

Curriculum Vitae

- **Name:** Xingyu Zhong (钟星宇)
- **Email:** sun123zxy@qq.com
- **Homepage:** <https://scholar.sun123zxy.top/>

Education

2022/09–2026/06 | Beijing Institute of Technology | Bachelor of Mathematics (expected)

Grades (by the end of 6th semester)

- **GPA:** 3.9 / 4.0 (94)
- **GPA Ranking:** 1 / 27
- Obtain 90+ scores in almost all the core courses in mathematics
- Obtain 80+ scores in all courses
- **Courses Including:** *Abstract Algebra* (95), *Combinatorics* (97), *Elementary Algebraic Geometry* (100), *General Topology* (99), *Differential Manifolds* (92), *Programming in C* (100), *Commutative Algebra* (ongoing)

Undergraduate Thesis (WIP)

- **Advisor:** Prof. Xun Xie (谢迅), BIT
- **Studying Area:** Springer correspondence, general linear groups, Young tableaux, Lie algebras

Awards

Date	Round	Award	Issued by
(expected)	2024–2025	Outstanding Student 优秀学生	Beijing Institute of Technology
2024/12	2023–2024	Outstanding Student 优秀学生	Beijing Institute of Technology
2023/12	2022–2023	Model Student 优秀学生标兵	Beijing Institute of Technology

Scholarships

Date	Round	Scholarship	Issued by
(expected)	2025, 5th	Zhenyong Fei Scholarship 费振勇奖学金	School of Mathematics and Statistics, BIT 北京理工大学数学与统计学院
(expected)	2024–2025	Baosteel Scholarship for Outstanding Students 宝钢优秀学生奖	Baosteel Education Foundation 宝钢教育基金会
2025/03	2024–2025	Samsung Scholarship	Samsung Electronics China
2023/12	2022–2023	National Scholarship 国家奖学金	Ministry of Education, PRC
2022–2025	1st–5th semester (for 5 times)	First Class Scholarship	Beijing Institute of Technology

Competitions

Competitive Programming

ICPC International Collegiate Programming Contest

Date	Competition	Prize
2024/11/03	2024 Asia Nanjing Regional	Bronze Medal
2023/11/25	2023 Asia Hefei Regional	Silver Medal
2023/10/22	2023 Asia Xi'an Regional	Bronze Medal

CCPC China Collegiate Programming Contest

Date	Competition	Prize
2024/11/17	2024 Zhengzhou National	Silver Medal
2024/05/26	2024 Guangdong National Invitational	Gold Medal
2023/11/05	2023 Harbin National	Silver Medal
2023/05/28	2023 Hunan National Invitational	Silver Medal

- Countless other university / provincial / national contests (BITPC, Baidu Astar, Lanqiao, etc.) in 2022–2024

Mathematics

Date	Competition	Prize
2024/04/15	2024 Alibaba Global Mathematics Competition	Finalist
2022/10	2022 BIT Campus Mathematics Competition for Junier Grade Group	First Prize

CMC The Chinese Mathematics Competitions

Date	Competition	Prize
2024/11/09	2024 National Preliminary Beijing (Mathematics Major, Type A)	Third Prize
	2024 Beijing Provincial (Mathematics Major, Type A)	Third Prize
2023/11/11	2023 National Preliminary Beijing (Mathematics Major, Type A)	Third Prize
	2023 Beijing Provincial (Mathematics Major, Type A)	Second Prize

Modeling

Date	Competition	Prize
2023/08	2023 National Collegiate Contest on Statistical Modeling, Beijing Preliminary, Undergraduate Group	Second Prize

Talks

Date	Title	Links
2025/09/17	Introduction to Formal Mathematics with Lean 4 <ul style="list-style-type: none"> The first lecture in the course <i>Introduction to Formal Mathematics with Lean 4</i> 	onsite (en) / latest (en)
2025/09/11	Classification of Quadratic Forms over \mathbb{Q} <ul style="list-style-type: none"> UTokyo–BIT Student Math Workshop Joint work with Shubin Xue (薛术彬). The onsite talk will be given by him. 	onsite (en)
2025/06/20	Irreducible Representations of the Symmetric Group <ul style="list-style-type: none"> Selection presentation for UTokyo–BIT Student Math Workshop 	onsite (en) / latest (zh)
2025/04/16	Classification of Quadratic Forms over \mathbb{Q} <ul style="list-style-type: none"> 2025 spring <i>Algebraic Geometry</i> final presentation Lecturer: Prof. Yangyu Fan (范洋宇), BIT 	onsite (en) / latest (en)
2024/04/20	DFT from the Perspective of Algebra Isomorphism 代数同构视角下的离散 Fourier 变换 <ul style="list-style-type: none"> USTC–BIT Student Math Workshop Mentor: Prof. Peng Cao (曹鹏), BIT 	onsite (zh) / latest (zh)
2023/10/18	The Δ Discriminant of Univariate Polynomials 一元多项式的 Delta 判别式 <ul style="list-style-type: none"> 2023 fall <i>Advanced Algebra II</i> course seminar Lecturer: Prof. Peng Cao (曹鹏), BIT 	onsite (zh) / latest (zh)
2023/08/01	A Convolution-Oriented FFT Tutorial <ul style="list-style-type: none"> 2023 BITACMCLUB Competitive Programming Summer Training 	onsite (zh) / latest (zh) / suppliment (zh)
2023/05/18	Space Filling Curves and Cardinality 空间填充曲线与集合势理论 <ul style="list-style-type: none"> 2023 spring <i>Mathematical Analysis II</i> course seminar Joint work with Chong Ning (宁冲) Lecturer: Prof. Zhentao Lv (吕珍涛), BIT 	onsite (zh) / latest (zh)
2023/04/23	Wallis Product, Stirling's Approximation and Guassian Distributions Wallis 公式、Stirling 公式与正态分布 <ul style="list-style-type: none"> 2023 spring <i>Mathematical Analysis II</i> course seminar Lecturer: Prof. Zhentao Lv (吕珍涛), BIT 	onsite (zh) / latest (zh)
2022/12/13	Topics on the compactness of \mathbb{R} 有限覆盖定理与实数理论 <ul style="list-style-type: none"> 2022 fall <i>Mathematical Analysis I</i> course seminar Lecturer: Prof. Pengshuai Shi (史鹏帅), BIT 	latest (zh)

Programs

Date	Program	Links
2022/12– 2023/12	On the Uniqueness of the DFT matrix 将循环卷积转化为乘积的矩阵是否只有傅里叶矩阵? <ul style="list-style-type: none">• Innovation and Entrepreneurship Training Program for College Students (Level: Provincial & Collegiate) 大学生创新创业训练计划 (市、校级)• It is shown that the DFT matrix, in some degree, is the only linear transformation that carries circulant convolution into pointwise multiplication.• Role: Project Leader• Advisor: Prof. Feng Zhang (张峰), School of Information and Electronics, BIT	

Volunteering

Date	Event	Links
2025/09– 2025/12	Introduction to Formal Mathematics with Lean 4 <ul style="list-style-type: none">• A hobby course introducing the basics of formalization and the Lean 4 interactive theorem prover to undergraduates at BIT. This course is designed to be a companion to the 2025 Fall <i>Abstract Algebra</i> course at BIT lectured by Prof. Yangyu Fan (范洋宇).• Role: Organizer / Lecturer.	lecture notes (en) / online notes (en) / online repository
2024–2025	Multiple student-organized seminar on mathematics <ul style="list-style-type: none">• Role: Organizer / Speaker. Among the organizers of the after-class seminar of the courses <i>Real Variable Functions</i>, <i>Complex Variable Functions</i> and <i>Abstract Algebra</i>. Among the speakers of the student-organized seminar on <i>Commutative Algebra</i>.	
2023–2024	Multiple competitive programming contests <ul style="list-style-type: none">• Role: Problem Setter. Participated in the problem setting work of 2023 BITCPC and 2024 ICPC Asia Kunming Regional.	
2023/07– 2023/08	2023 BITACMCLUB competitive programming summer training <ul style="list-style-type: none">• A 5-week training program for BIT & Yan'an Univ. students interested in competitive programming.• Role: Lecturer. Talked about DFT / FFT, its convolutional nature and mathematical background.	news (zh)

Work Experience

Date	Event	Links
2025/07–	BICMR–Ubiquant AI4Math Internship (Data Annotation Team) <ul style="list-style-type: none">• Annotating and Formalizing definitions and theorems in abstract algebra via the Lean 4 interactive theorem prover.	

Events

Date	Event	Links
2025/09/08– 2025/09/12	UTokyo–BIT Student Math Workshop	news (zh)
	<ul style="list-style-type: none"> • Role: Attendance 	
2025/07/01– 2025/07/20	BICMR–RUC algebra and formalization summer school 代数与形式化数学暑期学校	register (zh) / news (zh) / group project
	<ul style="list-style-type: none"> • A two-stage summer school held in Renmin University of China and Beijing International Center for Mathematical Research, providing lectures on the Lean prover and some algebra courses. Group presentations on hands-on formalization projects were required in the second stage. • Role: Attendance in the first and the second stages • Lecturer: <ul style="list-style-type: none"> – Prof. Riccardo Brasca, Université Paris Cité – Prof. Shanwen Wang (王善文), Renmin University of China – Prof. Huayi Chen (陈华一), WestLake University 	
2025/02/02– 2025/02/15	2025 FRP winter programme in mordern advanced deep learning	
	<ul style="list-style-type: none"> • A two-week winter program held in University of Cambridge on modern deep learning theories. Group presentations on hands-on projects were required at the end of the program. • Role: Attendance / Special Award Winner (3 out of 15) • Lecturer: <ul style="list-style-type: none"> – Prof. Jose Hernandez-Lobato, University of Cambridge – Jiajun He (何佳峻), University of Cambridge 	
2024/09/30	ComBIT24–StanleyFest	link (zh/en)
	<ul style="list-style-type: none"> • A conference on combinatorics at BIT in 2024 • Role: Attendance • Organizer: Prof. David Guoliang Wang (王国亮), BIT 	
2024/04/20– 2024/04/21	USTC–BIT Student Math Workshop	news (zh)
	<ul style="list-style-type: none"> • A communication activity between BIT and University of Science and Technology of China • Role: Speaker / Attendance 	

Skills

- **Computer Science:** General programming language familiarity (Python / C++ / Web, etc.). Everyday user of collaborative developing tools (Git). Hands-on experience with building static websites (Quarto / Jekyll) and developing lightweight command-line tools. Github
- **Typesetting** Everyday user of Markdown and LaTeX. Proficiency in publishing systems (Pandoc / Quarto). Experience in developing Quarto Lua filters and extensions.
- **Algorithms:** Once a competitive programmer (OI / ICPC). Familiarity with most of the data structures and algorithms. Codeforces 1951
- **Formalization of Mathematics:** Contributor of Mathlib 4. Participated in BICMR–RUC algebra and formalization summer school. Work experience in formalization and annotation in Lean 4.
- **Languages:**
 - **Chinese:** Native
 - **English:**
 - * **IELTS Academic** 7.5 (8.5 / 8.5 / 6.5 / 6)
 - * **CET-6** 581
 - * **CET-4** 650
 - * **CET-SET4** A