Fosco Loregian

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Category theory, and everything about it.

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)

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 📍 London, CA

Organization of Events

Organiser of ItaCa 2023

The annual meeting of the community of *ItaCa*.

📅 Dec 2023 📍 Torino, 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 📍 Brno, 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 õpin 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