

Curriculum Vitae

Jacob Neumann

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Education

MS, Logic, Computation, and Methodology

Carnegie Mellon University, Department of Philosophy

August 2019 - August 2020

Pittsburgh PA

BS, Mathematics (Discrete Math and Logic)

Carnegie Mellon University, Department of Mathematical Sciences

August 2015 - May 2019

Pittsburgh PA

- Additional major in Logic & Computation
- Mellon College of Science Research Honors

Interests

Topological modal logic, formal epistemology, mathematical logic, philosophy & foundations of mathematics, dynamic logic, denotational semantics, functional programming, categorical logic, higher category theory, homotopy type theory

Research

Semantics of Nondeterministic Construction

April 2018 - August 2020

Master's Thesis

- Advisor: Adam Bjorndahl
- Purpose: Adapt tools from topological modal logic and formal epistemology to study the dynamics of nondeterministic programs. Specifically, develop logical methods to study nondeterministic program constructors in the dynamic topological setting.
- Defended: 14 August 2020

Academic & Teaching Positions

Instructor

May - June 2020

Carnegie Mellon University, Computer Science Department

- Course: 15-150 Principles of Functional Programming
- Duties: Design course content, deliver lectures, design & administer exams, interview & hire course staff, oversee grading, meet with students, perform course administration duties.

Teaching Assistant

August 2020 - Present

Carnegie Mellon University, Department of Philosophy

- Course: 80-413/713 Category Theory
- Duties:

Academic & Teaching Positions (continued)

Grader *August 2019 - December 2019, August 2020 - Present*
Carnegie Mellon University, Department of Philosophy
– Course: 80-310/610 Formal Logic
– Instructor: Adam Bjorndahl
– Duties: Grade student work and provide useful feedback, hold regular office hours.

Co-Instructor, Guest Lecturer *March 2019 - May 2020*
Carnegie Mellon University
– Course: 98-317 Hype for Types
– Duties: Deliver lectures for and administer a student-run course covering advanced topics in theoretical computer science at the level of second-year undergraduates.
– Topics lectured on: Introduction to Type Theory, Dynamic Logic/Hoare Logic, Category Theory, Categorical Semantics of the Simply-Typed Lambda Calculus, Continuation Passing Style and the Yoneda Embedding, Homotopy Type Theory

Grader *January - May 2020*
Carnegie Mellon University, Department of Philosophy
– Course: 80-315/615 Modal Logic
– Instructor: Adam Bjorndahl
– Duties: Grade student work and provide useful feedback, hold regular office hours.

Teaching Assistant *August 2019 - December 2019*
Carnegie Mellon University, Department of Philosophy
– Course: 80-100 Intro to Philosophy
– Instructor: Simon Cullen
– Duties: Hold weekly discussion sections (and create materials for them), grade student work and provide useful feedback, hold regular office hours.
– Delivered one lecture

Head Teaching Assistant *November 2017 - December 2018*
Carnegie Mellon University, Computer Science Department
– Course: 15-150 Principles of Functional Programming
– Instructors: Stephen Brookes (F18), Michael Erdmann (S18), Dilsun Kaynar (S18), Stefan Muller (M18)
– Duties: Interview and hire course staff, lead staff meetings, direct and coordinate teaching assistant work, oversee development of course materials, teach recitations, hold regular office hours, maintain and operate course infrastructure.

Teaching Assistant *May 2017 - December 2017, January 2020 - present*
Carnegie Mellon University, Computer Science Department
– Course: 15-150 Principles of Functional Programming
– Instructors: Dilsun Kaynar (M17, F17), Stephen Brookes (F17), Michael Erdmann (S20), Frank Pfenning (S20)
– Duties: Develop and revise course materials, teach weekly recitation, hold regular office hours, grade student work, hold exam review sessions.

Skills

Programming Languages

- Python (experienced)
- Standard ML (experienced)
- Bash (intermediate)
- Javascript (basic)
- PHP (basic)
- C (basic)

Scripting & Display Languages

- \LaTeX (experienced)
- HTML & CSS (experienced)

Interactive Theorem Proving

- Lean (intermediate)
- Agda (basic)

Technologies

- git/github (experienced)
- Zoom (experienced)
- Autolab (experienced)
- Piazza (experienced)
- Gradescope (experienced)
- Unix command line (intermediate)
- Andrew File System (basic)