



Giacomo Vittori

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📅 Date of birth: 14/04/1998 🇮🇹 Nationality: Italian

EDUCATION AND TRAINING

[01/11/2024 – Current]

PhD Student in Information and Communication Technology (ICT) - curriculum Information and Communication Engineering

Department of Information Engineering, Electronics, and Telecommunications, Sapienza University [https://phd.uniroma1.it/web/INFORMATION-AND-COMMUNICATION-TECHNOLOGY-\(ICT\)_nD3552_EN.aspx](https://phd.uniroma1.it/web/INFORMATION-AND-COMMUNICATION-TECHNOLOGY-(ICT)_nD3552_EN.aspx)

City: Rome | Country: Italy

Research interests:

- Quantum Computing (QML, Cryptography);
- Machine Learning and Deep Learning.

[09/2022 – 25/10/2024]

Master Degree in Data Science

La Sapienza University <http://datascience.i3s.uniroma1.it/it>

City: Roma | Country: Italy | Field(s) of study: Statistics, Computer Science, Machine Learning, Deep Learning. | Final grade: 110/110 cum laude

The Master degree in Data Science, taught in English and organized by Information Engineering, Computer Science and Statistics Departments, provides a robust foundation in both theoretical and practical aspects of data science, including statistical analysis, computer science, machine and deep learning algorithms, proficiency in Python and R, algorithms and data structures, data management (SQL and noSQL). Thesis project conducted on the implementation of Early Exit strategies in the context of Quantum Machine Learning to reduce the noise levels affecting quantum circuits, under the supervision of Prof. Simone Scardapane and Prof. Stefano Giagu.

[10/07/2023 – 14/07/2023]

Summer School on Quantum Machine Learning

Trento University, Mathematics Department <http://datascience.maths.unitn.it/events/qml2023/>

City: Trento | Country: Italy | Field(s) of study: Quantum Machine Learning, Programming Quantum Circuits with Qiskit

The courses, held by Giacomo De Palma, Dario Trevisan and Leonardo Banchi, provided a comprehensive overview of the mathematical foundations essential for understanding quantum information and computation theory and its applications in machine learning including quantum computing fundamentals, quantum algorithms, quantum machine learning fundamentals and practical applications.

[09/2017 – 21/07/2022]

Bachelor Degree in Physics

Università degli Studi di Perugia <https://www.fisgeo.unipg.it/fisgejo/index.php/it/didattica/corsi-di-laurea-in-fisica/laurea-triennale-f.html>

City: Perugia | Country: Italy | Field(s) of study: Physics | Final grade: 102/110 | Thesis: Definition of Quantum 'Blockchain' that exploits Temporal Correlation

Conducted thesis project on the definition of a Quantum Blockchain using Temporal Correlation with the aim to design a quantum counterpart of a classical blockchain, under the supervision of Prof. Simone Pacetti.

[09/2012 – 07/2017]

Scientific High school

Liceo Scientifico Orvieto <https://iisstorvieto.edu.it/>

City: Orvieto | Country: Italy | Final grade: 100/100 cum laude

WORK EXPERIENCE

Department of Information Engineering, Electronics, and Telecommunications, Sapienza University.

City: Rome | Country: Italy

[15/01/2025 – Current]

Research grant

Successfully won a competitive call for a research grant AR-B 31/2024.

Argument: Development of innovative classical and quantum discriminative deep learning methods using convolutional neural networks and multimodal data fusion for the analysis of micro-Doppler radar data, with the aim of handling highly noisy data.

CNIT-Consorzio nazionale interuniversitario per le telecomunicazioni

City: Rome | **Country:** Italy

Contract for Scientific Collaboration and Consultancy (Coordinated and Continuous Collaboration)

[15/03/2023 – 31/12/2023]

Successfully won a competitive call for proposals (Avviso N.5/2023) issued by CNIT.

Argument: Conducted comprehensive research on the application of machine learning and deep learning techniques to monitor Water Distribution Networks under the supervision of Prof. Ioannis Chatzigiannakis in La Sapienza University of Rome.

City: Monterubiaglio (Terni) | **Country:** Italy

Polling station president

Polling station president for electoral election:

- Umbria regional election 17-18/11/2024
- Administrative and European election 8-9-10/06/2024

CONFERENCES AND SEMINARS

[29/10/2024 – 31/10/2024]

Quantum Computing @INFN workshop Palazzo della Salute, Padova

Presented a preliminary study on a novel noise mitigation strategy for Quantum Neural Networks on NISQ devices based on early exit, traditionally used in classical deep learning to improve computational efficiency. In collaboration with Simone Scardapane, Andrea Ciardiello and Stefano Giagu.

Link: <https://agenda.infn.it/event/42801/>

[01/07/2025 – 01/07/2025]

IJCNN 2025 Workshop: Quantum Computing & Neural Networks (QCNN) Pontifical Gregorian University, Rome, Italy

Presented a study on the impact of hybridization in Classical to Quantum Knowledge Distillation, in collaboration with Simone Piperno, David Windridge, Antonello Rosato and Massimo Panella.

Link: <https://sites.google.com/view/nesya/events/QCNN>

[04/06/2025 – 06/06/2025]

WIRN 2025 - The Italian Workshop On Neural Networks Vietri Sul Mare, Salerno, Italy

Presented a study on Deep Learning based drone classification using radar Micro-Doppler images, with particular attention to data fusion techniques to combine spectrogram and scalogram information. In collaboration with Michele Scarpiniti and Aurelio Uncini.

Link: <https://www.siren-neural-net.it/wirn-2025/program-2025/>

PUBLICATIONS

[2025]

[Graph neural networks to model and optimize the operation of Water Distribution Networks: A review](#)

A review on the application of Graph Neural Networks to Water Distribution Networks, highlighting their ability to model complex dependencies and address key challenges such as leak detection, demand forecasting, and water quality monitoring.

Authors: Giacomo Vittori, Yelizaveta Falkouskaya, Daniel M. Jimenez-Gutierrez, Tiziana Cattai, Ioannis Chatzigiannakis | **Journal Name:** Journal of Industrial Information Integration | **Publisher:** Elsevier

LANGUAGE SKILLS

Mother tongue(s): Italian Other language(s): English, written and spoken fluently

SKILLS

Python | R | SQL and No-SQL | Pytorch,Tensorflow | QisKit | PennyLane | Python DSci/ML Libraries (Numpy, Pandas, Sklearn, Scipy) | LaTeX: used for documents preparation (e.g. reports and presentations). | Git

DRIVING LICENCE

Cars: B