

Raymond Baker

morphismz.github.io
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Background and Interests

I graduated *summa cum laude* from the University of Colorado, Boulder with a bachelors of arts in mathematics and in philosophy. For my honors, I defended a thesis in the mathematics department titled “Eckmann-Hilton and the Hopf Fibration in Homotopy Type Theory”. I subsequently presented the results of my thesis at the [Second International Conference on Homotopy Type Theory](#) at Carnegie Mellon University.

Within mathematics, I have an interest in higher category theory and homotopy theory, in type theory and the foundations of math, and in connections between these subjects and computer science. In particular, I am fascinated by functional programming and the formal verification of proofs and programs. As an application of this, I am a contributor to the [agda-unimath repository](#), a collaborative and sprawling formal verification project written in Agda, a dependently typed pure functional programming language.

Education

- **University Of Colorado Boulder (Fall 2019-Spring 2023):** I graduated *summa cum laude* with a bachelors of arts in mathematics and in philosophy at the University Of Colorado Boulder.
Notable classes I have taken/subjects I have studied: Homotopy Type Theory (Honors Thesis), Category Theory (Reading Course), Topology I and II, Model Theory, Set Theory.
- **Foothill College (Fall 2018-Spring 2019):** For my senior year in high school, I enrolled as a student at a local community college which allowed me to take multiple college-level math courses simultaneously.
- **Foothill Middle College (Fall 2017-Spring 2018):** For my junior year I transferred to the Middle College program, which allowed me to take college courses for math and electives such as philosophy.
- **Palo Alto High School (Fall 2015-Spring 2017):** I attended Paly for my first two years of high school.

Employment

- **Just2 Tutoring (June 2023 - Present):** Tutoring a wide range of material to students in the greater Boulder area.
- **CU Boulder Department of Mathematics (October 2020 - May 2023): *Mathematics Tutor:*** Tutoring a wide range of material (from Calculus I-III to Linear Algebra and Discrete Math) to University of Colorado Boulder students in the Mathematics Academic Resource Center.
- **CU Boulder Department of Mathematics (Sporadic, starting January 2020): *Grader:*** Grading quizzes and homework in the mathematics department across multiple semesters for classes such as Linear Algebra for Math Majors, Discrete Math, and Calculus III (Multi-variable).
- **Generation Teach (June 2021 - August 2021): *Teaching Fellow:*** Teaching 6th grade mathematics to students enrolled in the Generation Teach Strive Lake Academy.
- **CU Boulder Department of Mathematics (January 2021 - May 2021): *Class Assistant:*** Helping to facilitate learning and group work in one recitation section of Calc II, though not enrolled in the Learning Assistant program.
- **Insomnia Cookie (June 2020 - October 2020): *Shift lead:*** Running the store, managing online and in-store orders.

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- **HP Labs, HP Inc (April 2019 - July 2019): *Intern*:** Conducting lab test working under two color scientists as part of a research project studying the correlation between the optical and mechanical properties of 3-D printed parts.
- **Rick's Ice Cream (February 2017 - Summer 2017): *General Employee*:** Multiple positions including customer-facing food service, cashier, and dishwasher.
- **PokeLove (June 2016 - December 2016): *General Employee*:** Original employee (started before restaurant opening) covering multiple positions including customer-facing food service, cashier, and dishwasher.

Speaking

- [Second International Conference on Homotopy Type Theory](#), Carnegie Mellon University, May 22nd - 25th, 2023.
“Eckmann-Hilton and the Hopf Fibration in Homotopy Type Theory”

Service

- President of CU Boulder Philosophy Club (Fall 2021 - Spring 2023)
- Contributor to the agda-unimath repository

Awards and Accomplishments

- Latin Honors in Mathematics, *summa cum laude*: I successfully defended an honors thesis in the mathematics department, earning the distinction *summa cum laude*.
- Jim and Laura Marshall Scholarship in Mathematics (2021-2022): scholarship awarded to outstanding upper-division mathematics majors who demonstrate excellence in their studies
- Sieglinde Talbott Haller Endowed Scholarship in Mathematics (Fall 2020-Spring 2021): scholarship given annually to graduate and undergraduate students in Mathematics who show exceptional mathematical promise.
- Dean's List, CU Boulder (Fall 2021, Spring 2021, Spring 2020, Fall 2019)

Programming Languages

- Agda: regular usage in contributions to the Agda-Unimath repository
- Bash: regular usage as part of a the linux terminal
- Rust: partial completion of the [rust book](#)

Tools

- git
- emacs
- linux

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Other Skills

- formal verification and theorem proving
- technical writing

Projects

- Formalizing the results of “Eckmann-Hilton and the Hopf Fibration in Homotopy Type Theory” in agda-unimath
- The Shashibo project
- Rust Book

Hobbies

- Confection making: 2020-current
- Baking: 2015-current: Specializing in breads, including sourdoughs.
- Hiking and backpacking: 2015-current
- Recreational mathematics: 2015-current