Ralph Sarkis
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Publications

International Conferences:

- Gabriele Lobbia, Wojciech Różowski, Ralph Sarkis, and Fabio Zanasi. *Quantitative Monoidal Algebra: Axiomatising Distance with String Diagrams*. In: MFCS '25.
- Ralph Sarkis and Fabio Zanasi. *String Diagrams for Graded Monoidal Theories with an Application to Imprecise Probability*. In: CALCO '25.
- Matteo Mio, Ralph Sarkis, and Valeria Vignudelli. *Beyond Nonexpansive Operations in Quantitative Algebraic Reasoning*. In: LICS '22.
- Daniela Petrişan and Ralph Sarkis. *Semialgebras and Weak Distributive Laws*. In: MFPS '21.
- Matteo Mio, Ralph Sarkis, and Valeria Vignudelli. *Combining Nondeterminism, Probability and Termination: Equational and Metric Reasoning*. In: LICS '21.

Journals:

- Matteo Mio, Ralph Sarkis, and Valeria Vignudelli. *Universal Quantitative Algebra for Fuzzy Relations and Generalised Metric Spaces*. In: LMCS.

Education

Theoretical Computer Science (PhD) — ***September 2024***
ENS de Lyon — Lyon, France
Thesis title: *Lifting Algebraic Reasoning to Generalized Metric Spaces*. Available here.

Theoretical Computer Science (Master) — ***June 2021***
ENS de Lyon — Lyon, France
Funded by two 10000€ scholarships from Labex MiLyon.

Joint Honours in Math and Computer Science (BSc) — ***April 2019***
McGill University — Montreal, QC

Work Experience

Academic Positions:

- Postdoctoral research fellow at PPLV (University College London). *October 2024 – Ongoing*
  - Work on diagrammatic reasoning for probabilistic programs with Fabio Zanasi.
- Research internship at IRIF (Université Paris Cité). *February – June 2021*
  - Work on weak distributive laws supervised by Daniela Petrişan.
- Research internship at LIP (ENS de Lyon). *April – July 2020*
  - Work on algebraic presentations of monads supervised by Matteo Mio and Valeria Vignudelli.

Teaching:

- Assistant at University College London. *2025*
  - Grading reports and presentations for a directed reading course.
- Teaching assistant at ENS de Lyon. *2021 – 2024*
  - Tutorials for *Semantics and Verification* and *Proofs and Programs* (total of 100 hours).
- Teacher and organizer for a category theory student seminar. *2019 – 2023*
  - Lectures, course notes, and homework for a semester-long introduction to category theory at McGill and ENS de Lyon.
  - Supervision of two cohorts of student lecturers at ENS de Lyon.
- Teaching assistant at McGill University. *September – Decemeber 2018*
  - Office hours and grading for *Theory of Computation*.

Outreach:

- Volunteer animator at MMI. *2023 – 2024*
  - Workshops and exhibition *Dans ma cuisine* (on math and CS) for students ages 13 to 18.
- Volunteer internship supervisor for UPBS. *April 2022, 2023, and 2024*
  - Week-long initiation to research on string diagrams for students ages 16 to 17.
- Instructor and teaching assistant at DMA. *July 2015 and 2017*
  - Programming and electronics summer camp classes for students ages 8 to 17.

Invited and Contributed Talks

- *Imprecise Probability with Graded String Diagrams*, CALCO conference. *June 2025*
- *Graded String Diagrams*, OASIS seminar. *March 2025*
- *Quantitative Monoidal Algebra*, Bellairs workshop *Quantitative Reasoning*. *March 2025*
- *Lifting Algebraic Reasoning to Generalized Metric Spaces*, online CT Zulip seminar. *August 2024*
- *Quantitative Algebraic Semantics*, InfoMaths doctoral school days. *June 2024*
- *Universal Quantitative Algebra*, LIMD team seminar. *October 2023*
- *Universal Quantitative Algebra*, LoVE team seminar. *September 2023*
- *Lifting Algebraic Presentations to* **Met**, Bellairs workshop *Quantitative Logic and Reasoning*. *May 2023*
- *I show you my favorite diagrams (the 3rd is ULTRA rare!)*, McGill grad seminar. *October 2022*
- *Tape diagrams*, ACT adjoint school. *July 2022*
- *Je vous montre mes plus beaux diagrammes (le 3e va vous surprendre !)*, CGS general public talk. *May 2022*
- *Quotienting a Monad via Projective Algebras*, RAMiCS conference. *November 2021*
- *Semialgebras and Weak Distributive Laws*, MFPS conference. *September 2021*
- *Modelling Nondeterminism, Probability, and Termination*, LiCS conference. *July 2021*
- *Modelling Nondeterminism, Probability, and Termination*, CaCS workshop. *June 2021*

Academic Services

- I was a peer reviewer for several prestigious conferences and journals including FSCD 2023, FoSSaCS 2023, LiCS 2024, the journal *Logical Methods in Computer Science* (LMCS), the *Polynesian Journal of Mathematics*, ICALP 2025, MFPS 2025, and MFCS 2025.