

LAU KAI KWAN

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EDUCATION

The Chinese University of Hong Kong (CUHK)	Aug 2022 - Present
• B.Sc in Mathematics (expected graduation date: 07/2026), major GPA (3.33/4.00)	
• Enrichment Stream and Computational and Applied Mathematics Stream	
The Hong Kong University of Science and Technology	Aug 2021 - Dec 2021
• Science (Group A) with an extended major in artificial intelligence	
Ng Yuk Secondary School	Sep 2015 - Jun 2021
• Sir Edward Youde Memorial Prize	
• HKDSE: 29/35 for best five score subjects	
• SAT: 800/800 Math II, 750/800 Math I	

RESEARCH EXPERIENCE

The Chinese University of Hong Kong , Research Assistant	Mar 2025 - Present
• Investigated Quantitative Biology topics under the supervision of Prof. Gary P. T. Choi	
• Designed a novel algorithm to perform geometric and statistical analysis on avian skull morphology, successfully quantifying complex biological shape data	
• Preprint: Geometric and Statistical Analysis of Avian Skull Morphology (Available on ArXiv)	
The Chinese University of Hong Kong , Research Assistant	Jan 2025 - Mar 2025
• Supervised by Dr. WONG Chak Fu Jeff in Department of Mathematics and Information Technology	
• Summarized and checked research papers about Game Theory	
The University of Waterloo , Visiting Scholar	Jun 2025 - Aug 2025
• Conducted research on numerical methods for Generative AI under the supervision of Prof. Justin Wan	
• Formulated score computation using PDE instead of SDE to enhance computational efficiency, achieved generation speeds over 100 times faster than standard DDPM in total	
• Developed a Cross-Matrix Krylov Projection algorithm to reduce over 40% computational time	
• Preprint: Efficient Score Pre-computation for Diffusion Models via Cross-Matrix Krylov Projection (Available on ArXiv)	
The Education University of Hong Kong , Research Assistant	Aug 2024 - Oct 2024
• Supervised by Prof. SUEN Chun Kit Anthony of Department of Mathematics and Information Technology	
• Summarized and analyzed research papers about Partial Differential Equations using LaTeX	
• Designed master-level mathematics course assignments	

TEACHING EXPERIENCE

Quality Education Fund Project Funded by the Education Bureau , Programmer and Designer	Jan 2024 - Present
• Collaborated with a local company OneEd and received HKD250 million funding	
• Designed HKDSE exam-related questions with AI training models and dynamic algorithms	
• Developed an online platform, Lambda Math, for the benefit of all local secondary school students	
First-Year Mathematics Honours Scheme (CUHK) , Teaching Assistant	Sep 2023 - May 2025
• Conducted and designed university-mathematics notes weekly for Year 1 Mathematics major students	
University of Wollongong College Hong Kong, Diploma of Applied Education Tutor	Dec 2024 - Present
• Conducted tutorial classes and lectures for students about applied mathematics in probability theory	
Training Programme for Young Mathematics Talents (CUHK) , Teaching Assistant	Jul 2024 - Aug 2024
• Instructed high school students in the Greater Bay Area in Linear Algebra I and Game Theory	
• Supervised 4 students to conduct mathematical research on Game Theory	
• Guided students to achieve recognition for best research topic and presentation	
• Cooperated with all teaching assistants to hold final exams and tutorials	
Enrichment Programme for Young Mathematics Talents (CUHK) , Teaching Assistant	Jul 2024 - Aug 2024
• Delivered instructional materials and assessments in English for the Differential Geometry course	
• Mentored young talents by fostering their mathematical maturity to prepare them for university-level course	

TEACHING EXPERIENCE

Program for the Gifted and Talented (CUHK) , Teaching Assistant	Dec 2023
• Communicated to gifted and talented students effectively	
• Maintained a disciplined classroom environment	
Ng Yuk Secondary School , Mathematics Tutor	Jan 2022 - Present
• Raised at least one DSE exam levels in core maths subject for low banding students	
• Organized and led study groups	

LEADERSHIP EXPERIENCE

Chung Chi Astronomy Club (CUHK) , President	Apr 2024 - Present
• Oversaw all administrative affairs to ensure smooth operations and adherence to institutional guidelines	
• Communicated effectively with staff and members of Chung Chi College	
• Led the team of 8 members in organizing major events	
CUHK Astronomy Club , Publicity Secretary	Mar 2023 - Feb 2024
• Published astronomy-related posts on social media and produced a souvenir to the public for the art fair	
• Designed website and 24-page reports for almost 400 club members	
• Organized an astronomy open contest with participation from 20 teams	

SCHOLARSHIPS

- Centaline Charity Fund Scholarship 2025-2026
 - Yasumoto International Exchange Scholarships
 - 1978 Mathematics Alumus Li Sze-lim Scholarship 2025/26
 - Spring Dinner Scholarship 2025
 - Hsin Chong-K.N. Godfrey Yeh Education Fund Bursaries 2024/25
 - Centaline Charity Fund Scholarship 2024-2025
 - ~Angel~ Care Student Assistance Project
 - Centaline Charity Fund Scholarship 2023-2024
 - Mathematics scholarship by Department of Mathematics, CUHK
 - Chung Chi College admission scholarship for outstanding extra-curricular performance
 - Faculty admission scholarship by Faculty of Science, CUHK
 - Centaline Charity Fund Scholarship 2022-2023
 - Sir Edward Youde Memorial Prize 2020-2021
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AWARD

Hong Kong and Macau Math Olympiad Open Contest

- Bronze Award (2015-2017)
- Silver Award (2018-2019)

China National Math Olympiad - Hua Xia Cup

- Thrid Class Award (2017-2018)

Hong Kong International Youth Performance Arts Festival

- Champion in Flute
 - First-runner up in Flute
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VOLUNTARY WORK

- Book sharing
- Private tutoring