

Xinran Yu

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Education

University of Illinois Urbana–Champaign

Ph.D. in Mathematics

Advisor: Prof. Pierre Albin

M.S. in Mathematics

Expected May 2026

University of Liverpool & Xi'an Jiaotong–Liverpool University

B.Sc. in Mathematics with Honors & B.Sc. in Applied Mathematics (dual degree, 2+2 program)

Thesis: *Analytic Continuation and Riemann Surfaces*

Advisor: Dr. Jon Woolf

May 2019

June 2017

Research Interests

Geometric Analysis, Conformal Geometry, Mathematical Relativity, Singular and Non-Compact Spaces.

Preprints and Publications

Conformally Compact Metrics and the Lovelock Tensors

[arXiv:2505.24188](#), submitted

2025

Witten Instanton Complex and Morse-Bott Inequalities on Stratified Pseudomanifolds

with Gayana Jayasinghe and Hadrian Quan. [arXiv:2412.12003](#), submitted

2024

Talks

AMS Fall Central Sectional Meeting, Saint Louis University

“Asymptotic Behavior of Conformally Compact Lovelock Metrics”

Oct 2025

Great Lakes Mathematical Physics Meeting (GLaMP), University of Kentucky

“Asymptotic Behavior of Conformally Compact Lovelock Metrics”

Jun 2025

Graduate Student Geometry and Topology Seminar, UIUC

“Dirichlet-to-Neumann Map for Conformally Compact Einstein Metrics”

Oct 2024

AWM Graduate Student Colloquium, UIUC

“Conformal Geometry in Lovelock Gravity Theories”

Apr 2024

Graduate Geometry and Analysis Seminar, UIUC

“The Fractional Laplacian through Dirichlet Problem Formulation”

Feb 2024

Honors & Awards

Susan C. Morisato IML Scholarship, UIUC

Summer 2025

Ruth V. Shaff & Genevie I. Andrews Fellowship, UIUC

Spring 2024

Teachers Ranked as Excellent by their Students, UIUC

Spring & Fall 2021

Wills Prize in Mathematics, UoL

2017

IMA Prize, UoL

2017

University Academic Achievement Award, XJTLU

2014–2015

Conferences & Workshops Attended

30th Southern California Geometry Analysis Seminar (SCGAS), University of California, Irvine

2025

From Global to Microlocal Analysis, MIT

2025

GLaMP, Michigan State University	2024
Microlocal Analysis and Quantum Dynamics (MAQD), Northwestern University	2024
May Midwestern Microlocal Meeting (MMMM), Northwestern University	2023
Midwest PDE Seminar, 86th Meeting, University of Missouri	2022
Global Harmonic Analysis Conference, Online	2022
Analysis on Singular Spaces, Banff International Research Station	2021

Teaching Experience

At UIUC

Instructor

- MATH 231: Calculus II (Spring 2022, Spring 2025)

Teaching Assistant

- MATH 241: Calculus III (Fall 2021). [Teachers Ranked as Excellent](#)
- MATH 220: Calculus (Fall 2024)
- MATH 231: Calculus II (Spring 2021). [Teachers Ranked as Excellent](#)

Grader

Graduate Courses

- MATH 518–519: Differentiable Manifolds I–II (Fall 2023, Spring 2023)
- MATH 553: Introduction to Partial Differential Equations (Spring 2023)
- MATH 541: Functional Analysis (Spring 2023)
- MATH 512–514: Algebraic/Complex Algebraic Geometry (Fall 2022)
- MATH 525: Algebraic Topology I (Spring 2021)

Undergraduate Courses

- MATH 416: Abstract Linear Algebra (Fall 2025, Fall 2022)
- MATH 402–403: Non-/Euclidean Geometry (Fall 2023)
- MATH 423: Differential Geometry (Fall 2023)
- MATH 286: Introduction to Differential Equations Plus (Fall 2020)
- MATH 489: Dynamics and Differential Equations (Fall 2019)
- MATH 417–418: Introduction to Abstract Algebra I–II (Spring 2019, Fall 2019)

Mentorship

At UIUC

Illinois Mathematics Lab, Mentor

2024–2025

Projects conducted in collaboration with the Mathematics Library

- *Historical Mathematical Models* (Spring 2025) — Supervised 5 undergraduates.
- *Documenting Historical Mathematical Models* (Fall 2024) — Supervised 4 undergraduates; project received the Nancy D. Anderson Undergraduate Research Award.

Illinois Geometry Lab, Mentor

Fall 2019

- *Simulating Multi-Soliton Solutions to NLS and KdV* — Supervised 4 undergraduates.

Services & Enrichment

At UIUC	
German Translation Project, Mathematics Library	2024–2025
Internship Network in the Mathematical Sciences (INMAS)	2024–2025
International TA Panelist	Aug 2022
PI4 Computational Bootcamp	Jun 2020
At UoL	
Staff-Student Liaison Committee	2016–2017