

CURRICULUM VITAE

MARIO ROMÁN

POSITIONS

Research Associate, *University of Oxford* (2024), supervisor Sam Staton.
PhD, *Tallinn University of Technology* (2023), supervisor Paweł Sobociński.
MSc, *University of Oxford* (2019), Foundations of Mathematics and Computer Science.
BSc, *University of Granada* (2018), BSc Mathematics.
BSc, *University of Granada* (2018), BSc Computer Engineering.

THESIS

0. (2023) Mario Román. “Monoidal Context Theory”. Paweł Sobociński, supervisor. PhD Thesis. Tallinn, Estonia: Tallinn University of Technology [TalTech Press], Nov. 2023. ISBN: 978-9916-80-082-9. DOI: [10.23658/taltech.54/2023](https://doi.org/10.23658/taltech.54/2023)

PUBLICATIONS

1. (2023) Elena Di Lavore and Mario Román. “Evidential Decision Theory via Partial Markov Categories”. In: *38th Annual ACM/IEEE Symposium on Logic in Computer Science, LICS 2023, Boston, MA, USA, June 26-29, 2023*. IEEE, 2023, pp. 1–14. DOI: [10.1109/LICS56636.2023.10175776](https://doi.org/10.1109/LICS56636.2023.10175776)
2. (2022) Elena Di Lavore, Giovanni de Felice, and Mario Román. “Monoidal Streams for Dataflow Programming”. In: *Proceedings of the 37th Annual ACM/IEEE Symposium on Logic in Computer Science, LICS '22*. Haifa, Israel: Association for Computing Machinery, 2022. ISBN: 9781450393515. DOI: [10.1145/3531130.3533365](https://doi.org/10.1145/3531130.3533365)
3. (2022) Mario Román. “Promonads and String Diagrams for Effectful Categories”. In: *Proceedings Fifth International Conference on Applied Category Theory, ACT 2022, Glasgow, United Kingdom, 18-22 July 2022*. Ed. by Jade Master and Martha Lewis. Vol. 380. EPTCS. 2022, pp. 344–361. DOI: [10.4204/EPTCS.380.20](https://doi.org/10.4204/EPTCS.380.20)
4. (2023) Dylan Braithwaite and Mario Román. “Collages of String Diagrams”. In: *Proceedings of the Sixth International Conference on Applied Category Theory 2023, ACT 2023, University of Maryland, 31 July - 4 August 2023*. Ed. by Sam Staton and Christina Vasilakopoulou. Vol. 397. EPTCS. 2023, pp. 39–53. DOI: [10.4204/EPTCS.397.3](https://doi.org/10.4204/EPTCS.397.3)
5. (2024) Matt Earnshaw, James Hefford, and Mario Román. “The Produoidal Algebra of Process Decomposition”. In: *32nd EACSL Annual Conference on Computer Science Logic, CSL 2024, February 19-23, 2024, Naples, Italy*. Ed. by Aniello Murano and Alexandra Silva. Vol. 288. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2024, 25:1–25:19. DOI: [10.4230/LIPICS.CSL.2024.25](https://doi.org/10.4230/LIPICS.CSL.2024.25)
6. (2021) Elena Di Lavore, Alessandro Gianola, Mario Román, Nicoletta Sabadini, and Paweł Sobociński. “A Canonical Algebra of Open Transition Systems”. In: *Formal Aspects of Component Software - 17th International Conference, FACS 2021, Virtual Event, October 28-29, 2021, Proceedings*. Ed. by Gwen Salaün and Anton Wijs. Vol. 13077. Lecture Notes in Computer Science. Springer International Publishing, 2021, pp. 63–81. ISBN: 978-3-030-90636-8. DOI: [10.1007/978-3-030-90636-8_4](https://doi.org/10.1007/978-3-030-90636-8_4)
7. (2022) Elena Di Lavore, Alessandro Gianola, Mario Román, Nicoletta Sabadini, and Paweł Sobociński. “Span(Graph): a Canonical Feedback Algebra of Open Transition Systems”. In: *Software and Systems Modeling 22.2* (2023), pp. 495–520. DOI: [10.1007/S10270-023-01092-7](https://doi.org/10.1007/S10270-023-01092-7)

8. (2023) Mario Román. “Open Diagrams via Coend Calculus”. In: *Proceedings of the 3rd Annual International Applied Category Theory Conference 2020, ACT 2020, Cambridge, USA, 6-10th July 2020*. Ed. by David I. Spivak and Jamie Vicary. Vol. 333. Electronic Proceedings in Theoretical Computer Science. Open Publishing Association, Feb. 2021, pp. 65–78. DOI: [10.4204/EPTCS.333.5](https://doi.org/10.4204/EPTCS.333.5)
9. (2024) Bryce Clarke, Derek Elkins, Jeremy Gibbons, Fosco Loregiàn, Bartosz Milewski, Emily Pillmore, and Mario Román. “Profunctor Optics, a Categorical Update”. In: *Compositionality 6* (2024), p. 1. DOI: [10.32408/COMPOSITIONALITY-6-1](https://doi.org/10.32408/COMPOSITIONALITY-6-1)
10. (2023) Mario Román. “Mikrokosmos: an educational lambda calculus interpreter”. In: *Journal of Open Source Education* 2.16 (2019), p. 29. DOI: [10.21105/jose.00029](https://doi.org/10.21105/jose.00029)
11. (2024) Matt Earnshaw and Mario Román. *Context-Free Languages of String Diagrams*. To appear at: Foundations of Software Science and Computation Structures (FOSSACS’25). 2024. DOI: [10.48550/ARXIV.2404.10653](https://doi.org/10.48550/ARXIV.2404.10653)
12. (2023) James Hefford and Mario Román. “Optics for Premonoidal Categories”. In: *Proceedings of the Sixth International Conference on Applied Category Theory 2023, ACT 2023, University of Maryland, 31 July - 4 August 2023*. Ed. by Sam Staton and Christina Vasilakopoulou. Vol. 397. EPTCS. 2023, pp. 152–171. DOI: [10.4204/EPTCS.397.10](https://doi.org/10.4204/EPTCS.397.10)
13. (2022) Guillaume Boisseau, Chad Nester, and Mario Román. “Cornering Optics”. In: *Proceedings Fifth International Conference on Applied Category Theory, ACT 2022, Glasgow, United Kingdom, 18-22 July 2022*. Ed. by Jade Master and Martha Lewis. Vol. 380. Electronic Proceedings in Theoretical Computer Science. 2022, pp. 97–110. DOI: [10.4204/eptcs.380.6](https://doi.org/10.4204/eptcs.380.6)

GRANT WRITING

ARIA Safeguarded AI, PI: Sam Staton, “Categorical Probability Towards Safe AI” (2024).
 ARIA Safeguarded AI, PI: Paweł Sobociński, “String Diagrams for Probabilistic Logic” (2024).
 ARIA Safeguarded AI, PI: Filippo Bonchi, “Monoidal Coalgebraic Metrics” (2024).
 Short Term Scientific Mission, “Type Theory for Exact Continuous Bayesian Observations” (2024).
 Short Term Scientific Mission, “Bidimensional Markov Categories” (2024).

COMMUNITY

Executive Board, Compositionality journal (2023).
 Programme Committee, Applied Category Theory (2024).
 Programme Committee, Applied Category Theory (2023).
 Programme Committee, Applied Category Theory (2022).
 Local Organizer, Applied Category Theory (Oxford, 2024).
 Local Organizer, Mathematical Foundations of Programming Semantics (Oxford, 2024).
 Local Organizer, Mathematical Foundations of Computer Science (Tallinn, 2021).
 Journal Reviewer, Logical Methods in Computer Science (LMCS).
 Journal Reviewer, Mathematical Structures in Computer Science (MSCS).
 Journal Reviewer, Compositionality journal (Compositionality).
 Reviewer, Principles of Programming Languages (POPL’25).
 Reviewer, Logic in Computer Science (LiCS20, LiCS22, LiCS23).
 Reviewer, Applied Category Theory (ACT20, ACT21, ACT22, ACT23, ACT24).
 Reviewer, Symp. Compositional Structures (SYCO6, SYCO7, SYCO8, SYCO9).
 Reviewer, Computer Science Logic (CSL23).
 Reviewer, Foundations of Software Science (FoSSaCS22).
 Reviewer, Coalgebraic Methods in Computer Science (CMCS24).
 Reviewer, Trends in Computer Science (SOFSEM2023).

Reviewer, Knowledge Representation and Reasoning (KR2023).

DISTINCTIONS

Kleene Award, “Monoidal Streams for Dataflow Programming”, LiCS’22.
 Invited Talk, “Monoidal Optics are Universal”, special session MFPS’23.
 Distinguished Paper, “Monoidal Streams for Dataflow Programming”, LiCS’22.
 Distinguished Talk, “Effectful Trace Semantics”, ACT’24.
 Distinguished Talk, “Evidential Decision Theory via Partial Markov Categories”, ACT’23.
 Distinguished Talk, “Monoidal Streams for Dataflow Programming”, ACT’22.
 Distinguished Talk, “Profunctor Optics: a Categorical Update”, ACT’20.
 Best BSc thesis, Spanish Royal Mathematical Society, “Category Theory and Lambda Calculus”, 2018.
 Undergraduate Reserch, Fellowship at the Department of Algebra, “Educational λ -calculus interpreter”, 2018.
 International Mathematical Olympiad, Honorary mention, national gold medal, 2012.

TEACHING

Teaching Assistant, Functional Programming (IT0212), Tallinn (2021).
 Teaching Assistant, Category Theory (ITI9200), Tallinn (2021).
 Teaching Assistant, Applied Category Theory Adjoint School, Glasgow (2022).

WORKSHOP & CONFERENCE TALKS

CMCS’24 Luxembourg, “Effectful Trace Semantics” (2024).
 CHESS’24 Tallinn, “Polar Shuffles” (2024).
 CSL’24 Naples, “The Produoidal Algebra of Process Decomposition” (2024).
 NWPT’23 Västerås, “Polar Interleavings” (2023).
 ACT’23 Maryland, “Collages of String Diagrams” (2023).
 MFPS’23 Bloomington, “Optics: the Algebra of Monoidal Context” (2023).
 NWPT’22 Bergen, “Evidential Decision Theory via Partial Markov Categories” (2023).
 LiCS’22 Haifa, “Monoidal Streams for Dataflow Programming” (2022).
 ACT’22 Strathclyde, “Promonads and String Diagrams for Effectful Categories” (2022).
 NWPT’21 Reykjavik, “Monoidal Streams for Dataflow Programming” (2021).
 ACT’21 Cambridge, “A Canonical Algebra of Transition Systems” (online, 2021).
 FACS’21 Grenoble, “A Canonical Algebra of Transition Systems” (online, 2021).
 ACT’20 Berkeley, “Open Diagrams via Coend Calculus” (online, 2020).
 ACT’20 Berkeley, “Profunctor Optics: a Categorical Update” (online, 2020).
 NWPT’19 Tallinn, “Profunctor Optics: a Categorical Update” (2019).
 SYCO’5 Birmingham, “Profunctor Optics: a Categorical Update” (2019).

SEMINAR TALKS

LIP Lyon, “Partial Markov Categories” (2024).
 LIS Aix-Marseille, “Partial Markov Categories” (2024).
 Topos Institute Colloquium, “Partial Markov Categories” (2024).
 Bath Mathematical Foundations, “Polar Shuffles for Message Passing” (2024).
 CS Seminar Pisa, “String Diagrams for Premonoidal Categories” (2024).
 PUDDLE Seminar Oxford, “Notes on Profunctors” (2024).
 Retreat Tallinn, “Notes on Fox’s theorem” (2023).
 PhD Defence Tallinn, “Monoidal Context Theory” (2023).
 Bob Walters Tribute Tallinn, “Timing Processes” (2023).
 Ottawa Logic Seminar, “The Produoidal Algebra of Process Decomposition” (2023).
 Bill Lawvere Tribute Tallinn, “From Theories to Categories” (2023).

TallCat Tallinn, “String Diagrams of String Diagrams” (2023).
Topos Institute Intercats, “Premonoidal Streams” (2022).
TallCat Tallinn, “Notes on A Graphical View” (2022).
Bath Mathematical Foundations, “Monoidal Streams for Dataflow Programming” (2022).
Adjoint School, “Notes on Compositional Markov Processes” (2022).
Retreat Tallinn, “Monoidal Profunctors” (2022).
TallCat Tallinn, “Picturing Multivariable Adjunctions” (2022).
MSc Dissertation Oxford, “Profunctor Optics and Traversals” (2022).