

# AYUSH MADHAV KUMAR

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## PROFILE

Indo-Irish | Astrophysics, Physics & Computer Science Enthusiast | 4.0 GPA

A highly motivated student with an expertise in astrophysics, computer science, and engineering. Seeking opportunities to contribute to cutting-edge research and academic excellence in physics and technology.

Adept at coding, problem-solving, and leveraging scientific knowledge to innovate solutions.

## JOB EXPERIENCE

### Associate Intern GIIT Solutions — Summer 2024

CI/CD based deployment on AWS; Python scripting

### Associate Intern GIIT Solutions — April 2025

Continued working on internal projects with python scripting and CI/CD based deployment on AWS

### DogPatch Labs Internship — Summer 2025

7 week Entrepreneurship accelerator based in Dublin

### CareTether — Summer 2025

Wearable app and device system made for elderly people with cognitive difficulties

## RESEARCH EXPERIENCE

- Independent Research
- Research commended by Physics professors at UCC
- Authored six research papers in fields like quantum physics (quantum entanglement and secure communications), astronomy (exoplanet detection, stellar wind impacts on habitability), machine learning (predicting Bitcoin prices), game theory and mental health (impact of technology on students).
- Papers under review at major journals like arXiv
- Published on medium

## EDUCATION

- Douglas Community School (Irish Leaving Certificate), 4.0 gpa  
Predicted: [ H1 (100 points); H2 (88 points) ] in H1 in Mathematics, H1 in Physics, H1 in Chemistry, H1 in Accounting, H1 in English, and H1 in Applied Mathematics, H2 in French
- Global Indian International School (CBSE)  
10/10 GPA unweighted

## SKILLS

- **Programming Languages:** Python, HTML, CSS, JavaScript, TypeScript, Java
- **Tools & Technologies:** AWS, GitHub, Machine Learning, Data Analysis
- **Scientific Software:** MATLAB, Wolfram Mathematica, LaTeX, PLUTO, Stockfish
- **Languages:** English (Fluent), French (Intermediate), Hindi (Fluent), Punjabi (Intermediate), Latin (Intermediate)

- **Soft Skills:** Public Speaking, Team Leadership, Time Management, Problem Solving, Research work

## AWARDS

- Recognized by the Royal Society of Chemistry as Top 25 in Chemistry on the Island of Ireland as of 2025
- FIITJEE 90% Scholarship, premier JEE prep institute , stood out among thousands of top tier students
- IrEOES Physics Olympiad Finalist (2023), Ranked top 10
- Qualified for Irish Chemistry Olympiad (2024)
- 2nd Place International, SOF International English Olympiad (2024)
- Regional Winner, SOF International Social Science Olympiad (2024)
- 1st Place Regional, SOF International General Knowledge Olympiad (2024)
- Multiple regional recognitions for SOF IMO and NSO
- Best Speaker, Multiple MUN Conferences
- 2nd Place, Quality Control Presentation at Real World Challenges Convention
- UCC Philosophy Debate : Qualified for regional debates, focusing on ethics and societal issues, Won regional competition, earning recognition.
- European Youth Parliament Regionals : Contributed to discussions on environmental policies and international relations.
- Bank of Ireland Quiz: Ranked 3rd Nationally; recognized for financial literacy and teamwork in a challenging competition.

## Environmental Solutions App (Real World Challenges Conference, 9th Grade)

- Developed an app to address climate change issues, focusing on waste management and energy conservation.

## Earth's Radius Calculation (GSE One Conference)

- Collaborated with a global team to calculate Earth's radius using astronomical observations.

## RESEARCH EXPERIENCE

- Independent Research
- One mentor: Neil Bronks, school physics teacher
- Authored six research papers in fields like quantum physics (quantum entanglement and secure communications), astronomy (exoplanet detection, stellar wind impacts on habitability), machine learning (predicting Bitcoin prices), game theory in chess and mental health (impact of technology on students).
- Papers under review at major journals like arXiv
- Published on medium

## **EXTRACURRICULAR ACTIVITIES**

### **Advanced Math Placement Classes**

2024 – 2025

- Selected for weekly advanced mathematics classes at UCC and very selective bi-weekly advanced IMO training for global representation

### **President, Coding Club**

2023 – 2025

- Directed coding workshops, teaching HTML and Python to younger students.
- Organized and hosted coding competitions, fostering a community of programmers.

### **President, Chess Club**

2023 – 2025

- Managed club activities and led the team to national-level tournaments.
- Achieved Personal best 6/6 record chess tournaments.

### **Student Council Leader**

2023 – 2025

- Played a key role in the reinstatement of the school library and setting up student forums.
- Participated in eco-initiatives like promoting biking for sustainability.

### **Green Schools Representative**

2024 – 2025

- Leading the installation of bike sheds as part of a school-wide green travel initiative.
- Contributed to local efforts promoting sustainable transportation.

### **Debate Club Leader**

2021-2025

- Participated in and won multiple debate and public speaking competitions
- Quality Control Presentation 2nd Place in Asia
- Co-Chaired an Intl. Davis College MUN

## **VOLUNTEER EXPERIENCE**

### **Volunteer, Olio**

2023 – 2025

- Contributed 6-8 hours weekly to reduce food waste by distributing surplus food from supermarkets in the community.

### **Volunteer, Religious Food Service**

2020 – 2025

- Volunteered at local religious establishments, helping to serve food and organize events.

### **School Open Day Science Exposition Volunteer**

2023, 2024

- Simplified complex concepts to inspire younger students, fostering curiosity and a passion for science.

## REFERENCES

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