **Sep 2023 - Sep 2024**
  - Co-led a multidisciplinary team of 50+ members, achieving 1st Place in Driverless category at Formula Student Spain 2024.
  - Managed team organization, documentation software, event planning, budgeting, and sponsorship agreements.
  - Responsible for the Design Event, resulting in the team's first-ever P1 in this event.

  **POWERTRAIN ENGINEER**                  **Feb 2022 - Sep 2024**
  - Implemented and validated real-time Field Oriented Control (FOC) utilizing a FPGA-based solution directed to optimize the powertrain performance.
  - Analyzed the behavior of lithium battery cells to optimize the reliability of our single-seater.

## EDUCATION

- **M.Sc. IN ELECTRONIC ENGINEERING**      **Sep 2022 - Sep 2025**
  Universitat Politècnica de Catalunya
  - GPA: 9.12/10. Thesis (10/10 with honors): *Integrating the Tensor Marshaling Unit for Sparse Tensor Algebra with a RISC-V processor*.

- **B.Sc. IN ELECTRONIC ENGINEERING AND TELECOMMUNICATIONS**      **Sep 2018 - Jun 2022**
  Universitat Politècnica de Catalunya
  - Graduated 1st of Promotion (GPA: 9.15/10). 18 subjects with honors.
  - Thesis: *FPGA Implementation of a Field Oriented Control with Field Weakening for IPMSM motors*.