

Ana Catarina Sousa

PHD IN APPLIED MATHEMATICS - LOGIC AND COMPUTATION

Teaching

Invited Assistant Lecturer

09/2024 - 07/2026

FCUP/FEUP - UNIVERSITY OF PORTO

- **Discrete Mathematics** - BSc. in Informatics and Computing Engineering
- **Theory of Computation** - BSc. in Informatics and Computing Engineering

Research

Collaborator Researcher

04/2026 - now

LIACC - ARTIFICIAL INTELLIGENCE AND COMPUTER SCIENCE LABORATORY

FCT National PhD Research Grant

01/2023 - 12/2025

CMAT - CENTER OF MATHEMATICS OF THE UNIVERSITY OF MINHO

- FCT National PhD Research Grant, under the supervision of Dr. José Carlos Espírito Santo.

PhD Research Grant

01/2022 - 12/2022

CMAT - CENTER OF MATHEMATICS OF THE UNIVERSITY OF MINHO

- PhD Research Grant UMINHO/BID/2021/127, under the supervision of Dr. José Carlos Espírito Santo.

Master Research Grant

07/2021 - 12/2021

CMAT - CENTER OF MATHEMATICS OF THE UNIVERSITY OF MINHO

- CMAT Research Grant - UIDB/00013/2020 - 02/2021 [BI2021-C], in the project "Deductive Systems for Minimal Quantum Logic", under the supervision of Dr. José Carlos Espírito Santo.

Education

Doctoral Program in Applied Mathematics

2021 - 2026

UNIVERSITIES OF AVEIRO, PORTO AND MINHO

Curricular Part Grade: 19/20

Thesis: Proof Search in Natural Deduction with Partial Proof Terms (Approved - Very Good).

- Advanced Topics in Algebra, Logic and Computation; Type Theory; Programming Paradigms; Advanced Topics in Probability and Statistics; Longitudinal Data Analysis; Algebraic Theory of Generalized Inverses.

Master's Degree in Mathematics

2019 - 2021

UNIVERSITY OF MINHO

Final Grade: 17/20

Dissertation: Deductive Systems for Minimal Quantum Logic (19/20).

- Seminar, Functional Analysis, Topology, Codes Theory, Complements of Linear Algebra, Algebraic Theory of Semigroups, Homology, Modules and Rings, Measure and Integration.
- **Extracurricular:** Logic and Foundations of Mathematics.

Bachelor's Degree in Economics

2014 - 2016 / 2023 - 2024

FEP - UNIVERSITY OF PORTO

Final Grade: 13/20

- Mathematics I and II, Statistics, Calculus and Financial Instruments, Financial Markets, Projects Evaluation, Microeconomics, Macroeconomics, Marketing, Corporate Finance, Economic History.

Bachelor's Degree in Software Engineering

2016 - 2019

UNIVERSITY OF MINHO

Final Grade: 14/20

- Courses held in the area of Mathematics: Linear Algebra, Numerical Methods, Discrete Mathematics, Operational Research, Program Calculus.
- Activities: Collaborator at Cesium - Software Engineering Students Nucleus, Hackaton HeartBits (2017).

Complementary Education

Introduction to Teaching in Higher Education

03/2026 - 06/2026

FPCEUP - UNIVERSITY OF PORTO

Final Grade: 16/20

- Workshop Practice;
- Teaching Professionalism;
- Planning and pedagogical practices: from conception to evaluation.

Pedagogical Professional Training Course (CCP)

05/2025 - 07/2025

CRIAP, PORTO

Final Grade: 5 (Excellent)

- Acquisition of the Pedagogical Skills Certificate (CCP).

English Course C1

2021

BABELIUM

- Attendance and passing the C1 level of English.

German Course A1.1

2016

BABELIUM

- Attendance and passing the A1.1 level of German.

Bachelor's Degree in Mathematics

2015 - 2016

UNIVERSITY OF MINHO

Interrupted at the end of 1st year.

- Linear Algebra, Calculus, Computational Mathematics, Discrete Mathematics, Geometry.

Publications

An Intercalation Calculus with Partial Proof Terms

07/2026

CONFERENCE ABSTRACT - WOMEN IN LOGIC, WIL 2026

Proof Search in Classical Propositional Logic with Partial Proof Terms

07/2025

CONFERENCE PAPER - INTELLIGENT 31ST WORKSHOP ON LOGIC, LANGUAGE, INFORMATION AND COMPUTATION

[DOI: 10.1007978-3-031-99536-1_18]

Partial Proof Terms in the Study of Idealized Proof Search

08/2024

CONFERENCE PAPER - INTELLIGENT COMPUTER MATHEMATICS: 17TH INTERNATIONAL CONFERENCE, CICM 2024

[DOI: 10.1007978-3-031-66997-2_16]

Partial Proof Terms in the Study of Proof Search

07/2024

CONFERENCE ABSTRACT - WOMEN IN LOGIC, WIL 2024

Minimal Quantum Logic: a brief comparison with Classical Logic

10/2021

SCIENTIFIC POSTER - OPEN DAY OF CMAT - UTAD

Presentations

An Intercalation Calculus with Partial Proof Terms

07/2026

WOMEN IN LOGIC 2026 - UNIVERSITY OF LISBON, PORTUGAL

Proof Search in Classical Propositional Logic with Partial Proof Terms

07/2025

WOLLIC 2025 - UNIVERSITY OF PORTO, PORTUGAL

Partial Proof Terms in the Study of Proof Search

09/2024

OPEN DAY OF CMAT - UNIVERSITY OF MINHO

Partial Proof Terms in the Study of Proof Search

07/2024

WOMEN IN LOGIC WORKSHOP - UNIVERSITY OF TALLINN, ESTONIA

Proof Search in Natural Deduction

02/2023

SPLOGIC- UNIVERSITY OF CAMPINAS, BRAZIL

Proof Search in Natural Deduction: towards human-centered theorem proving

12/2022

ALC MEETING 2022- UNIVERSITY OF MINHO

Minimal Quantum Logic: a brief comparison with Classical Logic

12/2021

ALC MEETING 2021- UNIVERSITY OF MINHO

Event Organization

Days in Logic 2026

01/2026

UNIVERSITY OF MINHO, PORTUGAL

Service

Symposium on Logical and Semantic Frameworks - LSFA 2026

07/2026

EXTERNAL REVIEWER

Science Communication

Troca de Cartas: Unir Gerações com Ciência

04/2025

CARTAS COM CIÊNCIA & UNINNOVATION

Participation as a PhD Student / Scientist in the exchange of letters with older students from a senior university, with the aim of promoting intergenerational dialogue through science.

Awards

Excellence Award

2015

UNIVERSITY OF MINHO

- Best application grade of Bachelor's Degree in Mathematics (19.12/20).

Events e Competitions

Oregon Programming Languages Summer School - OPLSS 2026

06/2026

UNIVERSITY OF OREGON, USA

- Was awarded with a scholarship to attend the school.

Workshop on Reasoning with Quantitative Types

06/2025

UNIVERSITY OF PORTO, PORTUGAL

Women in Logic Workshop

07/2024

TALLINN, ESTONIA

- Was awarded with a scholarship to attend and present at the workshop.

Logic Mentoring Workshop

07/2024

TALLINN, ESTONIA

School of Advanced Science on Contemporary Logic, Rationality and Information

02/2023

CAMPINAS, BRAZIL

- Was awarded with one of the 50 total funding grants for international students.

Autumn School Proof and Computation

09/2022

FISCHBACHAU, GERMANY

- Was awarded with a full-board accommodation scholarship.

Volunteering

ADDAF - Associação de Defesa dos Direitos dos Animais e Floresta

2013

COLLECTION OF MONETARY FUNDS AND FOOD

- Participation, as a volunteer, in campaigns to raise money and food for animals under the ADDAF.

Professional Experience

Farfetch

02/2021 - 05/2021

DATA ANALYST

Porto, Portugal

- Custom reporting via SQL and Looker to provide recommendations to stakeholders.
- Analysis of AB tests using statistic tools.
- Creation and support of customer analytics models to understand customer online behaviour.

Natixis - Investment Bank

09/2019 - 02/2021

IT BUSINESS ANALYST

Porto, Portugal

- Market Risk team.
- Functional tests, analysis of business needs and requirements and formalization of functional requirements.
- Continuous communication with IT and business teams in Porto, Paris and New York.

Mathematics Tutor

03/2019 - 06/2021

FREELANCER

Braga, Portugal

- Mathematics (second and third cycles), Mathematics A, MACS and preparation for National Exams.
- Higher Education: Calculus, Linear Algebra and Statistics for non-STEM courses.

Dipcode - Eurotux Group

02/2018 - 02/2019

DATA ANALYST / JUNIOR WEB DEVELOPER

Braga, Portugal

- Data Analysis and Treatment.
- Research on Deep Learning for Natural Language Processing & ML.
- Frontend and backend development of web platforms using Angular and Django.

Explicas. me

03/2015 - 05/2015

DIGITAL MARKETING INTERNSHIP

Porto, Portugal

- In the scope of the project Buzz Internship from StartUp Buzz, I was responsible for Social Media Management, enlarging the fan base about five times.