

Dario Stein

INDEPENDENT RESEARCHER IN THEORETICAL COMPUTER SCIENCE (CATEGORY THEORY, PROBABILISTIC PROGRAMMING)

Nijmegen, Gelderland, The Netherlands

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Work Experience

Radboud University

POSTDOCTORAL RESEARCHER

Postdoctoral Researcher at the Interdisciplinary Hub for Security, Privacy and Data Governance (iHUB), working with *Prof. Bart Jacobs*

The Netherlands

Dec. 2021 - Dec. 2025

Education

University of Oxford, Balliol College

DPHIL IN COMPUTER SCIENCE

- Thesis: “*Structural Foundations for Probabilistic Programming Languages*”
- Supervisor: Sam Staton
- Scholarship: EPSRC & DeepMind

United Kingdom

Oct. 2017 - Oct. 2021

University of Cambridge, St Edmund's College

MASTER OF ADVANCED STUDY (MAST) IN PURE MATHEMATICS (PART III OF THE MATHEMATICAL TRIPOS)

- Essay on “*Locally presentable and accessible categories*”
- Assessor: Peter Johnstone
- Scholarship: Deutscher Akademischer Austauschdienst (DAAD)

United Kingdom

Oct. 2016 - July 2017

University of Hamburg

POSTGRADUATE COURSES IN MATHEMATICS

- Specialization in algebraic geometry
- Supervisor: Bernd Siebert

Germany

Oct. 2014 - July 2016

University of Valladolid

EXCHANGE SEMESTER DURING BACHELOR OF SCIENCE IN MATHEMATICS

Spain

Oct. 2013 - Mar. 2014

University of Hamburg

BACHELOR OF SCIENCE (BSc) IN MATHEMATICS (MINOR IN PHYSICS)

- Dissertation “*Über verzweigte Überlagerungen von \mathbb{P}^1 und Bahnen der Hurwitz-Wirkung*” (On branched coverings of \mathbb{P}^1 and orbits of the Hurwitz action)
- Supervisor: Bernd Siebert

Germany

Oct. 2011 - July 2014

Career Development

Leadership and Innovation Training

TRAINING OFFERED FOR MPLS DIVISION AT UNIVERSITY OF OXFORD

University of Oxford

2019

Publications

JOURNAL ARTICLES

[J.3] A Categorical Treatment of Open Linear Systems

DARIO STEIN, RICHARD SAMUELSON

In the Special Issue of CALCO 2023 of the Logical Methods in Computer Science (*invited article*)

LMCS 2025

[J.2] Dilations and information flow axioms in categorical probability

TOBIAS FRITZ, TOMÁS GONDA, NICHOLAS GAUGUIN HOUGHTON-LARSEN, PAOLO PERRONE, DARIO STEIN

In the Mathematical Structures in Computer Science

MSCS 2023

[J.1] Probabilistic Programming with Exact Conditions

JACM 2023

DARIO STEIN, SAM STATON

In the Journal of ACM (*invited article*)

CONFERENCE PAPERS

[C.12] Graphical Quadratic Algebra [*Best Paper Award*]

ICTAC 2025

DARIO STEIN, FABIO ZANASI, ROBIN PIEDELEU, RICHARD SAMUELSON

22nd International Colloquium on Theoretical Aspects of Computing

[C.11] Compositional Inference for Bayesian Networks and Causality

MFPS 2025

BART JACOBS, MÁRK SZÉLES, DARIO STEIN

41st Conference on Mathematical Foundations of Programming Semantics

[C.10] Random Variables, Conditional Independence and Categories of Abstract Sample Spaces

LICS 2025

DARIO STEIN

40th Annual ACM/IEEE Symposium on Logic in Computer Science

[C.9] Combs, Causality and Contractions in Atomic Markov Categories

ACT 2024

DARIO STEIN, MÁRK SZÉLES

Electronic Proceedings in Theoretical Computer Science, Applied Category Theory

[C.8] Towards a Compositional Framework for Convex Analysis (with Applications to Probability Theory)

FoSSaCS 2024

DARIO STEIN, RICHARD SAMUELSON

27th International Conference on Foundations of Software Science and Computation Structures

[C.7] A Category for Unifying Gaussian Probability and Nondeterminism

CALCO 2023

DARIO STEIN, RICHARD SAMUELSON

Dagstuhl LIPICs Leibniz International Proceedings in Informatics

[C.6] Pearl's and Jeffrey's Update as Modes of Learning in Probabilistic Programming

MFPS 2023

BART JACOBS, DARIO STEIN

Electronic Notes in Theoretical Informatics and Computer Science

[C.5] Overdrawing urns with Signed Probability

ACT 2023

BART JACOBS, DARIO STEIN

Electronic Proceedings in Theoretical Computer Science

[C.4] Counting and Matching

CSL 2023

BART JACOBS, DARIO STEIN

Leibniz International Proceedings in Informatics

[C.3] Compositional Semantics for Probabilistic Programs with Exact Conditioning [*Distinguished Paper Award*]

LICS 2021

DARIO STEIN, SAM STATON

Proceedings of Thirty-Sixth Annual ACM/IEEE Conference on Logic in Computer Science

[C.2] Probabilistic Programming Semantics for Name Generation

POPL 2021

MARCIN SABOK, SAM STATON, DARIO STEIN, MICHAEL WOLMAN

In Proceedings of the ACM on Programming Languages

[C.1] The Beta-Bernoulli process and algebraic effects

ICALP 2018

SAM STATON, DARIO STEIN, HONGSEOK YANG, NATHANAEL L. ACKERMAN, CAMERON E. FREER, DANIEL M. ROY

In Proceedings of 45th International Colloquium on Automata, Languages and Programming

Service to the Profession

PROGRAM COMMITTEES

MFPS 2025 **Committee Member** for 41st Conference on Mathematical Foundations of Programming Semantics

ACT 2024 **Committee Member** for Applied Category Theory

ACT 2023 **Committee Member** for Applied Category Theory

LAFI 2023 **Committee Member** for Languages for Inference

ProbProg 2021 **Committee Member** for International Conference on Probabilistic Programming

JOURNAL REVIEWS

2026	Reviewer for Logical Methods in Computer Science
2025	Reviewer for Compositionality
2025	Reviewer for Proceedings of the Royal Society A
2024	Reviewer for Annals of Pure and Applied Logic
2024	Reviewer for Compositionality

EXTERNAL REVIEWS FOR CONFERENCES

FoSSaCS 2026	Reviewer for 29th International Conference on Foundations of Software Science and Computation Structures
CSL 2026	Reviewer for 34th EACSL Annual Conference on Computer Science Logic
POPL 2026	Reviewer for 53rd ACM SIGPLAN Symposium on Principles of Programming Languages
LICS 2024	Reviewer for 39th Annual Symposium on Logic in Computer Science
FoSSaCS 2024	Reviewer for 27th International Conference on Foundations of Software Science and Computation Structures
ESOP 2023	Reviewer for 32nd European Symposium on Programming
FoSSaCS 2023	Reviewer for 26th International Conference on Foundations of Software Science and Computation Structures
MFCS 2022	Reviewer for 47th International Symposium on Mathematical Foundations of Computer Science
LICS 2022	Reviewer for 37th Annual Symposium on Logic in Computer Science
LICS 2021	Reviewer for 36th Annual Symposium on Logic in Computer Science

VOLUNTEER

POPL 2020	Student Volunteer for 47th ACM SIGPLAN Symposium on Principles of Programming Languages
FLOC 2018	Student Volunteer for Federated Logic Conference

Supervising

2025	Gideon de Hoop Computing Science Bachelor Thesis at Radboud University	<i>The Netherlands</i>
2024	Bas van der Linden Mentor for the MFoCS seminar course (master level) at Radboud University	<i>The Netherlands</i>
2023	Dick Blankvoort Mentor for the MFoCS seminar course (master level) at Radboud University	<i>The Netherlands</i>
2023	Sergio Dominguez Cabrera Mentor for the MFoCS seminar course (master level) at Radboud University	<i>The Netherlands</i>
2023	Tjitske Kosters Mentor for the MFoCS seminar course (master level) at Radboud University	<i>The Netherlands</i>

Teaching

2025	Lecturer for Category Theory and Coalgebra in the Mathematical Foundations of Computer Sciences Master at Radboud University	<i>The Netherlands</i>
2024	Lecturer for Category Theory and Coalgebra in the Mathematical Foundations of Computer Sciences Master at Radboud University	<i>The Netherlands</i>
2023	Lecturer and class tutor for Category Theory and Coalgebra in the Mathematical Foundations of Computer Sciences Master at Radboud University	<i>The Netherlands</i>
2022	Class tutor for Category Theory and Coalgebra in the Mathematical Foundations of Computer Sciences Master at Radboud University	<i>The Netherlands</i>
2020	Class tutor for Categories, Proofs, & Processes (Master level) at Oxford University	<i>United Kingdom</i>
2020	Class tutor for Quantum Information (Bachelor level) at Oxford University	<i>United Kingdom</i>
2019	Class tutor for Principles of Programming Languages (Bachelor level) at Oxford University	<i>United Kingdom</i>
2019	Class tutor for Probability & Computing, (Master level) at Oxford University	<i>United Kingdom</i>
2015	Class tutor for Lineare Algebra (Bachelor level) at Hamburg University	<i>Germany</i>

Invited Talks

KEYNOTE

Jan. 2026	“A Welcome to Causal Probabilistic Programming” at the Languages for Inference workshop (LAFI)	<i>France</i>
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GUEST SPEAKER

Nov. 2025	“Categorical Approaches to Probability” at MPI-SP Bochum – invited by Gilles Barthe	<i>Germany</i>
Nov. 2025	“Categories of Relations which Compose Independently” at University of Ljubljana – invited by Alex Simpson, Andrej Bauer	<i>Slovenia</i>
Sep. 2025	“Categories of Relations which Compose Independently” at Aarhus University – invited by Lars Birkedal	<i>Denmark</i>
May 2025	“Random Variables, Independence Structures and Dagger Categories of Relations” at Topos Institute Colloquium	<i>Online</i>
Mar. 2025	“Causality for the Working Programmer” at Logic and Semantics Seminar, University of Cambridge – invited by Jeremy Yallop	<i>United Kingdom</i>
Sep. 2024	“Random Variables and Categories of Abstract Sample Spaces” at ItaCa Fest	<i>Online</i>
May 2023	“Categorical and Graphical Formalisms For Inference” at Southern Logic Seminar, University College London	<i>United Kingdom</i>
Jan. 2023	“Practice and Theory of Probabilistic Programming” at Inn’formal Probability Seminar, Universität Innsbruck – invited by Tobias Fritz	<i>Austria</i>
Aug. 2022	“Introduction to Probabilistic Programming” at SWS Seminar, Radboud University	<i>The Netherlands</i>
June 2022	“Probabilistic Programming For All” at iHub Seminar, Radboud University	<i>The Netherlands</i>
July 2021	“Markov Categories and Semantics of Exact Conditioning” at Mathematical Foundations Seminar, University of Bath	<i>United Kingdom</i>

Invitation-only workshops attended

Oct. 2025	Research Meeting - “ASPIRE Camp” (Nijmegen) organized by Ichiro Hasuo, National Institute of Informatics	<i>The Netherlands</i>
Nov. 2024	Research Meeting - “ASPIRE Camp” (Shōnan) organized by Ichiro Hasuo, National Institute of Informatics	<i>Japan</i>
Nov. 2023	Dagstuhl Research Meeting - “Coalgebra meets Automata Learning” (Schloss Dagstuhl)	<i>Germany</i>
Dec. 2022	Lorentz Workshop - “New challenges in programming language semantics” (Leiden)	<i>The Netherlands</i>
Jan. 2022	CIRM Conference - “Logic of Probabilistic Programming” (Marseille)	<i>France</i>

Awarded Grants

2018	Student Travel Grant to attend 45th International Colloquium on Automata, Languages, and Programming (ICALP 2018) , offered by ICALP and RSJ	<i>Czech Republic</i>
2018	Graduate Project Grant to attend Midlands Graduate School , offered by Balliol College	<i>United Kingdom</i>
2017	Oxford-Deep Mind Graduate Scholarship	<i>United Kingdom</i>
2017	EPSRC Doctoral Training Partnership Studentship	<i>United Kingdom</i>
2016	DAAD Studienstipendium für Graduierte aller wissenschaftlichen Fächer	<i>Germany</i>

Awards & Honors

2025	Best Paper Award , International Colloquium on Theoretical Aspects of Computing (ICTAC)
2023	Best Presentation Award , Conference on Algebra and Coalgebra in Computer Science (CALCO)
2021	Distinguished Paper Award , Annual Symposium on Logic in Computer Science (LICS)