

PERSONAL INFORMATION **Marco Origlia** **ORCID** [0000-0003-4901-4350](https://orcid.org/0000-0003-4901-4350)**Nationality** Italian

EDUCATION AND TRAINING

2022 – Present PhD Student**University** Sant'Anna School of Advanced Studies, Pisa, Italy

Research topics

- FPGA development for Multi-Dimensional Reconciliation in Quantum Key Distribution with Continuous Variables and Gaussian Modulation [1, 2, 4, 5]
- Soft Reconciliation for Continuous Variable Quantum Key Distribution with discrete PAM constellations [3, 6]

2019 – 2022 Master of Science in Telecommunications Engineering**University** University of Pisa, Pisa, Italy**Thesis** *Optical PPM receiver architectures for Deep Space Communications*

- Overview of single photon detection technologies
- Pulse Position Modulation format and detection
- Deep space optical channel simulation

2019 – 2022 2nd Level Diploma in Engineering**University** Sant'Anna School of Advanced Studies, Pisa, Italy**Thesis** *FPGA design of a multidimensional reconciliation encoder*

Aug – Sep 2022: Technical University of Denmark, Kgs. Lyngby, Denmark

- Multi-Dimensional Reconciliation for Continuous Variable Quantum Key Distribution
- FPGA development in Chisel

2016 – 2019 Bachelor of Science in Computer Engineering**University** University of Pisa, Pisa, Italy

Framework for the assessment of control algorithms for load balancing

2016 – 2019 1st Level Diploma in Engineering**University** Sant'Anna School of Advanced Studies, Pisa, Italy

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	B2	B2	C1	C1
	First Certificate in English (FCE) B2				
French	A2	A2	A2	A2	A2
	Diplôme d'études en langue française (DELFI) A2				

COMPUTER SKILLS

Digital competences

SELF-ASSESSMENT				
Information Processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Proficient user	Proficient user

[Digital competences - Self-assessment grid](#)

Computer languages

- Programming: [Fortran](#), [MATLAB](#), [Python](#), [Cython](#), [C](#)
- Typesetting: [L^AT_EX](#), [Markdown](#)
- Scripting: [Bash](#), [Python](#)
- Advanced plotting: [gnuplot](#), [pgfplots](#), [tikz](#), [matplotlib](#)
- Workflows tools: [Make](#), [git](#)

Recent projects

- Re2often: framework to simulate various information reconciliation settings in a PAM modulated Gaussian channel scenario github.com/moriglia/re2often
- fLDPC: implementation of a Sum-Product algorithm decoder moriglia.github.io/flldpc

CONFERENCE PAPERS

- [1] **M. Origlia**, N. Andriolli, L. Maggiani, P. Castoldi, M. Secondini, E. Forestieri, T. Rydberg, and T. Gehring. "Multi-dimensional reconciliation encoder with quasi-cyclic LDPC codes on FPGA". In: *2023 23rd International Conference on Transparent Optical Networks (ICTON)*. 2023.
- [2] **Marco Origlia**, Maximilien Pinaud, Luca Maggiani, Piero Castoldi, and Nicola Andriolli. "FPGA-based acceleration of QC-LDPC syndrome encoding for QKD systems". In: *2024 IEEE Opto-Electronics and Communications Conference (OECC)*. 2024.
- [3] **Marco Origlia** and Marco Secondini. "Soft Reverse Reconciliation for Discrete Modulations". In: *2025 14th International ITG Conference on Systems, Communications and Coding (SCC)*. 2025.

POSTERS

- [4] **M. Origlia**, M. Pinaud, L. Maggiani, P. Castoldi, and N. Andriolli. "An FPGA-based Syndrome Encoder accelerating QKD reconciliation". In: *Italian Conference on Optics and Photonics*. 2024.
- [5] **M. Origlia**, N. Andriolli, L. Maggiani, P. Castoldi, M. Secondini, E. Forestieri, T. Rydberg, and T. Gehring. "Encoder with quasi-cyclic LDPC codes on FPGA for Multi-Dimensional Reconciliation". In: *EuCNC and 6G Summit*. 2023.
- [6] **M. Origlia** and M. Secondini. "Reverse Reconciliation with Soft Information". In: *Riunione Annuale GTTI*. 2024.