+33 6 29 73 70 51
ugo.nzongani@lis-lab.fr

Ugo Nzongani

Education

PhD Candidate in Quantum Computing **2023 - 2026 (Ongoing)**
Aix-Marseille University, ENSTA Paris, Institut Polytechnique de Paris

Subject: Noisy-assisted quantum circuit, optimisation and fault-tolerance
Supervisors: Prof. Giuseppe Di Molfetta, Prof. Andrea Simonetto

Master of Quantum and Distributed Computer Science with honours **2021 - 2023**
Paris-Saclay University

Main courses: Quantum Computing, Quantum Information, High Performance Computing, Distributed Algorithms, Advanced Algorithmic, Optimization, Complexity Theory

Bachelor of Computer Science with honours **2018 - 2021**
Paris-Saclay University

Main courses: Functional Programming, Data Structures, Algorithmic, Machine Learning, C/Python/Java/Assembly Programming, Logic

Baccalauréat Scientifique, equivalent to High School GB A levels with honours **2018**
Fustel de Coulanges high school, Massy

Main courses: Mathematics, Physics, Biology

Work Experience

Volunteering - LOC **April 2023**
Ecole Polytechnique - International Physicists' Tournament *Palaiseau - France*

- I participated in the 15th edition of the IPT as a member of the Local Organizing Committee. This is an international tournament for physics students where so-called "Physics Fight" takes place four days of the week. A fight is a scientific debate between 3 teams around challenge they have been studying for several months.

Research Internship **5 months - 2023**
Paris-Saclay University - Laboratoire de Méthodes Formelles - QuaCS Team *Orsay - France*

- Subject: Dirac quantum walk on tetrahedra
  Supervisor: Prof. Pablo Arrighi

Math tutor **7 months - 2023**
Acadomia *Massy - France*

- Private math lessons to high school students

Research Internship **2 months - 2022**
INRIA - Laboratoire de Méthodes Formelles - QuaCS Team *Orsay - France*

- Subject: Quantum circuits for quantum walk with position-dependent coin operators
  Supervisor: Dr. Pablo Arnault

Publications

- Zylberman, J., Nzongani, U., Simonetto, A., Debbasch, F.Efficient Quantum Circuits for Non-Unitary and Unitary Diagonal Operators with Space-Time Accuracy trade-offs. ACM Transaction on Quantum Computing (2025).
- Nzongani, U., Eon, N., Márquez-Martín, I. et al. Dirac quantum walk on tetrahedra. Physical Review A 110, 042418 (2024).
- Nzongani, U., Arnault P.Adjustable-depth quantum circuit for position-dependent coin operators of discrete-time quantum walks. Quantum Information Processing 23, 193 (2024).
- Nzongani, U., Zylberman, J., Doncecchi, CE. et al. Quantum circuits for discrete-time quantum walks with position-dependent coin operator. Quantum Information Processing 22, 270 (2023).

Preprints

- Nzongani, U., Laplace Mermoud, D., Simonetto, A., Di Molfetta, G.Sampled-Based Guided Quantum Walk: Non-variational quantum algorithm for combinatorial optimization.
- Nzongani, U., Simonetto, A., Di Molfetta, G.Non-unitary enhanced transfer efficiency in quantum walk search on complex networks.

Talks

- Hybrid Quantum Search on Complex Networks: Noisy Spatial Search with Quantum Stochastic Walks, *PGMO DAYS 2024, EDF LAB, Saclay*

Skills

Programming	Python, OCaml, Java, C, C++, Julia, LaTeX, HTML, CSS, PHP
Communication	French (native), English (885/990 TOEIC)