

# Yuhao Han (Harry)

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I am a final year undergraduate student at the University of Edinburgh studying pure mathematics. I am intrigued by the mathematical world, especially by geometry and algebra.

These subjects I believe will have imminent connections to the real world and will solve difficult problems that are otherwise unsolvable. To discover these connections requires ingenuities more than mathematics: thus I have self-studied various subjects including computer science and numerical methods with such hope.

## Education

**University of Edinburgh**, BSc (Hons) Mathematics. Graduating in Jun 2025. Sept 2021 – Now

- Expected Grade: First-Class Honours
- Modules taken: Algebra, Analysis, Differential Equation, Topology, Geometry, Lie Group, and Statistics

## Experience

**Summer Research on Algebraic Geometry**, Scottish Summer Research Scheme May 2024 – Aug 2024

- Study a specific type of affine hypertoric variety and develop an algorithm to count its  $F_q$ -count polynomials, which is compared with the h-polynomial of the complex associated with the corresponding hyperplane arrangement
- The theoretical algebraic problem was broken down to an equivalent combinatoric problem of counting points of intersections of simple hyperplane arrangements in  $F_q^n$ ,  $q$  is prime.
- Supervised by Dr. Sukjoo Lee in the University of Edinburgh.

**Research Dolphin Interconnect PCIe NTB** Oct 2023 – Feb 2024

- I was part of the research Group of Dr. Antonio Barbalace in the school of informatics at the University of Edinburgh.
- My work includes benchmarking virtual cachable memory provided by Dolphin NTB and developing drivers and softwares to increase its efficacy. All works were within Linux kernel.
- Part of the larger research project on Computer Express Link.

**Student Ambassador**, the University of Edinburgh Mar 2022 – Now

- Introducing University of Edinburgh to prospective students and helping admission officers in various events.

## Bursary

Professor Sheridan's Simons Investigator Award, 2000£ Jun 2024

## Projects

**Yetin Guide for Coding** book.yetin.net

A book for self studying programming. Still in early draft.

**Lox Rust** Aug 2024

- Fully functional interpreter from scratch in Rust for lox, a mock language.

## Programming Technologies

Linux • C • Rust • C++ • Bash • Fortran •  $\text{\LaTeX}$  • Git • Vim • Typescript • React • Nextjs • Java OpenGL • Lua • Julia • Python • x86-64 assembly • MATLAB • Unity • AWS

## Languages

Chinese, Native • English, TOEFL 115/120 • Latin, Fluent to Read • Italian, B1 • Russian, Basic