

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 .	September 2024 Lyon, France
Theoretical Computer Science (Master) ENS de Lyon Funded by two 10000€ scholarships from Labex MiLyon.	June 2021 Lyon, France
Joint Honours in Math and Computer Science (BSc) McGill University	April 2019 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*.