

ALISTAIR PATTISON

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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.

Talented Youth Mathematics Program, University of Minnesota (2015 – 2020)

- Completed selective high-school math program culminating in six semesters of set theory, vector calculus, linear algebra, and differential equations.

Work Experience

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

- Researched and developed a method for reporting abuse and misinformation on encrypted messaging platforms (e.g. WhatsApp or Signal) that provably maintains users' anonymity and privacy.
- Presented findings at a leading security conference and gave talks at weekly lab seminars.
- Wrote a proof-of-concept implementation of the protocol in Rust .

Teaching Assistant, Carleton College (March 2021 – present)

- Tutor students, grade homework, and hold office hours for classes in the math and computer science departments.
- Classes include real analysis, abstract algebra, data visualization, artificial intelligence, algorithms, and math structures,

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

- Individually 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 and taught basic nutrition to kids aged 12 to 18.
- 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 (2018 – 2021)

Owner, Pattison Lawn Care (2015 – 2020)

Publications

Alistair Pattison and Nicholas Hopper. "Committee Moderation on Encrypted Messaging Platforms". In: *44th IEEE Symposium on Security and Privacy*. May 2023. URL: <https://arxiv.org/abs/2306.01241>

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 Carleton math major.



Projects

Ole or Carl?

 [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 an SVM classifier on embeddings of student's faces taken from directory photos.

Carleton Course Classifier

 [alipatti/course-classifier](#) 

- A Tensorflow language model that predicts the department and course number given a course description.
- Achieves 64% accuracy in a 54-class problem using a neural net 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.