

Frank Xiang

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Education

Academic Qualifications.....

- **University of Wisconsin–Madison** **Madison, US**
Undergraduate student in Computer Science, Jan 2025 - Expected 2026
- **The Hong Kong Polytechnic University** **Hong Kong**
Undergraduate student in Computing and AI, Sep 2023 - Dec 2024
- **HS Affiliated to Renmin University of China** **Beijing, China**
High school student, Sep 2020 - Jul 2023

Awards and Scholarship

- HKSAR Government Scholarship 2024/25 (HKD 80,000) Dec 2024
- Gold Medal Winner (7th Place) in The 2024 ICPC Asia Nanjing Regional Contest Nov 3, 2024
- Gold Medal (10th Place) of AStar (The 19th Baidu Star Programming Competition) Dec 2023
- Silver Medal (12th Place) of The 2023 ICPC Asia Macau Regional Contest Nov 2023
- Represented Beijing A Team (3rd) at the 39th National Olympiad in Informatics (NOI 2022) Aug 2022
- Gold Medal Winner in Byte-Dance Byte Camp 2022 July 2022
- Gold Medal Winner in the 16th Asia and Pacific Informatics Olympiad (APIO 2022) May 29, 2022
- 2nd Place in Tsinghua University Programming Contest (THUPC) 2022 May 2022
- 1st Prize (Gold Medal) of the 39th National Olympiad in Informatics Winter Camp Jan 28, 2022
- 12th Place of 2021 Huawei ICPC Communication Routing Challenge Oct 2021
- Silver Medal Winner in the 38th National Olympiad in Informatics (NOI 2021) July 29, 2021
- Platinum Winner (1st place) in US OPEN of USA Computing Olympiad (USACO) Apr 2021

Experience

- **Undergraduate Research in Vector Database Management System** **PolyU, Hong Kong**
Supervised by Prof. Jieming Shi Sep 2024 - Apr 2025
 - Researched RFANNS problems in vector databases, focusing on HNSW-based graph indexing.
 - Designed FRASP, a range-filtering nearest neighbor algorithm combining a first-split range strategy and three-segment HNSW structure, achieving significantly better efficiency and accuracy than prior methods across diverse high-dimensional datasets.
 - Paper under review at SIGMOD 2026.
- **Organizer of Poly Competitive Programming Club** **PolyU, Hong Kong**
Student Assistant of COMP Programming Team; Supervised by Prof. Bo Li Jan 2024 - Dec 2024
 - Initiated a sustainable computing club within the PolyU Department of Computing.
 - Created a Discord server to provide resources and support for new club members.
 - Created and assigned training sessions (Codeforces, QOJ, UCUP) to improve competitive programming

skills.

Administrator of QOJ and Universal Cup

- <https://qoj.ac/user/profile/MoRanSky>
<https://contest.ucup.ac/user/profile/MoRanSky> Dec 2023 - Apr 2024

- Converted problem formats using Tuack to migrate datasets between UOJ and QOJ systems.
- Manage problem system and upload problem data (UOJ - QOJ format)

SureFire UAV (unmanned aerial vehicle)

- Responsible for Computer Vision; Supervised by Prof. Qixin Wang PolyU, Hong Kong
Nov 2023 - May 2024

- Contributed to the SureFire project on smart urban resilience and firefighting, focusing on UAV-based visual perception.
- Evaluated camera calibration (pinhole, SFM, MVS) and point cloud registration algorithms (ICP, FMR, DGR).

Tencent Spark Challenge Week

- Computer Vision Direction Tencent Headquarters, Beijing
Aug 2023

- Completed the gesture recognition program through model training (MobileFaceNets, ResNet) and actual testing (Using MediaPipe Landmark by Google) in Python.

Projects

Competitive Programming Template

- Source: <https://github.com/DMoRanSky/cp-template> Feb, 2021 -

It's designed and extracted from my 5000+ competitive programming problems submission and contains 3500+ lines using C++, which includes all mainstream knowledge.

Sixteen Kingdoms Card

- Runner up of the "Discovery Cup" Youth Programming Challenge Beijing
2017

Independently developed a Landlord game using front-end language (HTML/JavaScript/CSS), which combines the historical themes of the Sixteen Kingdoms and contains 2000+ lines of code.

Split Machine

- Minecraft Plugin, source: <https://github.com/DMoRanSky/splitmachine>
https://gitee.com/moran_sky/SplitMachine Jan, 2017

A plug-in of Minecraft Server for dismantling items in the original environment was developed using Java language.

Technical and Personal skills

- **Programming Languages:** C++, Python, JavaScript, Java, HTML, CSS
- **Languages:** Chinese, English