Leonardo Bove

Graduate Student in
Electronic Engineering

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EDUCATION

M.Sc. in Electronic Engineering — Pisa, Italy
University of Pisa — Sep. 2023 – Oct. 2025

- Specialization: Embedded Systems & Mechatronics
- Thesis title: *Superconducting qubit readout and control system based on FPGA and development of a pulse sequencer*
- Attended Courses:
  - RF Circuit Design
  - Microelectronic Fabrication Technologies
  - Solid State Physics
  - Digital System Design
  - Embedded Systems
  - Sensor And Microsystem Design
  - Microelectronic System Design
- Degree grade: 110/110 with Honors

B.Sc. in Electronic Engineering — Pisa, Italy
University of Pisa — Sep. 2020 – Jul. 2023

- Thesis title: *Dispersive Readout of the Transmon Qubit*
- Degree grade: 110/110 with Honors

EXPERIENCE

Master Thesis Project — Batavia, IL, USA
SQMS, Fermilab — May 2025 – Jul. 2025

- Development of *QPCB*, a custom pulse frequency up/down-conversion board.
- Development of Qubase, a qubit pulse sequencer, that relies on the open-source *QICK* board, a Xilinx FPGA based real-time RF signal generator and readout system, developed at SQMS, Fermilab.
- Application of Qubase in 2D and 3D superconducting qubit characterization and other advanced research purposes.

Chief Technology Officer — Pisa, Italy
E-Team Squadra Corse, FSAE team — Sep. 2023 – Sep. 2024

- Define and lead the work of the Electronics and AI & Software Development divisions
- Improve reliability and performance of the electric vehicle

Embedded Software Developer — Navacchio (PI), Italy
Sintonica s.r.l. — May 2023 – Sep. 2023

- Develop the driver firmware for TFT LCD displays for a custom embedded OS on Infineon PSoC ARM microcontroller
- Layout of the new release of the company's development kit PCB, based on Cypress and nRF PSoC.

PCB Designer and Embedded System Developer — Pisa, Italy
E-Team Squadra Corse, FSAE team — Sep. 2022 – Sep. 2023

- Lead the development of the embedded software of the mounted PCB boards
- Develop part of the Vehicle Control Unit software, based on the FreeRTOS real-time OS
- Develop a bootloader via CAN bus, ARM and AVR compatible
- Unit and integration testing of firmware

SKILLS

Development Tools & OS	Git, Linux, Windows
Programming Languages	C/C++, Python, Verilog, VHDL, MATLAB, Bash, Assembly
Quantum Computing Skills	Superconducting qubit characterization, Qiskit, QuTip
FPGA Design	Vivado, Quartus, Modelsim
Analog Circuit Design	SPICE, ADS
MEMS Design	COMSOL Multiphysics
PCB Design	KiCad, Altium
Microcontrollers Architectures	AVR, ARM
Microcontrollers Coding Platforms	STM32CubeIDE, Microchip Studio, PSoC Creator, Simulink Model-Based Design
Electronic Skills	Electronics lab instrumentation, VNA, tin soldering
CAD skills	3D printing, Autodesk Fusion 360

LANGUAGES

Italian	Native speaker
English	C2 level
German	B2 level
French	A2 level

PROJECTS

- **SpaceFibre PLL**: Model and ADS simulation of a SpaceFibre compatible 6.25GHz PLL, implemented using the SG25H4 0.25 μm SiGe BiCMOS technology from GlobalFoundries.
- **Handwritten Digit Recognition**: An handwritten digit recognition system based on a neural network implemented on Altera DE10-Lite board (Altera MAX10 10M50DAF484C7G FPGA)
- **Dual Axis Accelerometer**: COMSOL simulation of a dual-axis MEMS accelerometer with T-shape beams.
- **Rubik's Cube Automatic Solver**: A servo motor actuated Rubik cube solver robot, controlled by S32K144EVB. Developed using Simulink MBD

OTHER SKILLS

Driving license	B license
Music	Violin