



Jacopo FERRETTI
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SUMMARY

I am an enthusiastic Ph.D. student in Power Electronics at the University of Bologna, in collaboration with the company "High Performance Engineering" in Modena, Italy. My studies focus on wide bandgap semiconductors in automotive applications, with research interests in power electronic converter simulation, PMSM motor control, and semiconductor reliability assessment. I am currently involved in several European projects where I am gaining experience in power converters and improving my communication and management skills. I was born and raised in Termoli, Italy, and now I make my home in Bologna.

EDUCATION

PH.D. IN AUTOMOTIVE ENGINEERING FOR INTELLIGENT MOBILITY

2022-[CURRENT]

ALMA MATER STUDIORUM UNIVERSITY OF BOLOGNA & HPE - HIGH PERFORMANCE ENGINEERING

- Power electronics converters simulation and WBG semiconductor reliability assessment; PCB design for power electronic converters.
- Leader of Work Package 4, owner of Use Case 2a and responsible for various sub-tasks and deliverables for the R-PODID european project; collaborator and internal coordinator of the European project TRANSFORM.

M.S IN ELECTRIC VEHICLE ENGINEERING

2020-2022

MUNER - MOTORVEHICLE UNIVERSITY OF EMILIA-ROMAGNA

- Battery and BMS; Electric motor Design; Power electronic circuits Design; Electromagnetic Compatibility; Hardware-software design of embedded systems; Machine Learning.

B.S IN COMPUTER AND AUTOMATION ENGINEERING

2017-2020

UNIVPM - UNIVERSITÀ POLITECNICA DELLE MARCHE

- Automation and Electronics fundamentals; Embedded systems and Object-Oriented Programming; Computer Networks and telecommunication.

EXPERIENCE

MATLAB STUDENT AMBASSADOR

2025.01 - Present

MATHWORKS

- Promoter of MathWorks software and social media manager; Organizer and teacher of Matlab/Simulink courses for students.

PHD GUEST - ENERGY DEPARTMENT

2024.06 - 2024.12

AAU - AALBORG UNIVERSITY

- Digital twin for power devices using AI; Reliability of power converters.

ELECTRIC DRIVE ENGINEER (UNDERGRADUATE INTERNSHIP)

2022.04 - 2024.10

HPE - HIGH PERFORMANCE ENGINEERING

- PMSM control in model based design; Development of innovative Sensorless control techniques for PMSM; Study and design of power electronics circuits for DC / DC converters.

MEMBER OF ELECTRIC VEHICLE UNIT

20218 - 2020

POLIMARCHE RACING TEAM

- BMS circuit prototyping and software engineering; Team coordination for the electronic and software section of the EV Unit.

DISSEMINATION

- [2025] J. Ferretti et al., "Thermal Modeling of SiC Power Module: A CFD-Based Approach for Junction-to-Fluid Resistance Estimate", PCIM.
- [2024] R. Torchio, F. Toso, F. Conte, J. Ferretti et al., "Multiphysics Thermal Digital Twin of a High Power Density Motor for Automotive Applications", ICEM.
- [2023] J. Ferretti et al., "SiC MOSFETs performance modeling in Simulink Simscape environment", WiPDA.

SOFTWARE

MATLAB, SIMULINK, PYTHON, PLECS, LTSPICE, C++, STM32, KEYSIGHT ADS, FUSION360, KICAD, GIT, LATEX.

☀️ FUN PROJECTS!

- ⚡ **Three_phase_inverter_LTspice** Simple simulation of a three-phase voltage source inverter developed in LTspice.
- 📡 **BMS_LTC6813_class** Class in C++ for arduino using LTC6813 ADC (Battery Monitoring for FSAE competition).
- 🏠 **SPM_demagnetization** Detect demagnetization of an electric motor during its design using Machine Learning.
- 🚗 **Active_Suspensions_W_Altair** Study of a vehicle suspension dynamic using 1D model and optimization.
- 📡 **CAN_BMS_Monitory_Example** Simulate a vehicular CAN bus communication using two Nucleo boards as nodes.