Hurui Yao

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1 EDUCATION

The Chinese University of Hong Kong, Shenzhen Sep 2023-Present

B.Sc. in Mathematics and Applied Mathematics (Pure Mathematics stream)

Expected graduation: June 2027

Cumulative GPA: 3.611/4.000 | Major GPA: 3.740/4.000 | Dean's List, 2024-25, 2025-26

Selected coursework: Lie Groups and Lie Algebras (A);Honours Linear Algebra II (A); Abstract Algebra I (A); Real Analysis (A); Introduction to Geometry and Topology (A); Differential Geometry (A-); Partial Differential Equations (A-).

University of California, Berkeley Jan-May 2026

Visiting Student | Berkeley, CA, USA

Graduate coursework: MATH 250B Commutative Algebra; MATH 254B Number Theory(A); MATH 256B Algebraic Geometry.

2 RESEARCH INTERESTS

Number theory and arithmetic geometry.

3 REPORTS AND INDENPENDENT STUDY

Abelian Varieties Fall 2026

Independent study (ongoing) | Advisor: Prof. Caihua Luo

Local Tate Duality for Elliptic Curves: Dual Isogenies, Weil Pairings, and Hilbert Symbols Oct 2026

Independent study | self-directed

Brauer-Manin Obstruction for Indefinite Integral Quadratic Forms Representing Integers May 2026

Course report (MATH 254B) | Advisor: Prof. Yunqing Tang

Kummer Theory and a Complete Proof of the Kronecker-Weber Theorems Jan 2026

Independent study | Advisor:Dr. Luciena Xiao

Existence of Solutions of Quadratic Rational Polynomials as Quadratic Hypersurfaces in $\mathbb{P}^n$ Dec 2025

Independent study | Advisor: Prof. Caihua Luo

Classification of Simple Lie Algebras May 2025

Independent study | Advisor: Prof. Daniel Wong

Coauthored with Yingxian Hui and Zihan Ke

A Proof of Kuratowski's Theorem May 2025

Independent study | Advisor: Prof. Kenneth Shen

Representations and BCH Formula Apr 2025

Independent study | Advisor: Prof. Daniel Wong

Gaussian Integers and the Sum of Two Squares Theorem Jan 2025

Independent study | self-directed

4 TEACHING AND ACADEMIC ACTIVITIES

Undergraduate Student Teaching Fellow (Teaching Assistant) Fall 2025 and Fall 2026

Honours Linear Algebra II| CUHK-Shenzhen

Explained course material in tutorials and answered students' questions outside class.

Mathematics Club Member 2023-2026

CUHK-Shenzhen Student Association

Delivered calculus review lectures for midterm and final examinations; participated in problem-solving workshops.

5 TECHNICAL SKILLS

Programming: Python, MATLAB | Mathematical software: Mathematica | Typesetting: LaTeX