







EDOARDO PEDICILLO

PhD Candidate in Physics

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WHO AM I?

I am a passionate physicist and PhD candidate at the University of Milan, specializing in quantum computing and hardware calibration. My research focuses on developing open-source tools such as Qibocal and Qibolab, which aim to simplify quantum hardware calibration.

Beyond my academic pursuits, I have a keen interest in optimizing computing environments. I enjoy experimenting with tools like Neovim and tmux to create efficient and personalized workflows. This passion for fine-tuning systems not only enhances my productivity but also reflects my broader philosophy of continuous improvement and innovation.

EXPERIENCE

2023 – present **Associate Researcher** **Technology Innovation Institute**
Contributing to quantum hardware calibration research and software development, including tools like Qibocal and Qibolab for quantum systems.


EDUCATION


2022 – present **PhD Candidate in Physics** **University of Milan**
Working on open-source quantum computing tools, focusing on superconducting chip calibration and quantum system software.


2020 – 2022 **Master of Science in Physics** **University of Milan**
Advanced studies in theoretical and computational high energy physics. Grade 110/110 cum laude.


2017 – 2020 **Bachelor of Science in Physics** **University of Milan**
Grade 110/110

PROJECTS

 **Qibo**
an open-source full stack API for quantum simulation and quantum hardware control.

 **Qibocal**
software providing Quantum Characterization Validation and Verification protocols.

 **Qibolab**
the dedicated Qibo backend for the automatic deployment of quantum circuits on quantum hardware.

 **Boostvqe**
Boosting variational eigenstate preparation algorithms by double-bracket iteration.

PARTICIPATION IN EVENTS

July 2023 **Summer School** **University of Trento, IT**
Summer school on Mathematical foundations of Quantum Machine Learning.

November 2023 **QTML** **CERN, Geneva, CH**
Quantum Techniques in Machine Learning.

March 2024 **March meeting** **Minneapolis, MN**
2024 APS March meeting.

Talks

May 2024 **Towards an open-source hybrid quantum operating system** **Stony Brook, NY**
22nd International Workshop on Advanced Computing and Analysis Techniques in Physics Research.

June 2024 **Towards an open-source framework to perform quantum calibration and characterization**
Copenhagen, DK
Workshop on Quantum Software.

Posters		
January 2025	Quantum Technology Symposium.	Abu Dhabi, UAE
January 2024	QIP Quantum Information Process.	Taipei, TW

PUBLICATIONS

Articles

[1] Stavros Efthymiou et al. "Qibolab: an open-source hybrid quantum operating system". In: *Quantum* 8 (Feb. 2024), p. 1247. ISSN: 2521-327X. DOI: 10.22331/q-2024-02-12-1247. URL: <http://dx.doi.org/10.22331/q-2024-02-12-1247>.

[2] Andrea Pasquale et al. *Qibocal: an open-source framework for calibration of self-hosted quantum devices*. 2024. arXiv: 2410.00101 [quant-ph]. URL: <https://arxiv.org/abs/2410.00101>.

[3] Matteo Robbiati et al. *Double-bracket quantum algorithms for high-fidelity ground state preparation*. 2024. arXiv: 2408.03987 [quant-ph]. URL: <https://arxiv.org/abs/2408.03987>.

Proceedings

[1] Andrea Pasquale et al. *Beyond full statevector simulation with Qibo*. 2024. arXiv: 2408.00384 [quant-ph]. URL: <https://arxiv.org/abs/2408.00384>.

[2] Edoardo Pedicillo, Andrea Pasquale, and Stefano Carrazza. *Benchmarking machine learning models for quantum state classification*. 2023. arXiv: 2309.07679 [quant-ph]. URL: <https://arxiv.org/abs/2309.07679>.

[3] Edoardo Pedicillo et al. *An open-source framework for quantum hardware control*. 2024. arXiv: 2407.21737 [quant-ph]. URL: <https://arxiv.org/abs/2407.21737>.

[4] Li Xiaoyue et al. *Strategies for optimizing double-bracket quantum algorithms*. 2024. arXiv: 2408.07431 [quant-ph]. URL: <https://arxiv.org/abs/2408.07431>.

SKILLS

Programming Languages	Framework & Libraries	OS	Tools
Python	NumPy	Linux	git
C	TensorFlow	Microsoft	tmux
C++	Keras	MacOS	neovim
Bash	Scikit-learn		slurm
L ^A T _E X	Pandas		
HTML	SymPy		
CSS	SciPy		
	quTiP		
	Qibo		
	Qiskit		

LANGUAGES

Italian - Native
English - Fluent
German - Intermediate