Pedro Nora

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Academic and Professional Appointments

since 2023	Postdoctoral researcher in the Department of Software Science at Radboud Universiteit.
2020 - 2023	Postdoctoral researcher in the Theoretical Computer Science group at Friedrich-Alexander-Universität Erlangen-Nürnberg.
2019 - 2020	Assistant professor at Polytechnic Institute of Porto.
2018 - 2019	Researcher at University of Minho and INESC TEC.
2012 - 2018	Researcher at University of Aveiro.

Education

2014 - 2019	Ph.D. in Mathematics, University of Aveiro.
	Topic: "Kleisli dualities and Vietoris coalgebras" advised by Dirk Hofmann.
2010 - 2012	M.Sc. in Mathematics and Applications, University of Aveiro.
2007 - 2010	B.Sc. in Mathematics, University of Aveiro.

Publications

- Pedro Nora, Jurriaan Rot, Lutz Schröder, and Paul Wild. Relational Connectors and Heterogeneous Bisimulations. In *FoSSaCS*, Accepted, 2025.

- Sergey Goncharov, Dirk Hofmann, Pedro Nora, Lutz Schröder, and Paul Wild. Identity-Preserving Lax Extensions and Where to Find Them. In *STACS*, Accepted, 2025.

- Sergey Goncharov, Dirk Hofmann, Pedro Nora, Lutz Schröder, and Paul Wild. A point-free perspective on Lax extensions and Predicate liftings. *Math. Struct. Comput. Sci.*, 34(2):98–127, 2024.

- Sergey Goncharov, Dirk Hofmann, Pedro Nora, Lutz Schröder, and Paul Wild. Kantorovich Functors and Characteristic Logics for Behavioural Distances. In *FoSSaCS*, volume 13992 of *Lecture Notes in Computer Science*, pages 46–67. Springer, 2023.

- Jonas Forster, Sergey Goncharov, Dirk Hofmann, Pedro Nora, Lutz Schröder, and Paul Wild. Quantitative Hennessy-Milner Theorems via Notions of Density. In *CSL*, volume 252 of *LIPIcs*, pages 22:1–22:20. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023.

- Dirk Hofmann and Pedro Nora. Duality theory for enriched Priestley spaces. *Journal of Pure and Applied Algebra*, 227(3):107231, 2023.

- Dirk Hofmann and Pedro Nora. Hausdorff Coalgebras. *Applied Categorical Structures*, 28(5):773–806, April 2020.

- Dirk Hofmann, Renato Neves, and Pedro Nora. Limits in categories of Vietoris coalgebras. *Mathematical Structures in Computer Science*, 29(4):552–587, April 2019.

- Dirk Hofmann and Pedro Nora. Enriched Stone-type dualities. *Advances in Mathematics*, 330:307–360, May 2018.

- Dirk Hofmann, Renato Neves, and Pedro Nora. Generating the algebraic theory of $C(X)$: the case of partially ordered compact spaces. *Theory and Applications of Categories*, 33(12):276–295, June 2018.

- Dirk Hofmann and Pedro Nora. Dualities for modal algebras from the point of view of triples. *Algebra Universalis*, 73(3):297–320, April 2015.

- Dirk Hofmann and Pedro Nora. Some notes on Esakia spaces. *Textos de Matemática (Série B)*, 46:201–220, 2014.

Preprints

- Sergey Goncharov, Dirk Hofmann, Pedro Nora, Lutz Schröder, and Paul Wild. Relators and Notions of Simulation Revisited. 2025.

Conference Talks

- Kantorovich Functors and Characteristic Logics for Behavioural Distances. *In FoSSaCS*, 2023.

- Quantitative Henessy-Milner Theorems via Notions of Density. *In Computer Science Logic*, 2023.

- Quantitative Henessy-Milner Theorems. *In 26th International Workshop on Algebraic Development Techniques*, 2022.

- Limits in categories of Vietoris coalgebras. *In XI Portuguese Category Seminar*, 2017.

- From Stone to Gelfand with the help of Vietoris. *In 31st Summer Conference on Topology and its Applications*, 2016.

- Stone-type dualities beyond lattice structures I. *In 4th Workshop on Categorical Methods in Non-Abelian Algebra*, 2016.

- Some remarks on spectral relations. *In Final Workshop on project MONDRIAN*, 2013.

- The Vietoris monad. *In 3rd Workshop on project MONDRIAN*, 2013.

- Dualities for modal algebras. *In 21st International Workshop on Algebraic Development Techniques*, 2012.

Seminars

- Maximally permissive notions of bisimulation. *DutchCATs, Radboud Universiteit*, 2023.

- Are identity-preserving lax extensions unique? Friedrich-Alexander-Universität Erlangen-Nürnberg, 2022.

- Hennessy-Milner theorems done wrong! Friedrich-Alexander-Universität Erlangen-Nürnberg, 2022.

- The Strange Bird or: Is the pointfree way pointless? Friedrich-Alexander-Universität Erlangen-Nürnberg, 2021.

- The Strange Bird or: How I learned to stop worrying and love lollipops. Aveiro, 2021.

- Hausdorff Coalgebras. Friedrich-Alexander-Universität Erlangen-Nürnberg, 2020.

- H + V and everything else. University of Aveiro, 2018.

- How I met ultrafilters. University of Aveiro, 2017.

- Duality theory beyond dimension zero. University of Aveiro, 2017.

- Functional representations of monads in duality theory. University of Coimbra, 2015.

- Uniform ordered spaces. University of Aveiro, 2014.

- Kripke's duality and applications. University of Aveiro, 2013.

Research Projects

2022 - 2023	CoAx — *Coinduction Meets Algebra for the Axiomatization and Algorithmics of System Equivalences* — supervised by Stefan Milius and Lutz Schröder.
2020 - 2022	HighMoon — *A High Level Language for Programming and Specifying Multi-Effect Algorithms* — supervised by Sergey Goncharov and Lutz Schröder.
2018 - 2019	KLEE — *Coalgebraic Modeling and Analysis for Computational Synthetic Biology* — supervised by Luís Soares Barbsa and Renato Neves.
2012 - 2013	MONDRIAN — *Foundations for architectural design: Service certification, dynamic reconfiguration and self-adaptability* — supervised by Dirk Hofmann.

Research Groups

since 2024	iCIS — Institute for Computing and Information Sciences.
2020 - 2023	Chair of Computer Science (Theoretical Computer Science).
since 2020	CIDMA (Collaborator) — Center for Research & Development in Mathematics and Applications.
2018 - 2019	INESC TEC — Institute for Systems and Computer Engineering, Technology and Science.
2014 - 2020	CIDMA — Center for Research & Development in Mathematics and Applications

Research Visits

- Visiting researcher at York University — at invitation of Walter Tholen, October 2017.

Grants

- Project KLEE (FCT) (POCI-01-0145-FEDER-030947) research grant awarded by INESC TEC, 2018 ($\approx$ 12.000€).
- Category Theory 2014 conference grant awarded by the University of Cambridge ($\approx$ 1.000€).
- Individual Ph.D. grant awarded by the Portuguese Foundation for Science and Technology (FCT), 2013 ($\approx$ 50.000€).
- Ph.D. grant awarded by the MAP consurtium (MAPi) to enroll in their doctoral program in Computer Science, 2013. ($\approx$ 50.000€).
- Project MONDRIAN (FCT) (PTDC/EIA-CCO/108302/200) research grant awarded by CIDMA, 2012 ($\approx$ 5.000€).
- 21st WADT conference grant awarded by the University of Salamanca, 2012 ($\approx$ 1.000€).

Service

- Member of the organising committee of the main annual conference in Category Theory in 2015.
- Reviewer for the conferences SBLP 2013 and WADT'22.

Teaching

- Category theroy and coalgebras. Radboud Universiteit, 2024 and 2025.
- Discrete mathematics Polytechnic Institute of Porto, 2019/2020.
- Linear algebra. Polytechnic Institute of Porto, 2019/2020.
- Volunteer tutor for students from low-income families in Aveiro.

Internship Supervisions

- Wessel de Weijer, Radboud Universiteit, 2024.

Schools

- IBM-QuantaLab School on Quantum Computing 2018.
- 22nd European Intensive Course on Complex Analysis, its Generalizations and Applications. Aveiro, 2017.
- Spring School on Logic of Dynamical Systems. Braga, 2014.

Languages

- Native Portuguese speaker and fluent in English.

Last updated: February 28, 2025