Patrick Norton

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Education

Reed College **Portland, OR**
BA Math/Computer Science *Aug 2021–May 2025*

GPA: 3.78

Relevant Courses Taken

- Computability & Complexity
- Algorithms
- Abstract Algebra
- Lie Algebras
- Deep Learning
- Linear Algebra (proof-based)
- Number Theory
- Computer Systems
- Topology
- Vector Calculus

Research Experience

Reed College **Portland, OR**
Senior Thesis *Aug 2024–May 2025*

- Expository thesis on probabilistically-checkable proofs and zero-knowledge proofs.
- Presented results from multiple recent papers in cryptography and complexity theory.
- ***Learning outcomes:*** Presenting mathematics in an accessible way, probabilistically-checkable proofs, zero-knowledge proofs, algebrization.

Reed College **Portland, OR**
Internship *May 2024–August 2024*

- Worked with Prof. Zajj Daugherty on decomposing Lie algebras into highest-weight spaces.
- Generated decompositions for the symmetric algebra.
- Presented research results at a poster session.
- ***Learning outcomes:*** Knowledge of Lie algebras, learning about the process of math research, combinatorial algebra skills.

Los Alamos National Laboratory **Los Alamos, NM**
Internship *May 2022–August 2022, May 2023–August 2023*

- Worked on DIORAMA, a nuclear-and-satellite simulation program used by the US government.
- Helped modernize code and remove technical debt, as well as refactoring the testing framework.
- Created a library for femtosecond-precision timekeeping (`femtotime`), able to work with both UTC and GPS time as well as converting between the two.
- ***Learning outcomes:*** Debugging and modernizing production C++, familiarization with debugging systems, learning about UTC and GPS time, learning about different location schemes.

Reed College **Portland, OR**
Peer tutor, Math *August 2024–December 2024*

- Ran peer tutoring for students in Reed's first and second-year math courses.
- ***Learning outcomes:*** Tutoring, explaining mathematics, working with students.

Reed College **Portland, OR**
Grader, Math 332 *January 2024–May 2024, January 2025–Present*

- Graded Math 332, Reed's abstract algebra course.
- ***Learning outcomes:*** Reading mathematical writing, abstract algebra skills.

Reed College **Portland, OR**
Grader, CS 221 *August 2022–December 2023*

- Graded CS 221, Reed's second-year computer science course, focusing on C++ and assembly.
- ***Learning outcomes:*** Debugging code, learning floating-point internals.

Dartmouth University **Hanover, NH (remote)**
Internship *May 2021–Aug 2021*

- Assisted Prof. Sean Smith's graduate students with creating a debugger for a parser.
- ***Learning outcomes:*** Introduction to C, knowledge of parser systems.

Greenhills School **Ann Arbor, MI**
Senior Project *Jan 2021–Apr 2021*

- Implemented a lock-free concurrent-vector in Rust.
- ***Learning outcomes:*** Introduction to concurrent programming and algorithms, familiarization with concurrent debugging techniques.

Other Experience

Way-of-Life Martial Arts **Hamburg, MI**
Assistant Instructor *September 2019–August 2021*

- Assisted teaching karate classes to young children.

Blue Lake International **Blue Lake, MI**
Musician *July 2018 & July 2019*

- Played trombone in an international concert band.
- Toured in Germany, France, the Netherlands, and Poland.

Relevant Skills & Languages

- Programming Languages
  - Fluent: Rust, Java, Lisp, C++
  - Proficient: C, Python, Haskell, MIPS assembly
- Linux, MacOS, Emacs, LaTeX

Honors & Awards

Florence H. Leslie Math Prize
June 2021

National Latin Exam
Summa cum Laude *2019*

Reed College
Academic commendation *2021–25*

Phi Beta Kappa
2025