

Fosco Loregian

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Category theory and everything about it. (last update: 20/03/2024)

Current Position

Researcher in Category Theory

Tallinna Tehnikaülikooli Küberneetika Instituut

📅 Aug 2023 | now 📍 Castrum Danorum, EE

- Research, teaching, organization of seminars.

Freelance consultant at *PlantingSpace*

📅 Jan 2022 | now 📍 remote

- Research oriented towards categorical probability theory and implementations thereof.

Past Positions

Postdoctoral fellow positions held at

Tallinna Tehnikaülikooli Küberneetika Instituut

📅 Jan 2020 | Aug 2023 📍 Castrum Danorum, EE

Centro de Matemática da Universidade de Coimbra

📅 Jul 2019 | Dec 2019 📍 Aeminium, PT

Max-Planck-Institut für Mathematik

📅 Sep 2018 | Feb 2019 📍 Bonna, D

Masarykova univerzita

📅 Mar 2017 | Apr 2018 📍 Bruna, CZ

University of Western Ontario

📅 Sep 2016 | Nov 2016 📍 Lunden, CA

Education

Ph.D. in Mathematics

Scuola Internazionale Superiore di Studi Avanzati

📅 Oct 2012 | Jun 2016 📍 Tergeste, IT

M.Sc. in Mathematics

Università degli studi di Padova

📅 Oct 2010 | Jul 2012 📍 Pàdoa, IT

B.Sc. in Mathematics

Università degli studi di Padova

📅 Jan 2008 | Jun 2010 📍 Pàdoa, IT

Publications

- [1] G. Boccali, A. Laretto, F. Loregian, and S. Luneia, *Bicategories of Automata, Automata in Bicategories*, in *Proceedings of the 6th International Conference on Applied Category Theory 2023*, Vol. 397 (Open Publishing Association, 2023), pp. 1–19
- [2] G. Boccali, A. Laretto, F. Loregian, and S. Luneia, *Completeness for Categories of Generalized Automata*, in *10th Conference on Algebra and Coalgebra in Computer Science (CALCO 2023)*, Vol. 270 (2023), pp. 1–14
- [3] B. Clarke, D. Elkins, J. Gibbons, F. Loregian, B. Milewski, E. Pillmore, and M. Román, *Profunctor Optics, A Categorical Update*, (2020)
- [4] F. Genovese, F. Loregian, and D. Palombi, *Escrows Are Optics*, (2021)
- [5] F. Loregian and T. Trimble, *Differential 2-Rigs*, *Electronic Proceedings in Theoretical Computer Science* **380**, (2023)
- [6] F. Genovese, F. Loregian, and C. Puca, *Fibrational Linguistics (Fiblang): Language Acquisition*, *Electronic Proceedings in Theoretical Computer Science* **380**, (2023)
- [7] I. Di Liberti and F. Loregian, *Accessibility and Presentability in 2-Categories*, *Journal of Pure and Applied Algebra* **227**, (2023)
- [8] F. Genovese, F. Loregian, and D. Palombi, *A Categorical Semantics for Bounded Petri Nets*, *Electronic Proceedings in Theoretical Computer Science* **372**, 59 (2022)
- [9] F. Genovese, F. Loregian, and D. Palombi, *A Categorical Semantics for Hierarchical Petri Nets*, *Electronic Proceedings in Theoretical Computer Science* **350**, 51 (2021)
- [10] F. Genovese, F. Loregian, and D. Palombi, *Nets with Mana: A Framework for Chemical Reaction Modelling*, *Graph Transformation* 185 (2021)
- [11] F. Loregian and E. de Oliveira Santos, *Coends of Higher Arity*, *Applied Categorical Structures* **30**, 173 (2022)
- [12] I. Di Liberti, F. Loregian, C. Nester, and P. Sobociński, *Functorial Semantics for Partial Theories*, *Proc. ACM Program. Lang.* **5**, (2021)
- [13] F. Loregian and S. Virili, *Triangulated Factorization Systems and t-Structures*, *Journal of Algebra* **550**, 219 (2020)
- [14] F. Loregian and E. Riehl, *Categorical Notions of Fibration*, *Expositiones Mathematicae* **38**, 496 (2020)
- [15] D. Fiorenza, F. Loregian, and G. Marchetti, *Hearts and Towers in Stable ∞ -Categories*, *Journal of Homotopy and Related Structures* **14**, 993 (2019)

- [16] F. Loregian, *A Standard Theorem on Adjunctions in Two Variables*, Preprints of the MPIM (2018)
- [17] F. Loregian, *A Fubini Rule for Infinity-Coends*, Preprints of the MPIM (2018)
- [18] I. Di Liberti and F. Loregian, *Homotopical Algebra Is Not Concrete*, Journal of Homotopy and Related Structures **13**, 673 (2018)
- [19] F. Loregian, *(Co)end Calculus* (Cambridge University Press, 2021)
- [20] D. Fiorenza and F. Loregian, *T-Structures Are Normal Torsion Theories*, Applied Categorical Structures **24**, 181 (2016)
- [21] F. Loregian, *Automata and Coalgebras in Categories of Species*, To Appear in Proceedings of CMCS2024. (2024)

Preprints

- F. Loregian, *Rosen's No-Go Theorem for Regular Categories*, [arXiv:2012.11648](#) (2021)
- D. Dentamaro and F. Loregian, *Categorical Ontology I - Existence*, (2020)
- D. Dentamaro and F. Loregian, *Functorial Erkennen*, (2020)
- I. D. Liberti and F. Loregian, *On the Unicity of Formal Category Theories*, [arXiv:1901.01594](#) (2019)
- F. Loregian, *Localization Theory for Derivators*, [arXiv:1802.08193](#) (2018)
- D. Fiorenza and F. Loregian, *Recollements in Stable ∞ -Categories*, [arXiv:1507.03913](#) (2016)

Teaching and stuff

Courses

ITI9200 - Introduction to Category Theory

A course on basic category theory; at the [course webpage](#) you find a diary of the lectures and study material.

📅 2020—now 📍 Castrum Danorum, EE

Elements of Finite Mathematics

Techniques of counting, probability, discrete and continuous random variables.

📅 1st term 2016 📍 Lunden, CA

Organization of Events

Organiser of ItaCa 2023

The annual meeting of the community of [ItaCa](#).

📅 Dec 2023 📍 Turin, IT

Organiser of ItaCa Fest

An online webinar aimed to gather the community of [ItaCa](#).

📅 2020—now 📍 online

PSSL 103 - Brno

I have been one of the organizers of 103rd Peripathetic Seminar on Sheaves and Logic.

📅 Apr 2018 📍 Bruna, CZ

Supervision of students

Ph.D. students

I cosupervise **A. Laretto** (former SIGPLAN LT mentee) together with [N. Veltri](#).

mentor for the SIGPLAN-M

Mentee: **A. Laretto**. We worked in formalization in Agda of various results in category theory.

supervisor B.Sc., M.Sc. in Mathematics, internships

- **G. Ronchi** (*Adjoint functors*)
- **G. Sorgente** (*Formal theory of promonads*)
- **T. Massacrier** (*From combinatorial species to general differential 2-rigs*)

Other activities

Appointee for the Adjoint school 2019

A webinar and online applied Category Theory reading course. The project was *Traversal optics and profunctors*. Led to the development of [arXiv:2001.07488](#).

📅 Mar 2019 | Jun 2019 📍 online

Appointee for Kan Extension Seminar I

A webinar and online Category Theory reading course. Guided by [E. Riehl](#)

📅 Jan 2014 | Jul 2014 📍 online

Sparse skills

I like the art of crafting books and drawing maps; this is not unrelated to my love for Mathematics.

I am a pretty decent *TeXnic*.

I became a relatively frequent contributor of [agda-categories](#). Agda is... well, pain.

I like languages, natural and artificial (*mi ŝatus verki vortaron al matematiko, kun terminoj el teoria kategorioj; mina ĉpin eesti keelt, aeglaselt; jeg liker Norsk, men jeg liker Maria Franz mer*); again, this is not unrelated to my love for Mathematics.

Refereeing and reviewing activity

Reviewer and referee

zbMath, AMS Math. Rev., Higher Structures, Axiomathes, RCSM, JPAA

Languages

ISO 639-3 vec



ISO 639-3 eng



ISO 639-3 fra

