

# Curriculum vitæ

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## RESEARCH INTERESTS

Category theory and everything about it.

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

## PRESENT POSITION

1 | **Postdoctoral fellow**  
IoC | Tallinn EE

Jan 2020 | —

## PAST POSITIONS

1 | **Postdoctoral fellow**  
CMUC | Coimbra PT

Jul 2019 | Dec 2019

2 | **Postdoctoral fellow**  
Max Planck Institute for Mathematics | Bonn D

Sep 2018 | Feb 2019

3 | **Postdoctoral fellow**  
Masaryk University | Brno CZ

Mar 2017 | Apr 2018

4 | **Postdoctoral fellow and Assistant Professor**  
University of Western Ontario | London CA

Sep 2016 | Nov 2016

## EDUCATION

2008 | 2012

1 | **Ph.D. in Mathematics**  
SISSA | Trieste  
**thesis:** *t-structures on stable  $\infty$ -categories*

Oct 2012 | Jun 2016

2 | **M.Sc. in Mathematics**  
Università degli studi di Padova  
**thesis:** *Orlov reconstruction theorem*

Oct 2010 | Jul 2012

3 | **B.Sc. in Mathematics**  
Università degli studi di Padova  
**thesis:** *Monads and Beck's theorem*

Jan 2008 | Jun 2010

## PUBLICATIONS

- 1 | **Factorization systems on (stable) derivators** w/S. Virili |  
1705.08565v3 | to appear on JoA
- 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  $\infty$ -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, D. Elkins, J. Gibbons, B. Milewski, E. Pillmore and M. Román |  
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  $\infty$ -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	<b>Homotopical algebra is not concrete</b> Contributed talk   <i>British Topology Meeting</i>   Leicester	Sep 2017
7	<b>The formal category theory of derivators</b> Invited speaker   <i>Some trends in Algebra</i>   Prague	Sep 2017
8	<b>Sober Ontic Structural Realism</b> Invited speaker   <i>SILFS</i>   Bologna	Jun 2017
9	<b>Model categories</b> Invited speaker   <i>A categorical day in Turin</i>   Torino	May 2017
10	<b><i>t</i>-derivators</b> Invited speaker   <i>Young researchers in homotopy theory</i> , Bonn	Feb 2017
11	<b>Coend calculus</b> Lectures on <a href="#">1501.02503</a>   Leeds	May 2016

## TEACHING & ORGANIZATIONAL ACTIVITIES

- 1 | **appointee for Adjoint school 2019** Mar 2019 |  
A webinar and online applied Category Theory reading course. The project name is *Traversal optics and profunctors*. In functional programming, optics are ways to zoom into a specific part of a given data type and mutate it. Optics come in many flavors such as lenses and prisms and there is a well-studied categorical viewpoint, known as profunctor optics. Of all the optic types, only the traversal has resisted a derivation from first principles into a profunctor description. We aim to find such characterization.
- 2 | **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.
- 3 | **PSSL 103 - Brno** MU Brno - CZ  
I have been one of the organizers of 103rd Peripathetic Seminar on Sheaves and Logic.
- 4 | **Formal category theory** MU Brno - CZ  
A series of lectures having the scope to breach in Riehl-Verity's theory of  $\infty$ -cosmoi.
- 5 | **Elements of Finite Mathematics** UWO London - CA  
Techniques of counting, probability, discrete and continuous random variables.
- 6 | **Homotopical Algebra** MU Brno - CZ  
A bottom-up introduction to the language of Homotopical Algebra
- 7 | **appointee for Kan Extension Seminar I** Jan 2014 | Jul 2014  
A webinar and online Category Theory reading course.
- 8 | **supervisor and coadvisor B.Sc. in Mathematics** student: Giovanni Ronchi  
*Adjoint Functors* | [amslaurea.unibo.it](http://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 ŝatus 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.

Foto Loregia