

ALISTAIR PATTISON

(651) 706-6713 | pattisona@carleton.edu | alipatti.com 

Education

Bachelors of Arts, Mathematics & Statistics, Carleton College (September 2020 – June 2024)

- 3.99 GPA, Dean's List every possible term.
- Captain of varsity track and field, three-time MIAC conference finalist, two-time all-conference honorable mention.
- Studied abroad at the University of Cambridge taking classes in cryptography, WWII history, and the history of computing.

Work Experience

Teaching Assistant, Carleton College (March 2021 – present)

- Tutor students and hold office hours for classes in the math and computer science departments.
- Work closely with the professor to establish clear grading guidelines and adjust curriculum to better serve students.
- Classes include real analysis, abstract algebra, data visualization, artificial intelligence, algorithms, and math structures,

Research Assistant, University of Minnesota (September 2022 – August 2023)

- Developed a cryptographic protocol in which the sender of an encrypted message can be identified if there is sufficient agreement among a group of moderators. The protocol retains nearly all security properties of the encrypted messaging system (e.g. on WhatsApp or Signal).
- Wrote a proof-of-concept implementation in Rust to estimate the cost of widespread adoption.
- Presented at the 2023 IEEE Symposium on Security and Privacy with professor Nicholas Hopper.

The Food Guy, YMCA Camp Widjiwagan (June – September 2021)

- Personally managed the purchase and distribution of food for nearly 200 wilderness trips across the US and Canada.
- Oversaw a \$95,000 budget alongside two other employees.
- Lead a week-long canoeing trip with BOLD, a program dedicated to making the outdoors more diverse and accessible.

Dining Hall Worker, Carleton College (September 2020 – March 2021)

Farm Hand, Hansen Christmas Tree Farm (November 2018 – December 2021)

Publications

Alistair Pattison and Nicholas Hopper. "Committee Moderation on Encrypted Messaging Platforms". In: *44th IEEE Symposium on Security and Privacy*. May 2023

Awards

Phi Beta Kappa – One of nine Carleton juniors inducted into national honors society on the basis of academic merit.

National Merit Scholarship – Competitive scholarship provides four years of partial financial support for undergraduate study.

James F. Koehler Scholarship – Endowed scholarship given to a math major at Carleton.



Projects

Ole or Carl?  [alipatti/oleorcarl](https://github.com/alipatti/oleorcarl) 

- This project tests the validity of a long-standing stereotype that students from Northfield's two colleges look meaningfully different. If they are, then a machine learning model should be able to tell them apart? Right?

- Uses a SVM classifier on face-based vector embeddings of student's directory photos.

Carleton Course Classifier

 [alipatti/course-classifier](#) 

- A Tensorflow natural-language model that predicts the department and course number of a course given its description.
- Achieves 64% accuracy in a 54-class classification problem using a CNN and deep word embeddings.

Skills

Programming: Python (numpy, pandas, tensorflow, sklearn, matplotlib), R (tidyverse, ggplot2), JavaScript (TypeScript, React, Next.js, d3.js), L^AT_EX, Rust, Java, SQL, git, Docker.