

# Mingjun Gao

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## EDUCATION

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**Shanghai Starriver Bilingual School** 2020 - Expected 2024

### Online College-level Courses Taken

Harvard Extension School - Multivariable Calculus	Sep 2023 - Present
Georgia Technology @edX - Linear Algebra	Sep 2023 - Present
MIT Open Courseware - Quantum Mechanics 8.04	Jun 2022 - Aug 2022
Stanford University @Coursera - Machine Learning	Mar 2022 - Jun 2022

### Learning by-self

Feynman's Physics Lecture I II III	Mar 2022 - Present
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## HONORS AND AWARDS

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### Physics Unlimited Premier Competition (PUPC)

Global Rank 9, China Rank 2(tie), out of 350 players [http://physicsu.org/premier/pupc\\_2022\\_results-by-score.pdf](http://physicsu.org/premier/pupc_2022_results-by-score.pdf) (Grade 11, Nov 2022).

### Physics Unlimited Explorer Competition (PUEC)

Global Rank 5, China Rank 1(tie), out of 38 teams [http://physicsu.org/explorer/2023\\_Explorer\\_Scores.pdf](http://physicsu.org/explorer/2023_Explorer_Scores.pdf) (Grade 11, Apr 2023)

### Canadian Association of Physicists High School Prize Exam (CAP)

Gold (Grade 11, Apr 2023)

### British Physics Olympiad (BPHO)

Global Gold (Grade 11, Nov 2022)

### Physics Bowl D1

Global Rank 38 (Grade 10, Mar 2022),

### Physics Bowl D2

China Gold (Grade 11, Mar 2023)

### American Math Competition (AMC) 12

Aime Qualifier (Grade 11, Nov 2022)

### USA Computing Olympiad (USACO)

Gold (Grade 11, Mar 2023)

### Youth Science and Technology Innovation Competition of Shanghai

3rd Award (Grade 9, Mar 2021)

### Basketball Match of Minhang, Shanghai

The 2nd Place (Grade 10, Oct 2021)

### Basketball Match U15 of SSSA(Shanghai Schools Sports Association)

The 2nd Place (Grade 9, Nov 2020)

### Soccer Match U15 of SSSA(Shanghai Schools Sports Association)

The 1st Place (2019)

### The Excellent Club Award to the City Culture Club (Grade 11, 2023)

## RESEARCH PROJECTS

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### **Perturbation Theory: Hydrogen and Alkali Atoms in Constant E-Field**

Grade 11, Mar 2023 - Jul 2023

Colgate University

Research on the quantum mechanics.

[https://drive.google.com/file/d/1472NdBU2eqjCHwwYPCPT7U\\_JBsGkdaNF/view?usp=sharing](https://drive.google.com/file/d/1472NdBU2eqjCHwwYPCPT7U_JBsGkdaNF/view?usp=sharing)

### **A Photo-controlled Varistor Based on Bipolar Resistance Effect**

Grade 10,11,12, Oct 2021 - Present

Shanghai Jiaotong University

Successfully produced a photo-controlled rheostat with good linearity and high sensitivity.

During the experiment, I Solved the problem “the copper wire cannot be easily fixed” by clamping the silicon wafer and copper wire between two cleaned glass sheets, so as not to affect laser irradiation and also to fix the sample.

<https://drive.google.com/file/d/1VOJnP45Bpjn6Eebdsdz-KenKryOaduqf/view?usp=sharing>

### **Independent Researches**

An auxiliary device for improving respiratory resistance of masks

Grade 9, 2021

Basketball shooting scoring system

Grade 9, 2020

## PUBLICATIONS

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### ***A day in Hospital***

Grade 10, 2022

Essay published on Journal “Echo” of Shanghai Starriver Bilingual School.

### ***Perturbation Theory: Hydrogen and Alkali Atoms in Constant E-Field***

Grade 12, 2023

"VERITAS" academic journal of Shanghai Starriver Bilingual School.

[https://drive.google.com/file/d/1472NdBU2eqjCHwwYPCPT7U\\_JBsGkdaNF/view?usp=sharing](https://drive.google.com/file/d/1472NdBU2eqjCHwwYPCPT7U_JBsGkdaNF/view?usp=sharing)

## ACTIVITIES

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### **Tutor & Moderator, Schoolhouse.world**

Nov 2022 - Present

- Tutored AP Physics 1, AP Physics C, and Physics Competition & Calculus for 3 hours every week.
- Tutored 70 learners from 16 countries, 67 sessions and 85 hours by the end of Oct of 2023.
- Silver tutor qualifier
- Moderator of Physics sub-world from Sept of 2023 and member of AI Team from Sept of 2023
- Schoolhouse transcript: \_

<https://drive.google.com/file/d/1GOTuF1weEV6JFKbB7ffdL9gXLVRzrjqH/view?usp=sharing>

### **Founder & developer, AI Tutor of Physics Project**

May 2023 - Present

I found sometimes the learner cannot get the timely guidance from the tutor due to the time difference, so I'd like to develop a AI tutor system which can help tutoring when the tutor is absent. The system can be the

<https://ai-tutor-physics.vercel.app/>

### **Co-founder, City Culture Club**

Grade 10 - 12, Sep 2021 - Present

- Explore the traditional culture, including ancient buildings, traditional foods, and Shanghainese.
- Interviewed store owners in Shanghai to understand their difficulties of the businesses during the COVID-19.
- Expanded the club members from 2 to 16.

**Honor:** Excellent Club Award (Grade 11, 2023)

## **TEDx SSBS Youth Speaker**

Grade 11, 2023

### **The Story of Nothing**

I discussed the “nothing” concept from the “vacuum” in physics to the nothing in life.\_

<https://www.youtube.com/watch?v=G4UNrR3NzR4>

### **Member, Further Physics Team**

Grade 11, Sep 2022 - May 2023

As a member of the further physics team, I led 4 members to attend the PUEC (Physics Unlimited Explorer Competition), which is a team-based, collaborative open-ended assignment that takes place every spring. we studied together about the assignment and finally we ranked global 5 and China 1(tie). This is the 1<sup>st</sup> time of our school to take part in the PUEC. We all are interested this competition and I really appreciate the collaboration from my team members.

### **Subject Representative, Physics**

Grade 9, 2020 - 2021

- Helped teacher to collect and hand out the homework of Physics.
- Answered the Physics questions from classmates.

### **Actor, The Drama Club**

Grade 11 - 12, Sep 2022 - Present

Played as the role of repairer in the drama “Cut”.

### **Point Guard, Varsity team of Basketball**

2014 - Present

As the assistant of the coach for the training and competition, I developed scoring goals system for self-training.

### **Midfielder, Varsity team of Soccer**

2014 – Present

### **Member, Family**

- Hair dressing for myself and family.
- Fixed home's and neighbor's electronic devices.
  - Repairing the computer charger for the neighbor.
  - Repairing the igniter of the cooker.
  - Repairing the desk lamp.
  - Repairing the mobile phone charger.
- Cooking for my family.
  - Be good at frying beef steak and frying egg.
- Running with mom to help with her insomnia.