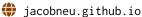
Jacob Neumann

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Education

2021 - present

Ph.D. Computer Science (in-progress)

University of Nottingham, School of Computer Science, Functional Programming Lab

(Tentative) Thesis title: Directed Higher Observational Type Theory

Supervisor: Thorsten Altenkirch

2019 – 2020 M.Sc. Logic, Computation and Methodology

Carnegie Mellon University, Department of Philosophy

Thesis title: Semantics of Nondeterministic Construction

Supervisor: Adam Bjorndahl

2015 – 2019 **B.Sc. Discrete Mathematics and Logic**

Carnegie Mellon University, Department of Mathematics

Additional Major: Logic and Computation (Dept. of Philosophy)

Mellon College of Science Honors

Employment

2021 – present

- **Tutor** (teaching assistant), University of Nottingham, School of Computer Science Modules supported:
 - Introduction to Formal Reasoning (lecturer: Thorsten Altenkirch): Second-year undergraduate module covering the basics of interactive theorem proving in Lean
 - *Programming Paradigms* (lecturer: Graham Hutton): First-year undergraduate module on elementary functional programming in Haskell
 - Languages and Computation (lecturer: Thorsten Altenkirch): Second-year undergraduate module on automata and computability theory, with optional content on Lean formalization

2020, 2021

▼ Visiting Lecturer, Carnegie Mellon University, School of Computer Science

Course: Principles of Functional Programming

Co-instructor (2020): Dilsun Kaynar

Delivered 21 lectures (2020) and 32 lectures (2021), covering introductory functional programming in Standard ML; oversaw delivery and grading of homework assignments; interviewed, selected, and managed course staffs of 23 teaching assistants (2020) and 15 teaching assistants (2021)

Number of students: approx. 110 (2020), approx. 80 (2021)

Employment (continued)

2019 - 2021

- **Teaching Assistant,** Carnegie Mellon University, Department of Philosophy Courses supported:
 - Category Theory (lecturer: Mathieu Anel). Delivered two supplemental lectures, on Categorical Semantics of the Simply-Typed Lambda Calculs, and Algebraic Theories
 - Modal Logic (lecturer: Adam Bjorndahl)
 - Formal Logic (lecturer: Adam Bjorndahl)
 - Kant (lecturer: Kevin Kelly)
 - *Introduction to Philosophy* (lecturer: Simon Cullen). Delivered lecture on the Turing Test.

Grants and Awards

June 2024

Short-Term Scientific Mission, EU COST Action CA20111 (Upcoming)

Professional Service

Subreviewer, FSCD 2024

Contributed Talks

04 Apr 2024 Towards Modal SOGATs

EuroProofNet Working Group 6 Meeting

Leuven, Belgium

03 Apr 2024 A Sampling of Synthetic 1-Category Theory

Workshop on Homotopy Type Theory/Univalent Foundations

Leuven, Belgium

28 Oct 2023 Paranatural Category Theory

Category Theory Octoberfest 2023

online

12 Jun 2023 Categorical Logic in Lean

29th International Conference on Types for Proof and Programs (TYPES 2023)

Valencia, Spain

24 May 2023 Presheaf Models of Polarized Higher-Order Abstract Syntax

Second International Conference on Homotopy Type Theory

Pittsburgh, USA

Contributed Talks (continued)

23 Apr 2023 The Category Interpretation of (Polarized and Directed) Type Theory

Workshop on Homotopy Type Theory/Univalent Foundations

Vienna, Austria

01 Dec 2022 (Co)ends and (Co)structure

HoTT Electronic Seminar Talks (HoTTEST)

online

01 Aug 2023 Towards Directed Higher Observational Type Theory

Workshop on Homotopy Type Theory/Univalent Foundations

Haifa, Israel

Skills

Natural Languages English (native), Spanish (B2)

Theorem Proving Lean (advanced), Agda (intermediate), Cubical Agda (basic)

Programming Standard ML (advanced), Haskell (intermediate), Python (intermediate), Bash (inter-

mediate), JavaScript (intermediate)

Display HTML, CSS, LaTeX

Misc. git, Github, Inkscape, DaVinci Resolve, Stable Diffusion