KANGCHENG LI

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EDUCATION

The University of Hong Kong *September 2022 - Present*
Bachelor of Science, major in Mathematics
Minor in Statistics

Overall GPA: 3.21/4.3

The Univeristy of Waterloo *Exchange Program, January 2025 - May 2025*
Major in Mathematics

RESEARCH AND INTERNSHIP EXPERIENCE

Research on Towards Better Generalization and Optimization Errors of Lookahead Algorithm With Relaxed Conditions May 2025 - September 2025
Summer Research *University of Hong Kong*

- Established improved on-average-model stability bounds of Lookahead algorithm under convex and strongly convex cases by applying the Expectation-Variance Decomposition method.
- Established improved optimization error bound of Lookahead algorithm under convex and strongly convex cases using the self-bounding property.
- Removed the assumption of G-Lipschitz continuity from the original stability analysis .
- Showed an excess risk rate of $O(1/n)$ for convex problems and a rate of $O(1/(n\mu))$ for μ-strongly convex problems.

Research in Stability Analysis December 2023 - September 2024
Research Assistant *University of Hong Kong*

- Embarked on an intensive research project focused on stability analysis under expert supervision of Prof Lei Yunwen.
- Studied two seminal papers: 'Sharper Bounds for Uniformly Stable Algorithms' and 'Stability and Deviation Optimal Risk Bounds with Convergence Rate O(1/n)'.
- Studied 'High Dimensional Probability', a comprehensive book that expanded my understanding of the complexities of high-dimensional data in probability theory.
- Explored the theory of Martingales with its applications.

INTERNSHIP EXPERIENCE

Manim Production Team June 2023 - Present
Video and Tutorial Developer *University of Hong Kong*

- Produced educational mathematical animations using the Manim engine to assist teaching and popularize mathematical concepts under guidance of team leader Dr Chan Yat Ming.
- Developed tutorials of Manim engine using Jupyter Notebook to provide comprehensive guidance to new users of Manim.
- Lectured a 2-hour summer course imparting the Manim engine to a diverse group of learners using the tutorials.
- Gave an interactive poster presentation in CUHK Teaching and Learning Innovation Expo 2024.

PUBLICATION

K Li and Y Lei. Generalization and Optimization of SGD with Lookahead. arXiv:2509.15776, 2025. Submitted to ICLR 2026 [https://doi.org/10.48550/arXiv.2509.15776]

TEACHING EXPERIENCE

Teaching Assistant for MATH1009: Basic Mathematics for Business and Economics *September 2024 - December 2024*

SCHOLARSHIPS AND AWARDS

Summer Research Fellowship (SRF) Scheme 2024 for Science Students   April 2025

28th Recognition Ceremony: Event Registration (Category B Awards - Distinguished Service to the Community)   March 2025

Rosita King Ho Scholarship for the Exchange Study in the Academic Year 2024-25   March 2025

TECHNICAL STRENGTHS

Computer Languages	Python, C++, MATLAB
Tools	Latex, Jupyter Notebook
Languages	English (Fluent), Mandarin (Native Speaker)
Interests	Chinese Traditional Musical Instruments, Tennis