Adrian Miranda

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Academic CV – updated November 2026

Research Experience

May 2023 – Jan 2025 **Postdoctoral Researcher in Pure Mathematics**, *University of Manchester*, Manchester, UK
Research on the EPSRC-funded project *Monoidal Bicategories, Linear Logic and Operads*, led by Dr Nicola Gambino.

Education

Conferred Feb 2024 **PhD, *Topics in Low Dimensional Higher Category Theory***, *Macquarie University*, Sydney
Thesis submitted February 2023. Supervisors: Stephen Lack and Dominic Verity.

Conferred Apr 2019 **Master by Research, *Internal Categories***, *Macquarie University*, Sydney
Thesis submitted October 2018. Supervisors: Stephen Lack and Dominic Verity.

Conferred Dec 2017 **Master by Coursework, *Bicategories and Higher Categories***, *UNSW Sydney*, Sydney
Supervisor: Daniel Chan.

Completed Jun 2016 **Bachelor of Science (Mathematics)**, *UNSW Sydney*, Sydney

Published Papers

1. Hughes, C. and Miranda, A. (2026). *Colimits of internal categories*. *Bulletin of the Belgian Mathematical Society – Simon Stevin* **33**(3), 351–385. doi:10.36045/j.bbms.251105.
2. Miranda, A. (2025). *Abstract Kleisli structures on 2-categories*. *Electronic Proceedings in Theoretical Computer Science* **429**, 29–48. doi:10.4204/EPTCS.429.2.
3. Miranda, A. (2025). *Enriched Kleisli objects for pseudomonads*. *Applied Categorical Structures* **33**, article 23. doi:10.1007/s10485-025-09810-6.
4. Hughes, C. and Miranda, A. (2025). *The elementary theory of the 2-category of small categories*. *Theory and Applications of Categories* **43**(8), 196–242. Journal link.
5. Lack, S. and Miranda, A. (2024). *What is the universal property of the 2-category of monads?* *Theory and Applications of Categories* **42**(1), 2–18. Journal link.
6. Miranda, A. (2024). *A semi-strictly generated closed structure on Gray-Cat*. *Journal of Pure and Applied Algebra* **228**(11), 107740. doi:10.1016/j.jpaa.2024.107740.

Preprints

1. Miranda, A. (2024). *Tricategorical universal properties via enriched homotopy theory*. arXiv:2409.01837.
2. Miranda, A. (2024). *Eilenberg–Moore bicategories for opmonoidal pseudomonads*. arXiv:2402.11703.
3. Miranda, A. (2023). *Strictifying operational coherences and weak functor classifiers in low dimensions*. arXiv:2307.01498.

Teaching Experience

2024–2025 **Graduate Lecturer**, *University of Manchester*, Manchester, UK
Prepared and delivered an online category theory course for PhD students across the United Kingdom.

2023 **Undergraduate Supervisor**, *University of Manchester*, Manchester, UK
Supervised discussions and problem-solving in mathematics tutorials.

2019–2020 **Undergraduate Tutor**, *Macquarie University*, Sydney
Ran undergraduate mathematics tutorials.

2018–2021 **Numeracy Centre Demonstrator**, *Macquarie University*, Sydney
Provided undergraduate mathematics support across courses and levels.

Selected Invited Seminars

- Topos Institute Colloquium (January 2025): *Kleisli constructions for pseudomonads*. Recording.
- Oxford OASIS Seminar (29 November 2024): *Pseudomonads on monoidal bicategories*.
- Second Virtual Workshop on Double Categories (21 October 2024): *The pseudomonad perspective on double categories, with applications to double profunctors*.
- University of Sheffield Topology Seminar (3 October 2024): *Tricategorical universal properties via enriched homotopy theory*.
- Yorkshire and Midlands Category Theory Seminar (19 June 2023): *Weak-interchange based semi-strictification in low dimensional higher category theory*.

Selected Conference Presentations

- Category Theory 2024 (27 June 2024): *Eilenberg–Moore Bicategories for Op-monoidal Pseudomonads* (poster). Poster PDF.
- Applied Category Theory 2024, Oxford (21 June 2024): *Abstract Kleisli structures on 2-categories*. Recording.
- Australian Mathematical Society conference (8 December 2022): contributed talk.
- Categories and Companions Symposium Down Under (22 September 2022): *Semi-strictness in Three-Dimensional Category Theory*. Recording.
- Australian Kittens (2021): contributed talk, jointly awarded Best Talk.
- CT 20–21 (2021): *The Décalage Comonad and its Restrictions*. Recording.

Academic Service and Recognition

- Programme Committee member, Applied Category Theory 2025.
- Led the organising team for the inaugural Categories and Companions Symposium Down Under (2021).
- Organised the Australian Junior Category Theory Seminar (2018–2021) and the Manchester Category Theory Seminar (May–December 2023).
- Mentored PhD students on research projects, including collaborations leading to joint publications.
- Jointly awarded Best Talk, Australian Kittens (2021).

References

Available upon request.