

Curriculum vitæ

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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.

CURRENT POSITION

- 1 | **Postdoctoral fellow**
Tallinna Tehnikaülikooli Küberneetika Instituut | Tallinn EE

Jan 2020 | —

PAST POSITIONS

- 1 | **Postdoctoral fellow**
Centro de Matemática da Universidade de Coimbra | Coimbra PT
- 2 | **Postdoctoral fellow**
Max-Planck-Institut für Mathematik | Bonn D
- 3 | **Postdoctoral fellow**
Masarykova univerzita | Brno CZ
- 4 | **Postdoctoral fellow and Assistant Professor**
University of Western Ontario | London CA

Jul 2019 | Dec 2019

Sep 2018 | Feb 2019

Mar 2017 | Apr 2018

Sep 2016 | Nov 2016

EDUCATION

2008 | 2012

- 1 | **Ph.D. in Mathematics**
SISSA | Trieste
thesis: *t-structures on stable ∞ -categories*
- 2 | **M.Sc. in Mathematics**
Università degli studi di Padova
thesis: *Orlov reconstruction theorem*
- 3 | **B.Sc. in Mathematics**
Università degli studi di Padova
thesis: *Monads and Beck's theorem*

Oct 2012 | Jun 2016

Oct 2010 | Jul 2012

Jan 2008 | Jun 2010

PUBLICATIONS

- 1 | **Triangulated factorization systems and t -structures** w/S. Virili |
1705.08565v3 | *Journal of Algebra* | doi:10.1016/j.jalgebra.2019.12.021
- 2 | **Categorical notions of fibration** w/E. Riehl |
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/I. Di Liberti |
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 | **Profunctor optics, a categorical update** w/B. Clarke, et al. |
2001.07488
- 2 | **On the unicity of formal category theories** w/I. Di Liberti |
1901.01594v1 | Submitted to TAC, January 2019
- 3 | **Accessibility and presentability in 2-categories** w/I. Di Liberti |
1804.08710v4 | Submitted to JPAA, January 2019
- 4 | **Localization theory for derivators**
1802.08193v1 | Submitted to TAC, March 2018
- 5 | **Recollements in stable ∞ -categories** w/D. Fiorenza |
1507.03913v2

TALKS

- 1 | **The art of \int** Dec 2019
Invited speaker | ItaCa - Italian Category theorists conference
- 2 | **Axiomatic cohesion of toposes** Dec 2019
Invited speaker | Università "La Sapienza" - Rome
- 3 | **The formal category theory of derivators** Apr 2019
Invited speaker | Workshop on Derivators - Regensburg
- 4 | **On the unicity of the formal theory of categories** Dec 2018
Talk on 1901.01594 | ULB - Bruxelles
- 5 | **Accessibility and Presentability in 2-categories** Nov 2018
Talk on 1804.08710 | Università degli studi di Torino

6	Homotopical algebra is not concrete Contributed talk <i>British Topology Meeting</i> Leicester	Sep 2017
7	The formal category theory of derivators Invited speaker <i>Some trends in Algebra</i> Prague	Sep 2017
8	Sober Ontic Structural Realism Invited speaker <i>SILFS</i> Bologna	Jun 2017
9	Model categories Invited speaker <i>A categorical day in Turin</i> 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 |  **ITI9200 - 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 syllabus](#), and the [course webpage](#) on tallcats.io. The course is an introduction to the basic concepts of Category Theory (categories, functors, natural transformations, universal properties, limits, colimits, monoidal categories, string diagrams...) and some applications in Computer Science.
- 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 |  **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 ∞ -cosmoi.
- 6 |  **Elements of Finite Mathematics** UWO London - CA
Techniques of counting, probability, discrete and continuous random variables.
- 7 |  **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
A webinar and online Category Theory reading course.
- 9 |  **supervisor and coadvisor B.Sc. in Mathematics** student: Giovanni Ronchi
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 šatus verki vortaron al matematiko, kun terminoj el teoria kategorioj); again, this is not unrelated to my love for Mathematics.

Foto Loregia