

Marin R. Bricq, Ph.D. Student

✉ marinraymond.bricq@polimi.it

in Marin Bricq

🔗 MBricq

Employment History

- 2024  **Embedded Software Engineer Intern.** 6-month internship at Logitech (Lausanne, Switzerland) on embedded software in C running on wireless devices. Ensure multiple devices keep a tight time synchronization and to communicate information.
- 2022 – 2024  **Tutor.** Dept. of Micro-Engineering, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland.

Education

- 2025 – ...  **Ph.D., Politecnico di Milano** Department of Mechanical Engineering.
Thesis title: *An Intelligent Second Skin: Hierarchical Active Inference for Collaborative Robotic Assistance*
Supervisors: Prof. Francesco Braghin and Prof. Marta Gandolla.
- 2022 – 2025  **M.Sc. Robotics, EPFL.**
Thesis title: *Design and Control of an Elbow Joint for a Soft Exosuit for Assistance and Rehabilitation.*
- 2019 – 2022  **B.Sc. Micro-Engineering, EPFL.**

Teaching & Mentoring

Politecnico di Milano (Ph.D.)

- 2025 – 2026  **M.Sc. Thesis Co-Supervision.** Co-supervised multiple master's thesis projects, mentoring students throughout the research process.
- 2026  **Healthcare Robotics (Prof. Gandolla).** Provided theoretical lessons and hands-on laboratories to students of Humanitas University.

École Polytechnique Fédérale de Lausanne (B.Sc. & M.Sc.)

- 2024  **Electronique I & II (Prof. Koukab).** Provided hands-on lab assistance and guided students through practical exercises.
-  **Image Processing II (Prof. Unser).** Supervised weekly exercise sessions, clarifying theoretical concepts and assignment requirements.
- 2023  **Systèmes logiques (Prof. Schmid).** Mentored students and provided technical supervision throughout their semester-long project development.
-  **ICC (Prof. Boulic).** Supervised and guided students during exercise sessions (theory and application).
- 2022  **Systèmes électriques et électroniques I & II (Prof. Guiducci).** Provided hands-on lab instruction and technical support during experiments.
-  **Algèbre linéaire (Prof. Favi).** Assisted students during exercise sessions.

Research Interests

-  **Medical Robotics:** Upper limb exoskeletons and assistive devices.
-  **Soft Robotics:** Design and simulation of cable-driven actuators.
-  **AI & Control:** Active Inference and Generative AI applied to robotic control and intention detection.

R&D Projects

Current Research (PhD)

- In Progress  **Active Inference for Human-Robot Collaboration.** Developing an Active Inference agent designed to collaborate with humans on cooperative load lifting tasks, focusing on intention detection and shared control.
- 2025 – 2026  **Soft Exosuit for Rehabilitation & Assistance.** Continuing development of a silicone-based elbow actuator (initially developed during Master's Thesis at **NearLab, Polimi**). Developed the mechanical testbench and human trials to validate the device.
- 2025  **Soft Actuator Proprioception System.** Engineering a system based on commercially available sensors to reconstruct the 3D pose of soft actuators in real-time.

Previous Projects (MSc)

- 2025  **Master's Thesis: Elbow Joint for Soft Exosuit** (Nearlab, Polimi). Conducted research on a cable-driven exosuit for neuromuscular assistance. Designed the initial soft elbow actuator and developed intention detection algorithms based on EMG and elbow position. *Supervisors: Prof. Silvestro Micera (EPFL), Prof. Emilia Ambrosini (Polimi).*
- 2024  **Demultiplexer for TENS Stimulator** (TNE, EPFL). Designed and tested a PCB for a medical stimulator used for high-density TENS haptic feedback on robotic arms. Wrote the initial C++ firmware. *Supervisor: Prof. Silvestro Micera.*
- 2023  **FPGA Seizure Detector** (BNMS, EPFL). Developed a low-power FPGA-based epilepsy detector using spectral feature extraction and linear SVM classification on EEG data. Code available on GitHub. *Supervisor: Prof. Alexandre Schmid.*

Skills

- Languages  Strong reading, writing and speaking competencies for French and English. Basic competencies in Italian.
- Coding  C, C++, Rust, Python, MATLAB, VHDL, JavaScript, Swift $\LaTeX$, ...
- Softwares  SOFA, FreeCAD, KiCAD, Fusion 360, LTSpice, CATIA, Office Suite, ...
- Misc.  Academic research, teaching, $\LaTeX$ typesetting and publishing.

Miscellaneous Experience

Associations

- 2023 – 2025  **Treasurer & Co-founder**, at BioSense EPFL.
Founded the association to facilitate student biosensing projects. Previously part of the SensUs EPFL 2023 team (under Prof. Altug): developed a Python app for sensor communication and signal processing for a TBI biosensor.
- 2022 – 2024  **Section Head (Ingénieur·e·s Engagé·e·s)**, at Unipoly.
Led the section promoting ecological prospects and sustainability visibility for engineers at EPFL.

References

Available on Request