

# TIANTONG SUN

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Wuhan City, Hubei Province

birth:2004.10.25, age:20

## EDUCATION

**Huazhong University of Science and Technology 'Project 985'** 2021.9-Present

Major :the School of Mathematics and Statistics(Strong foundation plan for basic disciplines)

Degree :Senior Currently

**rank:1/20, Overall Score: 89.5/100, GPA:4.4/5**

**Courses with Distinction:** Topology(100), Mathematical Statistics(98), Abstract Algebra(97), Differential Geometry(100)

National University Entrance Examinations: **rank:632/147111 , Overall Score: 671(maximum score:750)**

## EXPERIENCE

**American Collegiate Mathematical Modeling Contest: F award(top 1.78%)** February 2024

*Responsible for Searching, Mathematics modelling and Writing.*

- Model by establishing differential equations of the population growth of lampreys, including "Eco-Adaptive Model for Lampreys on Sex Variation", and "Dynamic System for Multi-Interaction of Ecosystem"
- Analysis "Effect of the Alterable Sex Ratio on the Larger Environment" on the basis of our model.

**Trade-offs between fairness and utility based on the Federated LLM (in progress)** Jan.2024-Now

- Under the framework of Federated LLM, we provide optimization objectives and constraints for the trade-off between fairness and utility, and propose a Federated algorithm that relies on fairness indicators, effectively making up for the shortcomings of Federated LLM fairness research.(Going to be finished and submitted.)
- Currently research on the upper and lower bounds of parameter errors mathematically in federated learning.

**Studying and contributing for "Lean-Prover" open source code library of Peking University AI-for-Math Summer Program** June.2023-Sep.2023

- After study, I am able to write the lean language version of proof of some mathematical theorems.<https://github.com/jjdishere/neukirch/blob/master/AlgebraicNumberTheory/AlgebraicIntegersPart1/GaussianIntegers.lean>
- **An internship:**And provide simple implementations to improve accuracy for AI math-problem-solving company (a company called Answer.AI).

**Participated in and lectured the differential manifold seminar** June.2023-Nov.2023

## AWARDS AND SCHOLARSHIPS

**National Scholarship** 2022

**Outstanding Undergraduate Student** 2022

Issued by my university, only 1% is selected and equipped with personalized training programs.

**American Collegiate Mathematical Modeling Contest: F award(top 1.78%)** February 2024

**School merit student scholarship** 2022

**Chen Hui scholarships(sponsored by a well-known alumni entrepreneur)** 2022

**The second prize of the 15th National Mathematics Competition for College Students** 2023

**Excellent individual of Winter Vacation "Return home" social practice for college students.** Nov.2022

As an organizer, I returned to my high school for college admissions promotion.

**"Midas Touch" Startup School's graduation certificate** 2023

## ACTIVITIES

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Executive President of the Union of Outstanding Undergraduate Students	<i>Sep.2022-Now</i>
Team leader of news department of English Broadcasting Station in Campus	<i>Sep.2022-Sep.2024</i>
Announcer of English Broadcasting Department of Radio Station	<i>Sep.2021-Sep.2023</i>
League branch secretary of the class	<i>Sep.2021-Now</i>
Member of Organization Department of mathematics faculty	<i>Sep.2021- Sep.2023</i>
TPIS International students "Chinese Language Tutoring" program volunteer service certificate	<i>Sep.2022-Dec.2022</i>
Members of the percussion band,having played "Technology Pioneer", "Tequila" and other works	<i>Sep.2023-Now</i>

## SKILLS & INTERESTS

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<b>Computer Languages</b>	Python, Matlab, Lean-prover language
<b>Tools</b>	Neural Network, Mathematical Modeling,Lean-prover
<b>Interests</b>	Volleyball, running, free combat, martial arts, percussion, producing audio programs.