Dr Benjamin Ralph

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Current Position

Senior Lecturer in the Department of Computer Science – University of Bath
December 2022–present

Current Leadership Roles

Lead Director of Studies (Online)
August 2022–Present

Member of University Senate, Elected by Academic Assembly
August 2022–Present

President, University of Bath UCU
May 2023–Present

Previous Positions

Lecturer (Teaching), Grade 8 – University of Bath
October 2021–November 2022

Lecturer (Teaching), Grade 7 – University of Bath
January 2020–October 2021

Director of Studies, Artificial Intelligence Online MSc
March 2021–July 2022

Postdoctoral researcher, Inria Saclay - Île-de-France
February 2019–December 2019

I worked with the Parsifal team led by Dale Miller, supervised by Lutz Straßburger, supported by ANR project FISP ANR-15-CE25-0014-01 - the Fine Structure of Formal Proof Systems and their Computational Interpretations

Graduate Teaching Assistant, University of Bath
2014–2018

I provided teaching support for both the Computer Science and Mathematics departments, as detailed below.

Computer Science

2017–2018 - Analytic Mathematics for Computation
2016–2018 - Functional Programming, Artificial Intelligence
2014–2018 - Discrete Mathematics for Computation
2014–2016 - Foundations of Computation II, Advanced Programming Principles 2016 - Guest Lecture: What is a proof?

Mathematics

2016–2017 - Programming and Discrete Mathematics
2014–2016 - Algebra I

Degrees and Fellowships

PhD, Department of Computer Science, University of Bath
2014–2019
Thesis Title: Modular Normalisation of Classical Proofs
Fully funded by EPRSC Doctoral Training Grant
Supervised by Alessio Guglielmi, examined by Willem Heijltjes and Georg Moser

MMathPhil (Masters in Mathematics and Philosophy), University of Oxford
2010–2014
First Class in Honour Moderations, Parts A and B, and Part C

Fellow of the Higher Education Authority (FHEA)
Awarded June 2022 by Advance HE

Teaching

Units Taught

Where the date is in bold, I was the primary unit teacher, otherwise I was supporting unit delivery. When the unit is in bold, I designed the unit as well as teaching it.

Computer Science Online MSc

Foundations of Computation
2020: Jan–Feb, **May–Jun, Sep–Oct.** 2021: **Jan–Feb**, May–Jun

Functional Programming
2020: **Mar–Apr, Jul–Aug, Nov–Dec**. 2021: Mar–Apr, Jul–Aug

Artificial Intelligence
2021: **May–Jun, Sep-Oct**
2022: **Jan–Feb, May–Jun, Sep-Oct**
2023: **Jan–Feb, May–Jun, Sep-Oct**

Project Supervision
2021–Present

Artificial Intelligence Online MSc

Mathematics for Artificial Intelligence
2020: **Nov–Dec**
2021: **Mar–Apr, Jul–Aug**

Foundations of Artificial Intelligence
2021: **May–Jun, Sep-Oct**
2022: **Jan–Feb, May–Jun, Sep-Oct**
2023: **Jan–Feb, May–Jun, Sep-Oct**

Applications of Artificial Intelligence
2021: **Jul–Aug, Nov-Dec**

Natural Language Processing
2021: Jul–Aug

Further Artificial Intelligence
2021: **Nov-Dec**
2022: **Jan–Feb**

Artificial Intelligence as a Social and Political Practice
2022: **Mar–Apr, Jul–Aug**

Research Project Preparation
2022: **Jul–Aug**

Project Supervision
2022–Present

Digital and Technology Solutions Specialist Degree Apprenticeship MSc

2020, **2021** - *Foundations of Computation*
2021 - ***Functional Programming***
2021, 2022, 2023 - *Artificial Intelligence*
2020, 2021, 2022 - *Project Supervision*

Computer Science BSc/MComp

2020-21 – ***CM20252 Artificial Intelligence (Year 2)***
2021-22, 22-23, 23-24 – ***CM10310 Artificial Intelligence (Year 1)***
2021-22, 22-23, 23-24 – ***CM12001 Artificial Intelligence 1 (Year 1)***
2020-21 - *Project Second Marking*

Computer Science MSc

2020-21,21-22,22-23 - ***Artificial Intelligence***

UKRI CDT in Accountable, Responsible and Transparent AI
2020-21,21-22,22-23,23-24 - *Mathematics for Artificial Intelligence*

Research

Publications

Herbrand proofs and expansion proofs as decomposed proofs
Journal of Logic and Computation 2020
https://doi.org/10.1093/logcom/exaa052

Towards a Combinatorial Proof Theory
with Lutz Straßburger
Tableaux 2019, London
people.bath.ac.uk/bdr25/files/CPT.pdf

A Natural Proof System for Herbrand's Theorem
awarded the Rosser Prize for Best Student Paper
LFCS 2018, Florida
people.bath.ac.uk/bdr25/files/prfsysht.pdf

Removing Cycles from Proofs
with Andrea Aler Tubella and Alessio Guglielmi
CSL 2017, Stockholm
people.bath.ac.uk/bdr25/files/RCP.pdf

Selected Talks and Presentations

Towards a Combinatorial Proof Theory
LIPN Seminar, Université Paris 13, May 2019 & Micro-SD, University of Bath, June 2019

Decomposing First Order Proofs using Deep Inference
PCC 2016, Munich

Decomposing First Order Proofs
ALCOP 2016, Vienna

A Natural Cut Elimination Procedure for First Order Logic
ENPS 2015, Bath

Natural and Confluent Cut Elimination in Classical Logic
PCC 2015, Oslo

Grants

Support from:

EPSRC Project EP/K018868/1
Efficient and Natural Proof Systems

ANR project FISP ANR-15-CE25-0014-01
The Fine Structure of Formal Proof Systems and their Computational Interpretations

Other

2019 - **Programme Committee** - Structures and Deduction
2017–2019 - **Peer Reviewer** - Tableaux, CSL, Logique et Analyse
2016–2017 - **Organiser** - Mathematical Foundations Seminar, University of Bath
2016 - **Volunteer** - LICS
2015 - **Attendee** - Midlands Graduate School in the Foundations of Computer Science

Other Activities

Private Tutoring

2019–2020 - **Tutor, Harrison Allen**

I tutored two students in preparation for their GCSE Computer Science exams, and provided specialist Computer Science tutoring for a student with SEN (Special Educational Needs).

Proofreading

2019–2020 - **Proof-reader, Oxbridge Proofreading**

University of Bath UCU

2020–2023 - **Academic (Teaching) Rep**
2021-2023 - **Recruitment Officer**
2023-Present - **President**

Bounds Green Food Bank

2020–2021 - **Volunteer and Data Officer**