**Curriculum Vitae** 

**Contact Information** 

Name | Manuel Luís Henriques de Araújo

E-mail <u>manuel.araujo@tecnico.ulisboa.pt</u>

**Current Position** 

I am currently an Assistant Professor (Adjunct) at the Nova School of Business and Economics,

part of Universidade Nova de Lisboa.

**Previous Positions** 

Period August 2022 – January 2023

Research Associate with the Cambridge Logical Structures Hub, in the Department of Computer

Science and Technology at the University of Cambridge.

Period September 2019 – June 2022

Postdoctoral Researcher in the "Higher Structures and Applications" research project at the

Department of Mathematics of Instituto Superior Técnico.

Period September 2018 – August 2019

Postdoc with the "Mathematics Inspired by String Theory and Quantum Field Theory" group, at the

University of Hamburg.

Period | September 2017 – August 2018

Guest at the Max Planck Institute for Mathematics, in Bonn.

Education

Period | September 2013 – August 2017

Degree Obtained Doctor of Philosophy (D.Phil) in Mathematics (University of Oxford)

Thesis Topic Coherence for 3-dualizable objects. (supervised by Christopher Douglas)

https://deposit.ora.ox.ac.uk/theses/uuid:a4b8f8de-a8e3-48c3-a742-82316a7bd8eb/file/content01

Period | July 2011 - June 2013

Degree obtained | Master's Degree (MSc) in Mathematics and Applications (IST, Lisbon)

Thesis Topic | Symplectic Embeddings. (supervised by Gustavo Granja)

Period October 2009 – July 2011

Degree obtained Degree (BSc) in Applied Mathematics and Computation (IST, Lisbon)

Period September 2007 - July 2009

Degree obtained Did not finish.

Program Integrated Master's Degree (MSc) in Electrical and Computer Engineering (IST, Lisbon)

**Publications** 

String diagrams for 4-categories and fibrations of mapping 4-groupoids. Theory and Applications of

Categories. http://tac.mta.ca/tac/volumes/41/38/41-38abs.html

Computads and string diagrams for n-sesquicategories. Cahiers de topologie et géométrie

2024 différentielle catégoriques. <a href="https://cahierstgdc.com/wp-content/uploads/2024/04/ARAUJO-LXV-2.pdf">https://cahierstgdc.com/wp-content/uploads/2024/04/ARAUJO-LXV-2.pdf</a>

2022 | Simple string diagrams and n-sesquicategories. Theory and Applications of Categories.

Coherence for adjunctions in a 3-category via string diagrams. Compositionality. Introductions in the Coherence for adjunctions in a 3-category via string diagrams. Compositionality. Introductions in a 4-category. Introduction introduction in a 4-category. Introduction in a 4-category. Introduction introduction in a 4-category. Introduction introduction in a 4-category. Introduction in a 4-category. Introduction introduction introduction in a 4-category. Introduction introduction introduction in a 4-category. Introduction introduction introduction introduction in a 4-category. Introduction introduction introduction introduction introduction introduction introduction introduction introduction introduction. Introduction in		
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November 2021 – February 2022  Simple string diagrams and n-sesquicategories. Series of 3 talks at Instituto Superior Técnico.  Coherence for adjunctions in a 3-category via string diagrams. Informal seminar of the "Higher Structures and Aplications" research group, Instituto Superior Técnico.  September – December 2020  String diagrams for 4-categories and fibrations of mapping 4-groupoids. Series of 4 talks at Instituto Superior Técnico.  November 6, 2019  Coherence for 3-dualizable objects, Mini-meeting on Higher Structures and Applications, Instituto Superior Técnico.  October 23, 2019  Topological Field Theory in dimension 3, TQFT Seminar, Instituto Superior Técnico.  Using the cobordism hypothesis to find presentations of bordism categories, Algebra and Mathematical Physics Research Seminar, University of Hamburg	March 16, 2022	String diagrams for higher categories. Algebra Seminar, University of Aberdeen.
December 17, 2020  Coherence for adjunctions in a 3-category via string diagrams. Informal seminar of the "Higher Structures and Aplications" research group, Instituto Superior Técnico.  String diagrams for 4-categories and fibrations of mapping 4-groupoids. Series of 4 talks at Instituto Superior Técnico.  November 6, 2019  Coherence for 3-dualizable objects, Mini-meeting on Higher Structures and Applications, Instituto Superior Técnico.  October 23, 2019  Topological Field Theory in dimension 3, TQFT Seminar, Instituto Superior Técnico.  Using the cobordism hypothesis to find presentations of bordism categories, Algebra and Mathematical Physics Research Seminar, University of Hamburg	March 9, 2022	String diagrams for higher categories. TQFT Seminar, Instituto Superior Técnico.
Structures and Aplications" research group, Instituto Superior Técnico.  September – December 2020  String diagrams for 4-categories and fibrations of mapping 4-groupoids. Series of 4 talks at Instituto Superior Técnico.  Coherence for 3-dualizable objects, Mini-meeting on Higher Structures and Applications, Instituto Superior Técnico.  October 23, 2019  October 23, 2018  Structures and Aplications" research group, Instituto Superior Técnico.  String diagrams for 4-categories and fibrations of mapping 4-groupoids. Series of 4 talks at Instituto Superior Técnico.  Topological Field Theory in dimension 3, TQFT Seminar, Instituto Superior Técnico.  Using the cobordism hypothesis to find presentations of bordism categories, Algebra and Mathematical Physics Research Seminar, University of Hamburg	November 2021 – February 2022	Simple string diagrams and n-sesquicategories. Series of 3 talks at Instituto Superior Técnico.
Superior Técnico.  November 6, 2019  Coherence for 3-dualizable objects, Mini-meeting on Higher Structures and Applications, Instituto Superior Técnico.  October 23, 2019  October 23, 2018  October 23, 2018  Ving the cobordism hypothesis to find presentations of bordism categories, Algebra and Mathematical Physics Research Seminar, University of Hamburg	December 17, 2020	
October 23, 2019  October 23, 2019  October 23, 2018  October 23, 2018  Superior Técnico.  Topological Field Theory in dimension 3, TQFT Seminar, Instituto Superior Técnico.  Using the cobordism hypothesis to find presentations of bordism categories, Algebra and Mathematical Physics Research Seminar, University of Hamburg	September – December 2020	
October 23, 2018  Using the cobordism hypothesis to find presentations of bordism categories, Algebra and Mathematical Physics Research Seminar, University of Hamburg	November 6, 2019	
Mathematical Physics Research Seminar, University of Hamburg	October 23, 2019	Topological Field Theory in dimension 3, TQFT Seminar, Instituto Superior Técnico.
July 10, 2015 Fusion categories and 3-dimensional topological field theories, Young Topologists' Meeting, EPFL	October 23, 2018	
	July 10, 2015	Fusion categories and 3-dimensional topological field theories, Young Topologists' Meeting, EPFL

June 20, 2013	Symplectic embeddings into CP∞, Seminário Geometria em Lisboa (IST Geometry Seminar).
Research Visits	
April 2016	I spent a month at Stanford University, visiting Christopher Douglas.
May 2015	One month stay at the Trimester program on "Homotopy theory, manifolds, and field theories", Hausdorff Institute for Mathematics, Bonn.
April 2014	One month stay at the MSRI scientific program on Algebraic Topology, Berkeley, California.
Conferences and Summer Schools	
September 2022	"Physics from the Point of View of Geometry" workshop, University of Oxford.
September 2022	2022 Clay Research Conference, University of Oxford.
September 2022	Yorkshire and Midlands Category Theory Seminar, University of Cambridge.
June 2022	Barcelona Conference on Higher Structures, University of Barcelona.
November 2019	Mini-meeting on Higher Structures and Applications, Instituto Superior Técnico, Lisbon.
August 2018	Higher algebra and mathematical physics, Max Planck Institute for Mathematics, Bonn
July 2018	Higher structures in homotopy theory. Isaac Newton Institute, Cambridge.
February 2018	Workshop on Factorisation Algebras and Homology and the Cobordism Hypothesis, Saint-Etienne de Tinée.
July 2016	Young Topologists' Meeting, Copenhagen
June 2016	Topology of manifolds conference, Lisbon
June 2016	European Talbot Workshop on Topological aspects of quantum field theories, Winterberg
July 2015	Young Topologists' Meeting, EPFL
June 2015	Early Career Stage Topologists at Imperial College, Imperial College London
January 2015	"Symmetry and Topology in Quantum Matter" workshop, Institute for Pure and Applied Mathematics, UCLA.
October 2014	Masterclass on Topological quantum field theories, quantum groups and 3-manifold invariants (University of Copenhagen).
June 2014	Young Topology Meeting UK, Imperial College London
April 2014	"Reimagining the Foundations of Algebraic Topology" conference, at MSRI.
Teaching Experience	
2024/25, 1st Semester	Course instructor for "Linear Algebra with Programming", at Nova School of Business and Economics, Universidade Nova de Lisboa.
2023/24, 2nd Semester	Course instructor for "Calculus II" at Nova School of Business and Economics, Universidade Nova de Lisboa.
2023/24, 1st Semester	Course instructor for "Calculus II" at Nova School of Business and Economics, Universidade Nova de Lisboa.
Trinity 2016 (Apr - Jun)	Tutor for the Part A course "Topology and groups". Exeter College, University of Oxford.
Trinity 2016 (Apr - Jun)	Tutor for the Part A course "Topology". Exeter College, University of Oxford.
Michaelmas 2015 (Oct - Dec)	Tutor for the Part A course "Topology". Exeter College, University of Oxford.
Hilary 2015 (Jan - March)	Tutor for the Part A course "Topology and groups". Exeter College, University of Oxford.
Michaelmas 2014 (Oct - Dec)	Tutor for the Part A course "Topology". Exeter College, University of Oxford.

Hilary 2014 (Jan - March)	Teaching Assistant for the Part C course "Homological Algebra". Mathematical Institute, University of Oxford.
Michaelmas 2013 (Oct - Dec)	Teaching Assistant for the Part C course "Lie Algebras". Mathematical Institute, University of Oxford.