Cao Xizhen

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ABOUT ME

Hello! I am a JC1 student from Hwa Chong Institution, currently a member of HC Infocomm & Robotics Society. While I was a student in Nanyang Girls' High School, I served as Training & Programming Head. I have also been in the MOE Art Elective Programme since 2021. I love maths, science research, and Gamedev; I'm also deeply passionate about cybersecurity, computer science, and fine art.

ACHIEVEMENTS

2025

- 3rd Place in NES Connect 2025
- 3rd Place in Articulation Prize 2025

2024

- Winner of JP Morgan GenerationTech 2024
- Singapore Maths Project Festival 2024, Bronze
- Finalist at National Olympiad in Informatics (NOI 2024)
- SMO Open Honourable Mention
- 4th place in Sentinel Challenge 2024
- Urban Redevelopment Authority(URA), awarded Lively Places Fund
- Recipient of Nanyang Honour Roll
- Top 5% in cohort for Mathematics & Physics
- Climate Fresk 2024, Green Award

2023

- SMO Open & Senior Honourable Mention
- Mathematics research project in Number Theory & Cryptography
- Participated in UOB Painting of The Year
- Participated in Sentinel Challenge 2023

2022

- Distinction for Mathematics Research Project on probability & combinatorics
- SMO Junior Bronze

EXPERIENCES

- **SieberrsecCTF 2025**
  - Overall organising team for SCTF 6.0
  - Publicity Head, challenge setter and planner for the competition.
- **HCI CTF 2025**
  - Challenge setter and planner for the competition.
- **Science Research**

○   Research for quantum key distribution under HCI CenTaD research Programme
- **Mathematics research**
    - ○   Project on cryptoanalysis techniques & number theory in 2023 & 2024
    - ○   Project on probability & combinatorics, developed an algorithm to solve Wordle
- **Sentinel Programme**
    - ○   Enrolled in the Sentinel Pilot Programme from 2022 - 2023
- **HCI Art Elective Programme**
    - ○   Previously enrolled in NYGH Art Elective Programme, since 2021

SKILLS & INTERESTS

- **Game Development**
    - ○   Proficient in Unity & Unreal Engine
    - ○   Proficient in Blender & 3D Modelling
- **Programming languages**
    - ○   C#
    - ○   C++
    - ○   Python
    - ○   Javascript/HTML/CSS
- **Cybersecurity**
    - ○   Cryptography
        - ■   Advanced modular arithmetic
        - ■   Intimately familiar with cryptosystems such as Lattice, RSA, ECC and AES
    - ○   Open-source Intelligence
        - ■   Familiar with tools such as Maltego & Sherlock
- **Competitive Programming**
    - ○   Familiar with various medium-level algorithms & competitive programming skills
- **Interests**
    - ○   I like to read and hike in my free time
    - ○   I am also very passionate about fine arts & sculpture/3D media
    - ○   I am passionate about spreading awareness on cybersecurity and computer science. Despite the fact that many people may think that Art is a subject that would never intersect with CS/Cybersecurity, I would like to show people that both can, indeed, co-exist, and they can work together to form new and amazing things, such as in gamedev!