

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

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| 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 | t-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

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|---|---|--------------------------|
| 1 |  ITI9200 - Introduction to Category Theory
Introduction to Category Theory and its Applications (<i>Sissejuhatus kategooriateooriasse ja selle rakendustesse</i>). 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. | Jan 2020 Jun 2020 |
| 2 |  appointee for Adjoint school 2019
A webinar and online applied Category Theory reading course. The project name is <i>Traversal optics and profunctors</i> . Led to the development of arXiv:2001.07488 . | Mar 2019 Jun 2019 |
| 3 |  2-categories
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. | Padova - IT |
| 4 |  PSSL 103 - Brno
I have been one of the organizers of 103rd Peripathetic Seminar on Sheaves and Logic. | MU Brno - CZ |
| 5 |  Formal category theory
A series of lectures having the scope to breach in Riehl-Verity's theory of ∞ -cosmoi. | MU Brno - CZ |
| 6 |  Elements of Finite Mathematics
Techniques of counting, probability, discrete and continuous random variables. | UWO London - CA |
| 7 |  Homotopical Algebra
A bottom-up introduction to the language of Homotopical Algebra | MU Brno - CZ |
| 8 |  appointee for Kan Extension Seminar I
A webinar and online Category Theory reading course. | Jan 2014 Jul 2014 |
| 9 |  supervisor and coadvisor B.Sc. in Mathematics
<i>Adjoint Functors</i> amslaurea.unibo.it | student: Giovanni Ronchi |

OTHER ACTIVITIES

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| 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 ŝatus verki vortaron al matematiko, kun terminoj el teoria kategorioj); again, this is not unrelated to my love for Mathematics. |
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Foto Loregia