# Curriculum vitæ

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fosco.loregian@gmail.com fouche@yoneda.ninja fosco.loregian@taltech.ee Fosco Loregian github.com/tetrapharmakon fosco.loregian



### RESEARCH INTERESTS

Category theory and everything about it.

- Stable ∞-categories
- Homotopical algebra
- Groth(endieck) derivators
- 2-categories and formal category theory
- locally presentable and accessible categories
- type theory and functional programming.

Currently working on: coend calculus; bicategories of generalised profunctors as an axiomatisation of integral kernels; profunctor algebras in functional programming; bicategories of profunctors seen as universal semantics for 2-dimensional algebraic theories (in the large); teaching category theory to computer scientists; ontology, mereology and the Yoneda lemma; formal category theory.

# Current position 1 | Postdoctoral fellow Jan 2020 | -Tallinna Tehnikaülikooli Küberneetika Instituut | Tallinn EE PAST POSITIONS 1 | Postdoctoral fellow Jul 2019 | Dec 2019 Centro de Matemática da Universidade de Coimbra | Coimbra 2 | Postdoctoral fellow Sep 2018 | Feb 2019 Max-Planck-Institut für Mathematik | Bonn 3 | Postdoctoral fellow Mar 2017 | Apr 2018 Masarykova univerzita | Brno 4 | Postdoctoral fellow and Assistant Professor Sep 2016 | Nov 2016 University of Western Ontario | London [\*] **FDUCATION** 2008 | 2012 Oct 2012 | Jun 2016 1 | Ph.D. in Mathematics SISSA | Trieste

thesis: t-structures on stable  $\infty$ -categories : arXiv2005.14295

2 | M.Sc. in Mathematics Oct 2010 | Jul 2012 Università degli studi di Padova 🔲 thesis: Orlov reconstruction theorem 3 | B.Sc. in Mathematics Jan 2008 | Jun 2010 Università degli studi di Padova ... thesis: Monads and Beck's theorem PUBLICATIONS 1 | Triangulated factorization systems and *t*-structures w/S. Virili I 1705.08565v3 | Journal of Algebra | doi:10.1016/j.jalgebra.2019.12.021 2 | Categorical notions of fibration w/E. Riehl I 1806.06129 | Expos. Math. (2019) | doi:10.1016/j.exmath.2019.02.004 3 | Hearts and towers in stable infinity-categories w/D. Fiorenza, G. Marchetti | 1501.04658 | Journal of Homotopy and Related Structures 2019 | doi:10.1007/s40062-019-00237-0 4 | A standard theorem on adjunctions in two variables 1902.06074 | Preprints of the MPIM, 2018 (67) 5 | A Fubini rule for ∞-coends 1902.06086 | Preprints of the MPIM, 2018 (68) 6 | Homotopical Algebra is not concrete w/l. Di Liberti I 1704.00303 | Journal of Homotopy and Related Structures (2017): 1-15 | doi:10.1007/s40062-018-0197-3 7 | Sober Ontic Structural Realism and Yoneda lemma abstract at the Triennial conference of the SILFS, Bologna 8 | Coend calculus based on 1501.02503v4 | book to appear for Cambridge University Press (2020?) 9 | t-structures are normal torsion theories w/D. Fiorenza | 1408.7003 | Applied Categorical Structures 24.2 (2016): 181-208 | doi:10.1007/s10485-015-9393-z PREPRINTS 1 | Categorical Ontology I w/D. Dentamaro | http://philsci-archive.pitt.edu/17136/ 2 | Profunctor optics, a categorical update w/B. Clarke, et al. | 2001.07488 3 | On the unicity of formal category theories w/I. Di Liberti | 1901.01594v1 4 | Accessibility and presentability in 2-categories w/I. Di Liberti I 1804.08710v4 5 | Localization theory for derivators 1802.08193v1 6 | Recollements in stable ∞-categories w/D. Fiorenza I 1507.03913v2

TALKS

1	The art of $\int$ Invited speaker   ItaCa - Italian Category theorists conference	Dec 2019
2	Axiomatic cohesion of toposes Invited speaker   Università "La Sapienza" - Rome	Dec 2019
3	The formal category theory of derivators Invited speaker   Workshop on Derivators - Regensburg	Apr 2019
4	On the unicity of the formal theory of categories Talk on 1901.01594   ULB - Bruxelles	Dec 2018
5	Accessibility and Presentability in 2-categories Talk on 1804.08710   Università degli studi di Torino	Nov 2018
6	Homotopical algebra is not concrete Contributed talk   British Topology Meeting   Leicester	Sep 2017
7	The formal category theory of derivators Invited speaker   Some trends in Algebra   Prague	Sep 2017
8	Sober Ontic Structural Realism Invited speaker   SILFS   Bologna	Jun 2017
9	Model categories Invited speaker   A categorical day in Turin   Torino	May 2017
10	<i>t</i> -derivators Invited speaker   <i>Young researchers in homotopy theory</i> , Bonn	Feb 2017
11	Coend calculus Lectures on 1501.02503   Leeds	May 2016

### TEACHING & ORGANIZATIONAL ACTIVITIES

#### 1 | TII9200 - Introduction to Category Theory

Jan 2020 | Jun 2020

Introduction to Category Theory and its Applications (Sissejuhatus kategooriateooriasse ja selle rakendustesse). Part of the MSc in Software Engineering at TalTech. Here you find the course webpage on tallcats.io.

### 2 | appointee for Adjoint school 2019

Mar 2019 | Jun 2019

A webinar and online applied Category Theory reading course. The project name is *Traversal optics and profunctors*. Led to the development of arXiv:2001.07488.

### 3 | **2**-categories

Padova - IT

A short course on 2-dimensional category theory. Tentative program: monoidal and enriched categories, the calculus of coends and Kan extensions, 2-categories, the bicategory of profunctors, the 2-category of derivators, 2-dimensional limits, the formal theory of monads, formal category theory.

#### 4 | I PSSL 103 - Brno

MU Brno - CZ

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

### 5 | Formal category theory

MU Brno - CZ

A series of lectures having the scope to breach in Riehl-Verity's theory of  $\infty$ -cosmoi.

### 6 | Elements of Finite Mathematics

UWO London - CA

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

#### 7 | F Homotopical Algebra

MU Brno - CZ

A bottom-up introduction to the language of Homotopical Algebra

## 8 | 🛍 appointee for Kan Extension Seminar I

Jan 2014 | Jul 2014

student: Giovanni Ronchi

A webinar and online Category Theory reading course.

9 | supervisor and coadvisor B.Sc. in Mathematics

Adjoint Functors | amslaurea.unibo.it

# OTHER ACTIVITIES

#### 1 | 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 maintain this CV as a github repo here). I know bits of Haskell, Python, and Wolfram. I like artificial languages (mi satus verki vortaron al matematiko, kun terminoj el teoria kategorioj); again, this is not unrelated to my love for Mathematics.

#### 2 | Reviewer for

zbMath, AMS Math. Rev.

Foso Lorgia