YUNHAI XIANG

EDUCATION

University of Western Ontario
Ph.D. in Mathematics (in progress)
Advisor: Chris Hall
Specialization: Number Theory and Arithmetic Geometry

University of Western Ontario
M.Sc. in Mathematics
Advisor: Chris Hall

University of Waterloo
B.Math. in Pure Mathematics, Honors, with Distinction

SKILLS

Languages	Mandarin (Native), English (Fluent), French (Beginner)
Programming	Python, Lean
Softwares	LaTeX, SageMath

AWARDS

Mathematics Undergraduate Research Award   May 2022 — Aug 2022
· Undergraduate Research Award at University of Waterloo

CONFERENCES & PRESENTATIONS

Conferences Attendance & Talks
· *Rigid Analytic Geometry*, Summer 2024, Ontario Graduate Mathematics Conference, UWaterloo
· *Schubert Calculus and Cohomology of Grassmannians*, Summer 2022, Canadian Undergraduate Mathematics Conference, Université Laval

Seminar Attendance & Talks
· *Weyl Group and Root Datum*, Summer 2025, Algebraic Groups Seminar, UWO
· *Hecke Operators*, Summer 2025, Algebraic Groups Seminar, UWO
· *Parabolic and Borel Subgroups*, Summer 2025, Algebraic Groups Seminar, UWO
· *Lie Algebras of Algebraic Groups*, Summer 2025, Algebraic Groups Seminar, UWO
· *Non-Archimedean Fields*, Summer 2024, Rigid Analytic Geometry Seminar, UWO
· *Admissible Topology*, Summer 2024, Rigid Analytic Geometry Seminar, UWO
· *Cones and Affine Toric Varieties*, Summer 2024, Toric Varieties Learning Seminar, UWO
· *Galois Cohomology*, Winter 2024, Graduate Student Seminar, UWO
· *Derived Categories*, Fall 2022, Algebraic Geometry Working Seminar, UWaterloo

Final Projects
· *Modular Curves and Modular Forms*, Summer 2025, for *Riemann Surfaces*
· *Adeles and Ideles*, Winter 2024, for *Algebraic Number Theory*
· *Representations of* $\mathrm{GL}_2(\mathbb{F}_q)$ *and* $\mathrm{SL}_2(\mathbb{F}_q)$, for *Representation Theory of Finite Groups*
· *Fundamental Group of Toric Varieties*, Fall 2022, for *Toric Varieties*

· *Étale Fundamental Group*, Winter 2022, for *Algebraic Stacks*
· *Galois Cohomology and Weak Mordell–Weil Theorem*, Summer 2021, for *Arithmetic Geometry*

TEACHING

Teaching Assistantship

· MATH 1229, Methods of Matrix Algebra, Summer 2025
· MATH 1228, Methods of Finite Mathematics, Summer 2025
· CALCULUS 1501, Calculus II for Mathematical and Physical Sciences, Winter 2025
· CALCULUS 1000, Calculus 1, Winter 2025
· MATH 3150, Elementary Number Theory I, Fall 2024
· CALCULUS 1000, Calculus 1, Summer 2024
· MATH 1229, Methods of Matrix Algebra, Summer 2024
· MATH 1228, Methods of Finite Mathematics, Summer 2024
· CALCULUS 1000, Calculus 1, Winter 2024

Course Instructorship

· Coming soon

SERVICES

Seminar Organization

· Toric Varieties Learning Seminar, Summer 2024, co-organized with Nicolas Rieke

Mathematical Outreach

· *Surreal Numbers and the Game of Go*, Summer 2025, Western Summer Math Camp
· *Mathematical Magic Tricks: Gilbreath's Principle*, Summer 2024, Western Summer Math Camp
· *Why is There no Quintic Formula*, Summer 2024, Western Summer Math Camp
· *Category Theory Demystified*, Winter 2023, Short Attention Span Math Seminar
· *A Topological Proof of Insolvability of the Quintic*, Summer 2022, Short Attention Span Math Seminar

Directed Reading Program Mentorship

· Coming soon