

Cunxin Huang, PhD Student

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Education

- 2022 – today 📖 **PhD student, Department of Applied Mathematics, The Hong Kong Polytechnic University.**
Derivative-Free Optimization. Supervisor: Prof. Zaikun Zhang and Prof. Xiaojun Chen. Supported under the **Hong Kong PhD Fellowship Scheme (HKPFS)** (approx. 200 awardees globally per year).
Selected courses: Functional Analysis (A+), Optimization (A, top grade in CUHK), Advanced Probability Theory (A-, top in class).
- 2018 – 2022 📖 **BSc, School of Mathematics, Jilin University.**
Information and Computing Science (Computational Mathematics).
Ranking: **2/109**.

Projects and Software

- 2024 – 2025 📖 **OptiProfiler** (with T. M. Ragonneau and Z. Zhang)
A benchmarking platform for derivative-free optimization solvers.
 - **Leading developer:** responsible for most of the code and paper writing.
 - Implemented in both **Python** and **MATLAB**, with automated testing and built-in problem libraries (CUTEst).
 - [Website] [GitHub] [Note] [PDF]

Selected Publications

Journal Articles

- [1] **C. Huang**, H. Song, J. Yang, and B. Zhou. “Error Analysis of Finite Difference Scheme for American Option Pricing under Regime-Switching with Jumps”. In: *J. Comput. Appl. Math.* (2023). [Note] [PDF]. doi: 10.1016/j.cam.2023.115484.

Preprints

- [1] **C. Huang**, T. M. Ragonneau, and Z. Zhang. “OptiProfiler: a platform for benchmarking optimization solvers”. [Note] [PDF]. 2026.
- [2] **C. Huang** and Z. Zhang. “Non-convergence analysis of probabilistic direct search”. [Note] [PDF]. 2026.
- [3] **C. Huang** and Z. Zhang. “A unified series condition for the convergence of derivative-free trust region and direct search”. [Note] [PDF]. 2026.
- [4] **C. Huang** and Z. Zhang. “Gradient convergence of direct search based on sufficient decrease”. [Note] [PDF]. 2026.

Selected Presentations

- 2025 📖 **ICCOPT 2025** (Los Angeles, invited-session talk)
- 2024 📖 **ISMP 2024** (Montréal, invited-session talk)

Selected Honors

Fellowships

- 2022  **Hong Kong PhD Fellowship Scheme (HKPFS)**, supported by Research Grants Committee (RGC) of Hong Kong, ref. PF21-56718.
- 2020  **Zhao-Yue Scholarship**, awarded by School of Mathematics, Jilin University.
- 2019  **National Scholarship**, awarded by Ministry of Education, China.

Awards

- 2024  **Operational Research Application Award** (group member) by **Operations Research Society of China (ORSC)**.
-  **Best Presentation Award** at the **2nd PolyU Research Student Conference**, awarded by Graduate School of The Hong Kong Polytechnic University.
- 2023  **Outstanding Presentation Award** at the **9th Graduate Forum of The Mathematical Programming Branch of ORSC**, awarded by The Mathematical Programming Branch of ORSC.
- 2021  **Finalist Award of Mathematical Contest in Modeling**, awarded by Society for Industrial and Applied Mathematics (SIAM).

Skills

- Languages  Native speaker for Mandarin, and level B2 for English.
- Coding  Python, MATLAB, Git, Linux, \LaTeX .