Curriculum Vitae

Yanshu Wang

Profile

Yanshu Wang Mathematics Undergraduate
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OBJECTIVE

I am interested in algebra and number theory. I have done the Polymath Jr. REU with the topic of Dessin d'enfant (arithmetic approach). I have finished relevant courses including Abstract Algebra, Galois Theory, Number Theory, and Commutative Algebra. I have experience of writing papers and am fluent with latex. My programming skills also includes C++, python, lean4, html & css & javascript.

Published Papers

Research Experience

- **Mitacs Globalink Research Internship**, Université de Sherbrooke May 2025 – Current
  - TBD
- **Independent Study with Professor Vasily Dolgushev**, Temple University
  - TBD Jan 2025 – Current
- **Polymath Jr.**, Online 2024 – 2025
  - Our group gives algebraic and complex analytic approaches to computing an affine model for K_9 dessin, and I draw a visualization of K_9 dessin through the morphism $ \pi_1(P_8/\sim) \to \mathbb{Z}[\zeta_8]/(1+\sqrt{-2})$.
  - I Work out the algebraic approach and visualization, delivered the final presentation, drafted the algebraic section of the ongoing paper/report, and created the poster submitted to JMM 2025 with the help of mentors.
- **BICMR AI4MATH**, BICMR(Peking University) Jan 2024 – Feb 2024
  - I collaborate with four students to formalize the statement that 'Algebraic integer of $ \mathbb{Q}[\sqrt{-3}]$ is PID' in lean4.
  - This project introduced me to functional programming, dependent type theory and proof-assistant design, and sharpened my collaboration and rapid-learning abilities.

PRESENTATIONS AND WORKSHOPS

- **JMM 2025 AMS Special Session on Polymath Jr REU Student Research Session**; topics: Dessin d'enfant and Complete Regular Maps ([view slides|https://wangyenshu.github.io/wangyanshu/CV/www/Dessins_d_enfants_and_complete_regular_maps_presentation.pdf]);
- **JMM 2025 AMS-PME Undergraduate Poster Sessions**; topics: Obtaining Equations for K_9 Dessin ([view poster|https://wangyenshu.github.io/wangyanshu/CV/www/Dessin_Equation_JMM_Poster.pdf">Dessin_Equation_JMM_Poster]).

SCHOLARSHIP

- **Gong Neng Scholarship**

Education

- **Exchange Student, Graduate Mathematics**, Temple University (tuition free) Jan 2025 – May 2025
- **B.S. Mathematics and Applied Mathematics**, Nankai University Sep 2022 – Jun 2026

RELEVANT COURSEWORK:

- MATH0130 Mathematical Analysis I 100 (Honor Class)
- MATH0083 Advanced Algebra and Analytic Geometry 2-1 (Linear Algebra) 100 (Honor Class)
- MATH0068 Computers, Set Theory and Logic (Mathematical Logic) 91
- MATH0133 Mathematical Analysis II 97 (Honor Class)
- MATH0078 Advanced Algebra and Analytic Geometry 2-2 (Linear Algebra) 92 (Honor Class)
- MATH0097 Ordinary Differential Equations 96 (Honor Class)
- MATH0147 Complex Variable Function II (Complex Analysis) passed (Honor Class)
- MATH0132 Abstract Algebra I 88 (Honor Class)
- MATH0145 Complex Variable Functions (Complex Analysis) 97 (Honor Class)
- MATH0146 Mathematical Analysis III 98 (Honor Class)
- MATH0134 Abstract Algebra II 95 (Honor Class)
- MATH0055 Number Theory 92
- MATH0065 Probability Theory 85 (Honor Class)
- MATH0079 Pointwise Topology 84
- MATH0102 Commutative Algebra 97
- MATH0136 Galois Theory 96
- MATH0151 Real Analysis 81 (Honor Class)
- MATH0162 Lie Groups and Algebraic Groups 90
- MATH0051 Functional Analysis 93

- MATH9100 Topics in Algebra (at Temple, Braid Groups)
- MATH8051 Functions of a Complex Variable I (at Temple)

AUDITING:

- Elementary Algebraic Topology
- Analytic Number Theory

UNDERGRADUATE SEMINAR:

- Geometric Group Theroy Seminar: This seminar uses UTX book Geometric Group Theory An Introduction. I participated in it in the first semester of the sophomore year.
- Algebraic Number Theory Seminar: This seminar mainly uses lecture notes by Hu Yong. I learned many algebraic number theory from the [video|https://www.bilibili.com/video/BV1Fu41127KW/].
- Quasi-Conformal Mapping and Potential Theory: I studied this topic using [B. Khoruzhenko's lecture notes|https://webspace.maths.qmul.ac.uk/b.khoruzhenko/potential_th_notes.pdf].
- Analytic Number Theory Online Seminar: Led by a senior alumna (M.S., University of Bonn). The main topic is o-minimality and tame geometry.

MINI COURSE:

- Propagation speed of non-linear parabolic equations on Riemannian manifolds by Prof. Alexander Grigor'yan
- Preliminary Arizona Winter School 2024:Symmetries of root systems and local fields (unofficially following the course)

Skills

- Languages: python(fluent); sagemath(fluent, especially libgap); C++; Mathematica; latex(fluent); lean4; html & css & javascript;
- DevOps: Docker; Google Cloud; Github Actions.

Human Languages

- English (fluent); French (beginner); Mandarin (native)

Open Source

- Automated the daily indexing of Tiddlywiki Classic plugins and themes using a GitHub Action ([source|https://github.com/wangyenshu/twcArchives]), generating a user-friendly extension description file.
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