# Yanshu Wang

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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.

## **EDUCATION**

· Bachelor - Math and Applied Math

Nankai University Sep 2022 — Jun 2026 (expected)
Grade Point Average: 3.72/4 or 90.08/100; Major GPA: 3.72/4 or 90.08 / 100

Exchange Student

Temple University (tuition free) Jan 2025 — May 2025

#### **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 participate 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 <a href="https://www.bilibili.com/video/BV1Fu41127KW/">https://www.bilibili.com/video/BV1Fu41127KW/</a>.
- Quasi-Conformal Mapping and Potential Theory: I use the notes from <a href="https://webspace.maths.qmul.ac.uk/b.khoruzhenko/potential\_th\_notes.pdf">https://webspace.maths.qmul.ac.uk/b.khoruzhenko/potential\_th\_notes.pdf</a>.
- Analytic Number Theory Online Seminar: This seminar is conducted by a senior alumna (pursuing master degree at University of Bonn). The main topic is o-minimality and some Tame Geometry.

#### MINI COURSE:

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

## RESEARCH EXPERIENCE

#### Polymath Jr.

This is a group project. 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  $\pi_9 = 10^{10} \, \text{morphism } 10^{$ 

#### **Independent Study with Professor Vasily Dolgushev**

#### **BICMR AI4MATH**

I collaborate with four students to formalize in lean4 that Algebraic integer of \$\Bbb{Q} [\sqrt{-3}]\$ is PID. I learn a a lot of knowledge about functional programming and constructing a proof assistant. I lean some basic dependent type theory. Above all, I gain more ability of collaboration and of learning new things quickly.

## PRESENTATIONS AND WORKSHOPS

JMM 2025 AMS Special Session on Polymath Jr REU Student Research Session Dessins\_d\_enfants\_and\_complete\_regular\_maps\_presentation

JMM 2025 AMS-PME Undergraduate Poster Sessions Dessin\_Equation\_JMM\_Poster

## **SCHOLARSHIP**

Gong Neng Scholarship

## **SPECIAL SKILLS**

### **Programming Language**

C++; python; sage; Wolfram Language; latex(fluent, knows basic programming in tex); postscript(ghostscript); lean4; html & css & javascript; shell(bash).

## Foreign Language

English (fluent); French (beginner).