

Ioannis Markakis

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CURRENT POSITION

- **Research Assistant in Computer Science** Oct 2024 - Present
University of Cambridge Cambridge, UK
 - Collaborative research on naturality phenomena for higher categories
 - Two preprints under review

EDUCATION

- **Ph.D. in Computer Science** Oct 2020 - Sep 2024
University of Cambridge Cambridge, UK
 - Title: An inductive approach to ω -categories and their computads
 - Supervisor: Prof. Jamie Vicary
 - Defended on February 2025
- **M.A. in Mathematics** Sep 2017 - May 2020
University of Maryland College Park, MD, USA
 - Title: Cardinal powers and Silver's theorem
 - Supervisor: Prof. Michael Chris Laskowski
 - GPA: 4.0/4.0
- **Ptychion in Mathematics** Sep 2013 - May 2017
University of Crete Heraklion, Crete, Greece
 - GPA: 9.34/10 (top of my year)
 - Did an Erasmus exchange at University of Barcelona
 - Completed 6 master's courses

PUBLICATIONS

- **Peer-reviewed**
 - [1] T. Benjamin, I. Markakis and C. Sarti. *CaTT contexts are finite computads*. In: *Electronic Notes in Theoretical Informatics and Computer Science*. Vol. 4 - Proceedings of MFPS XL. 2024, 5.
 - [2] C. J. Dean, E. Finster, I. Markakis, D. Reutter and J. Vicary. *Computads for weak ω -categories as an inductive type*. In: *Advances in Mathematics* 450 (2024).
 - [3] I. Markakis. *Computads for generalised signatures*. In: *Journal of Pure and Applied Algebra* 228.9 (2024).
- **Preprints**
 - [4] T. Benjamin, I. Markakis, W. Offord, C. Sarti and J. Vicary. *Higher Eckmann-Hilton Arguments in Type Theory*. 2025.
 - [5] T. Benjamin, I. Markakis, W. Offord, C. Sarti and J. Vicary. *Naturality for higher-dimensional path types*. 2025.
 - [6] T. Benjamin and I. Markakis. *Hom ω -Categories of a Computad Are Free*. 2024.
 - [7] T. Benjamin and I. Markakis. *Invertible cells in ω -categories*. 2024.
 - [8] D. I. Dais and I. Markakis. *Computing minimal generating systems for some special toric ideals*. 2017.
- **Formalisations**
 - [9] I. Markakis. *Agda formalisation of computads for ω -categories*. 2023.

PRESENTATIONS

- **International Category Theory Conference 2024** *Apr 2024*
Opposite and hom weak ω -categories Santiago de Compostela, Spain
- **Masaryk University Algebra Seminar** *Apr 2024*
A novel approach to ω -categories Brno, Czechia
- **Peripatetic Seminar on Sheaves and Logic 107** *Apr 2023*
Computads for generalised signatures Athens, Greece
- **Yorkshire and Midlands Category Theory Seminar 30** *Mar 2023*
Computads for generalised signatures Birmingham, UK
- **Topology, Algebra and Categories in Logic 2022** *Jun 2022*
Computads for weak ω -categories Coimbra, Portugal

TEACHING EXPERIENCE

- **College Supervisor** *Oct. 2020 - Present*
University of Cambridge Cambridge, UK
 - Supervised groups of 2-3 undergraduate computer science students in
 - * Discrete Mathematics (Michaelmas 2020, Michaelmas 2021, Michaelmas 2024)
 - * Logic and Proof (Lent 2022, Lent 2023, Lent 2024, Lent 2025)
 - * Computation Theory (Lent 2023)
 - Worked with 27 groups for 144 hours
- **Graduate Student Instructor** *Sep 2017 - May 2020*
University of Maryland College Park, MD, USA
 - Instructor for College Algebra and Trigonometry (Fall 2017)
 - * Lectured two groups of 30 students triweekly
 - * Designed and graded homework and quizzes
 - Teaching Assistant for Precalculus (Spring 2018, Spring 2020) and Calculus I (Fall 2018)
 - * Held biweekly practicals for groups of 20 - 30 students
 - * Facilitated collaborative learning and problem solving
 - * Graded homework and exams
 - Graded weekly homework assignments for the courses
 - * Introduction to Abstract Algebra (Spring 2019)
 - * Axiomatic Set Theory (Spring 2019)
 - * (Graduate) Logic I (Fall 2020)
 - * (Graduate) Algebraic Geometry I (Fall 2020)
- **Undergraduate Teaching Assistant** *Spring 2014 / Spring 2016*
University of Crete Heraklion, Crete, Greece
 - Held biweekly practicals to groups of 50 - 100 students for the course Foundations of Mathematics

AWARDS AND FUNDING

- **College Senior Scholarships** *Mar 2022 / Nov 2022*
Fitzwilliam College Cambridge, UK
 - Two scholarships for exceptional performance during my doctoral studies
- **Graduate Scholarship** *Sep 2020*
Onassis Foundation Vaduz, Liechtenstein
 - Studentship for 4 years of doctoral studies
- **Departmental Studentship** *Sep 2020*
University of Cambridge Cambridge, UK
 - Studentship from the Department of Computer Science and Technology for 4 years of studies
- **Stilianos Pichoridis Award** *Nov 2016*
University of Crete Heraklion, Crete, Greece
 - Outstanding student award by the Department of Mathematics and Applied Mathematics

- **Chrisanthos and Anastasia Karidi Award** *Jul 2014*
University of Crete Heraklion, Crete, Greece
– Award for the highest entrance score at the Department of Mathematics and Applied Mathematics
- **Moving Education Forward Award** *Oct 2013*
Eurobank Heraklion, Crete, Greece
– Award for high performance at the Hellenic National Examinations (19,099 / 20,000 - top 0.42%)

CONFERENCE ORGANISATION

- **12th Symposium on Compositional Structures** *Apr 2024*
Member of the Programme Committee Birmingham, UK
– Reviewed two papers
- **Applied Category Theory 2021** *Jun 2021*
Local Organiser Cambridge, UK
– Contributed to scheduling and participant communications
– Assisted with recording, streaming, and supporting remote audience participation.