

Gabriele Lobbia

Postdoctoral Researcher

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Professional Experience

- Mar 2024 – **Postdoctoral Researcher (Assegnista di Ricerca)**, *Università di Bologna (Department of Computer Science)*, Bologna, Italy, working with Fabio Zanasi on the project *Resource Awareness in Programming*.
- 2022 – 2024 **Postdoctoral Researcher**, *Masaryk University (Department of Mathematics)*, Brno, Czech Republic
- Aug-Dec 2021 **Part-Time Researcher**, *Masaryk University*, Brno, Czech Republic, working with John Bourke on skew monoidal categories, multicategories and connections with higher dimensional categories.
- 2019–2021 **Teaching Assistant**, *University of Leeds*, UK.
- Feb 2017 **Substitute Teacher**, *Liceo Falcone Borsellino*, Arese (MI), Italy

Education

- 2018–2022 **PhD in Mathematics**, *School of Mathematics*, University of Leeds, UK
Funded by an EPSRC Scholarship, Oct 2018 – Feb 2022,
Supervisors: Dr. N. Gambino and Prof. P. Martin
Thesis: Pseudomonads, Relative Monads and Strongly Finitary Notions of Multicategory
Examiners: Prof. M. Fiore and Dr. J. Faria Martins
- 2016–2018 **ALGANT Master Program Degree (M.S.)**
Università degli studi di Milano 110/110 cum laude, *Universität Regensburg* 1.0/1.0
Advisor: Prof. Dr. Denis-Charles Cisinski
Thesis Title: Kan Complexes as a Univalent Model of Type Theory
- 2013–2016 **Laurea Triennale in Matematica (B.S.)**, *Università degli studi di Milano*, 110/110

Research Interests

Category theory, higher category theory, categorical logic, universal algebra, multicategories, monoidal categories, skew structures, sketches, categorical algebra, theoretical computer science.

Publications and Preprints

- 2024* **Sketches and Classifying Logoi**, with Ivan Di Liberti
preprint, available at [arXiv:2403.09264](https://arxiv.org/abs/2403.09264).
- 2023* **A finite approach to representable multicategories and related structures**
preprint, available at [arXiv:2312.06237](https://arxiv.org/abs/2312.06237).
- 2023* **Some Remarks on the Interchange in Gray-categories**, with Nicola Di Vittorio
preprint, available at [arXiv:2310.03503](https://arxiv.org/abs/2310.03503).
- 2024 **KZ-pseudomonads and Kan Injectivity**, with Ivan Di Liberti and Lurdes Sousa
Theory and Applications of Categories (Bunge Festschrift), 40 (16), pp 430-478.
- 2023 **A skew approach to enrichment for Gray-categories**, with John Bourke
Advances in Mathematics, vol. 434:109327, preprint available at [arXiv:2212.12358](https://arxiv.org/abs/2212.12358).
- 2023 **Distributive laws for relative monads**
Applied Categorical Structures, 37 (19), preprint available at [arXiv:2007.12982](https://arxiv.org/abs/2007.12982).
- 2021 **On the formal theory of pseudomonads and pseudodistributive laws**, with Nicola Gambino
Theory and Applications of Categories, 37 (2), pp. 14-56.

Scholarships, Awards and Grants

- 2024 **Seal of Excellence** for the project proposal 3DALG (3-Dimensional Algebra) submitted under the *Horizon Europe Marie Skłodowska-Curie Actions* call HORIZON-MSCA-2023-PF-01-01.
- 2018 – 2022 **EPSRC PhD Scholarship**
- 2017 – 2018 **Erasmus Grant** to study in Regensburg, Germany

Conference Talks

- 2024 **Sketches and Classifying Logoi**, CT2024, Santiago de Compostela, contributed (plenary), June.
- 2023 **2-dimensional Aspects of the Theory of Sketches**, 4th ItaCa Workshop, Turin, contributed, December.
- A Skew Approach to Enrichment for Gray-categories**, PSSSL 107, Athens, contributed, April.
- 2022 **Kan Injectivity and KZ-monads**, SYCO 9, Como, contributed, September.
- 2021 **Finitary Definitions of Multicategory**, CT20→21, Genova, contributed, September.
- 2019 **The Formal Theory of Pseudomonads**, 1st ItaCa Workshop, Milano, contributed, December.
- The Formal Theory of Pseudomonads**, Postgraduate Conference in Category Theory and its Applications, Leicester, invited, November.

Seminar Talks

- 2023 **Some Remarks on the Interchange in Gray-categories**, Masaryk University Algebra Seminar, contributed, November.
- A skew approach to enrichment for Gray-categories**, *ItaCa Fest 2023*, online, invited, October.
- A skew approach to enrichment for Gray-categories Part 2**, Masaryk University Algebra Seminar, contributed, April.
- 2022 **KZ-monads and Kan injectivity**, Masaryk University Algebra Seminar, contributed, May.
- 2021 **A nice picture of 2-cats**, Se Mi Narri, Pavia online, invited, March.
- 2020 **Distributive laws for relative monads**, Masaryk University Algebra Seminar, Brno online, invited, December.
- Monoidal Categories vs Multicategories**, Postgraduate Logic seminar, Leeds online, contributed, November.
- Distributive laws for relative monads**, Virtual Logic Seminar, Leeds online, contributed, June.
- Everything is connected, everything is Yoneda**, Pure Postgraduate seminar, Leeds, contributed, February.
- A Formal Approach to Generalisations of Monads**, Category Theory Seminar, Cambridge, invited, January.
- 2019 **The Formal Theory of Pseudomonads**, Proofs, computations and constructions, Leeds, contributed, November.
- A nice picture of 2-cats**, Pure Postgraduate Seminar, Leeds, contributed, March.
- 2018 **Kan Complexes as a Univalent Model of Type Theory**, Postgraduate Logic seminar, Leeds, contributed, October.

Conferences, Workshops and Summer/Winter Schools

- 2024 **CT 2024**, Santiago de Compostela, 23-29 June (contributed talk).
- 2023 **4th ItaCa Workshop**, Turin, 18-19 December (contributed talk).
- CT 2023**, Louvain-la-Neuve, 2-8 July.
- PSSSL 107** (Peripatetic Seminar on Sheaves and Logic), Athens, 2-3 April (contributed talk).

- 2022 **3rd ItaCa Workshop**, Pisa, 21-22 December.
SYCO 9 (Symposium on Compositional Structures), Como, 8-9 September (contributed talk).
Bicategories, Categorification and Quantum Theory (Summer School), Leeds, 11-15 July.
TACL 2022 (Topology, Algebra and Categories in Logic), Coimbra, 20-24 June.
PSSL 106 (Peripatetic Seminar on Sheaves and Logic), Brno, 14-15 May.
ItaCa Fest 2022, online, April-November.
- 2021 **2nd ItaCa Workshop**, Genova, 20-21 December.
CT20→21, Genova, 30 August-4 September.
ItaCa Fest 2021, online, April-June.
- 2020 **ItaCa Fest 2020**, online, June-December.
- 2019 **1st ItaCa Workshop**, Milano, 19-20 December (contributed talk).
SYCO 6 (Symposium on Compositional Structures), Leicester, 16-17 December.
Postgraduate Conference in Category Theory and its Applications, Leicester, 18-19 November (invited talk).
CT 2019, Edinburgh, 7-13 July.
Higher Topos Theory and Univalent Foundations (Summer School), Leeds, 24-28 June.
PSSL 105 (Peripatetic Seminar on Sheaves and Logic), Palermo, 18-19 May.

Teaching Experience

- 2019–2021 **Teaching assistant**, Università di Bologna, for the course *Informatica Teorica*.
- 2019–2021 **Teaching assistant**, University of Leeds
- MATH1400 Modelling with Differential Equations, tutorials (≈ 10 students), Spring 2020;
 - MATH1060 Introductory Linear Algebra, tutorials (≈ 10 students), Spring 2020;
 - MATH2022 Groups and Vector Spaces, workshops (≈ 40 students) Autumn 2019, marking/drop-in sessions Autumn 2020;
 - MATH1225 Introduction to Geometry, tutorials (≈ 10 students), Autumn 2019;
 - MATH3044 Number Theory, marking, Spring 2019;
 - MATH1026 Sets, Sequences and Series, tutorials (≈ 10 students), Spring 2019, 2021.
- Feb 2017 **Substitute Teacher** for a first year and a second year Scientifico classes and a first year Linguistico class, Liceo Scientifico e Linguistico “ G. Falcone – P. Borsellino” (Arese, MI, Italy)

Other Professional Experience

- 2023 – **Reviewer** for *Higher Structures*, *Applied Categorical Structures*, *Theory and Applications of Categories* and *ACT 2024*.
- May 2022 **Organising Committee**, PSSL 106 (Peripatetic Seminar on Sheaves and Logic), Brno.
- 2020 – **Social media manager** of ItaCa, the Italian community of category theory.
- 2019 – 2021 **Co-organiser** of the Pure Postgraduate Seminar, Leeds.
- June 2019 **Organising Committee**, Higher Topos Theory and Univalent Foundations School, Leeds.

Professional Memberships

- 2018 – 2021 Student member of the Association for Symbolic Logic

Computer Skills

Languages \LaTeX , C
 Platforms Windows

Languages

Italian Native
 English Fluent