

Jad Issa

Ph.D. candidate in the formal verification of quantum programs with errors. My main interests include formal verification, logic, proof/type systems, quantum computing. I aspire to pursue my academic career combining teaching and research.

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EDUCATION

CEA Paris-Saclay & LORIA Palaiseau & Nancy, France
Ph.D. candidate 2024 – ongoing
Formal verification of quantum programs with errors at CEA Paris-Saclay and the LORIA, Nancy. Doctoral school: IAEM, Université de Lorraine.

Université de Paris Paris, France
M2, Mathematical Logic and Foundations of CS 2023 – 2024
Model theory, computability and complexity theory, set theory, proof theory, category theory, functional programming and Coq, proofs and programs.

Université Paris-Saclay Versailles, France
M2, Applied Algebra 2023 – 2024
Sophie Germain scholarship. Computational algebra, cryptography, algebra algorithms in C, algebraic geometry, elliptical curves.

Université Paris-Saclay Orsay, France
M1, Pure Mathematics – 17.8/20 2021 – 2023
Sophie Germain scholarship. Algebra, probability theory, algorithms, logic, number theory, research project (TER) in category theory: Cartesian closed categories, monads, optics (functional programming).

American University of Beirut Beirut, Lebanon
BS, Computer Science – GPA 4.14 2019 – 2021
Software engineering, algorithms and data structures, computer architecture, programming languages, databases, and graduate courses in: GPU computing in C, complexity theory, algorithmic graph theory

Lebanese University Fanar, Lebanon
BS, Mathematics – 86.24/100 2019 – 2021
Algebra (groups, rings, modules), number theory, topology, analysis (functional, complex, differential, numerical), differential equations, measure theory.

Lebanese University Roumieh, Lebanon
Engineering – 92.52/100 2018 – 2019
Themes: mechanics, chemistry, algebra, analysis, electrostatics, C.

🏠 Ile-de-France, France
✉ first.last [at] cea [dot] fr
🌐 jad-issa.com
📞 jad-issa
📄 jad-issa-ji

SKILLS

Coq · SageMath · Idris
🔗 Haskell · C/C++ · Python
Linux · Git · Vim

🗣 English · fluent
French · proficient — DALF C1
Arabic · native
Italian · elementary

AWARDS

21-23 **Sophie Germain scholarship**
2021 **Henri Qais Naccache best junior award**
American University of Beirut

2020 **Dean's honor list**
American University of Beirut

20-21 **Alexis and Anne-Marie Habib scholarship**

MEMBERSHIPS

RASS Lebanese University
Co-founder, ex-president 2018-2019
Computer science club at the Lebanese University, Roumieh campus.

MathsJam Beirut then Paris
Organizer 2019 – ongoing
Monthly casual meetups to discuss mathematics and play mathematical games.

EXPERIENCE

Université Paris-Cité

Paris, France

Teaching assistant

2025 – 2026

Recitations and labs (TD/TP) as well as proctoring and grading exams in introductory classes in boolean algebra, circuits, error-correcting codes, cryptography, Java, data structures, and algorithms.

Université Paris-Saclay, Polytech Paris-Saclay

Orsay, France

Teaching assistant

2024 – 2025

Recitations and labs (TD/TP) in databases, as well as proctoring and grading exams in introductory classes in databases.

Qbricks

Palaiseau, France

Research intern

2024 – 2024

Formal verification for quantum error correction using the formalism of path-sums.

braquet

Beirut, Lebanon

Volunteer developer

2018 – 2019

Lint for a functional quantum programming language with linear types.

Centre Pédagogique Jédeon

Paris

Private instructor

2023 – 2024

Maths, physics, chemistry, and English.

PUBLICATIONS

An Effective Quantum Hoare Logic for Hybrid Quantum Programs with Unbounded Loops

arXiv preprint

joint work with C. Chareton, R. Péchoux

2026

Hybrid Path-Sums for Hybrid Quantum Programs

PLDI 2026, Boulder, USA

joint work with C. Chareton, M. Nguyen, N. Blanco, and S. Bardin

2026

SEMINARS

Formal Analysis and Verification in Quantum Programming Languages

Schloss Dagstuhl, Germany

03/2026

Participant and ‘Collector’ responsible for collecting abstracts and (co-)editing the seminar report.

OLAS seminar, Università di Bologna

Bologna, Italy

11/2025 Statics analysis of quantum/classical programs using hybrid path-sums.

ASQ3 seminar, Sorbonne Université

Paris, France

09/2025

Statically evaluating termination and estimating resources of quantum programs.

Ph.D. day, LORIA

Nancy, France

05/2025

Statically evaluating termination and estimating resources of quantum programs.

Mathematics Seminar, American University of Beirut

Beirut, Lebanon

2021

Type theory as new constructive foundations for mathematics, logic, and computer science

COURSES

EPIT 2025 – Summer school

Aussois, France

(Co)inductive and circular reasoning applied to programming, formal proofs and software verification

05/2025

MAQI 2025 – Summer school

Orsay, France

Mathematical Aspects of Quantum Information

06/2025

Se former pour enseigner dans le supérieur

Online

Training course for teaching in higher education

2025

CONFERENCES

Formal Methods in Quantum Computing (FMQC 2026)

Presentation — Static Analysis of Quantum/Classical Programs with Unbounded Loops using Path-sums

Lisbon, Portugal

07/2026

Logic in Quantum Computer Science (LIQCS 2026)

Presentation — Static Resource Analysis of Hybrid Programs with Unbounded Loops.

Paris, France

06/2026

Quantum Physics and Logic (QPL 2025)

Poster presentation

Varna, Bulgaria

07/2025

International Conference on Computer Aided Verification (CAV 2025)

Poster presentation at the Verification of Quantum Computing workshop

Zagreb, Croatia

07/2025

REVIEWING EXPERIENCE

PLanQC 2025

External reviewer

2025

ICFP 2026

Artifact Evaluation Committee

2026

MISCELLANEOUS WORKS

- A review of Cartesian closed categories, string diagrams, monads, and optics
- Flip distance on convex polygons and interval graphs
- Directions in the study of the double-critical graph conjecture
- Scientific blog at jad-issa.com

Paris-Saclay, 2023

AUB, 2021

AUB, 2020