Xinran Yu

University of Illinois Urbana-Champaign, Champaign, IL
xinran4@illinois.edu ⋄ +1 (217) 550-2664 ⋄ https://xinrany.github.io/home/

Education

University of Illinois Urbana-Champaign (UIUC), Champaign, IL   2019–2026
Ph.D. in Mathematics (expected May 2026)
Advisor: Pierre Albin

University of Liverpool (UoL), Liverpool, UK   2015–2017
BSc in Mathematics with Honors
Thesis: *Analytic Continuation and Riemann Surfaces.* Advisor: Jon Woolf

Xi'an Jiaotong-Liverpool University, Suzhou, China   2013–2015
BSc in Applied Mathematics

Research Interests

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

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 and Fall 2021
Wills Prize in Mathematics, UoL   2017
IMA Prize, UoL   2017

Preprints and Publications

Conformally Compact Metrics and the Lovelock Tensors   2025
arXiv:2505.24188

Witten Instanton Complex and Morse-Bott Inequalities on Stratified Pseudomanifolds   2024
with Gayana Jayasinghe and Hadrian Quan. arXiv:2412.12003, submitted

Selected Talks

AMS Fall Central Sectional Meeting, Saint Louis University   Oct 2025
"Asymptotic Behavior of Conformally Compact Lovelock Metrics"

Great Lakes Mathematical Physics Meeting (GLaMP), University of Kentucky   Jun 2025
"Asymptotic Behavior of Conformally Compact Lovelock Metrics"

Graduate Student Geometry and Topology Seminar, UIUC   Oct 2024
"Dirichlet-to-Neumann Map for Conformally Compact Einstein Metrics"

AWM Graduate Student Colloquium, UIUC   Apr 2024
"Conformal Geometry in Lovelock Gravity Theories"

Graduate Geometry and Analysis Seminar, UIUC   Feb 2024
"The Fractional Laplacian through Dirichlet Problem Formulation"

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 Math Lab Mentor	2024–2025

- *Historical Mathematical Models* (Spring 2025)
- *Documenting Historical Mathematical Models* (Fall 2024)
  This project received the Nancy D. Anderson Undergraduate Research Award

Illinois Geometry Lab Mentor	Fall 2019

- *Simulating Multi-Soliton Solutions to NLS and KdV*

Services & Enrichment

At UIUC

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