

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](#).

Preprints:

- Ralph Sarkis and Fabio Zanasi. *Graded String Diagrams for Imprecise Probability and Causal Intervention*. Submitted to LMCS after invitation from CALCO '25 committee.

EDUCATION

Theoretical Computer Science (PhD) ENS de Lyon Thesis title: <i>Lifting Algebraic Reasoning to Generalized Metric Spaces</i> . Available here .	<i>September 2024</i> Lyon, France
Theoretical Computer Science (Master) ENS de Lyon Funded by two 10000€ scholarships from Labex MiLyon.	<i>June 2021</i> Lyon, France
Joint Honours in Math and Computer Science (BSc) McGill University	<i>April 2019</i> 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:

- Teaching assistant at University College London. *2025–2026*
 - Tutorials for *(Co)algebraic Structures in Computer Science* and *Discrete Mathematics for Computer Science* (total of 25 hours in class).
 - 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 in class).
- Teacher and organizer for a category theory student seminar at McGill and ENS de Lyon. *2019 – 2023*
 - Lectures, [course notes](#), and homework for a semester-long introduction to category theory.
 - Supervision of two cohorts of student lecturers at ENS de Lyon.
- Teaching assistant at McGill University. *September – December 2018*
 - Office hours and grading for *Theory of Computation*.

Outreach:

- Mini-course at [North Bridge House Senior Hampstead](#) *July 2025*
 - Organizing and teaching a 10 hours course (over 2 days) on ZX calculus.
- 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

- *First-Order Logic and Trees of Graphs*, [Aminfest](#). *December 2025*
- *Towards Quantitative Diagrammatic Reasoning*, [GT Scalp](#). *October 2025*
- *Tutorial: String Diagrams for CS*, [GT Scalp](#). *October 2025*
- *Towards Quantitative Diagrammatic Reasoning*, [MFCS conference](#). *August 2025*
- *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 (FSCD 2023, FoSSaCS 2023, LiCS 2024, ICALP 2025, MFPS 2025, MFCS 2025, CSL 2026, ESOP 2026, and FoSSaCS 2026) as well as the journal *Logical Methods in Computer Science* ([LMCS](#)) and the *Polynesian Journal of Mathematics*.