Shuang Liang

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Education

Columbia University	*New York, NY*
Ph.D. in Mathematics, Advisor: Duong H. Phong	Sept 2020 – May 2026

Cumulative GPA: 3.69/4.0, Courses: Machine Learning in Finance, Analysis and Probability

The University of Hong Kong	*Hong Kong*
B.Sc. in Mathematics, first class honor	Sept 2015 – June 2020

Cumulative GPA: 4.09/4.3, Major GPA: 4.12/4.3

Research Summary

Work on partial differential equations arising from complex geometry, in particular, the continuity equation for Hermitian metrics, the auxiliary Monge-Ampère method for fully nonlinear partial differential equations on complex Kähler and Hermitian manifolds, and parabolic dimension reduction on $5D$ supergravity.

Research Publications

[2025] Shuang Liang. "Parabolic Dimension Reduction in 5D Supergravity". Work in Progress. 2025.

[2023] Shuang Liang, Xi Sisi Shen, and Kevin Smith. "The continuity equation for Hermitian metrics: Calabi estimates, Chern scalar curvature, and Oeljeklaus–Toma manifolds". *Bulletin of the London Mathematical Society.* Vol.56: 959-980. 2023.

[2022] Nikita Klemyatin, Shuang Liang, and Chuwen Wang. "On uniform estimates for (n-1) form fully nonlinear partial differential equations on compact Hermitian manifolds". arXiv:2211.13798. 2022.

Selected Conference Talk & Workshop

[2024] Shuang Liang. "PDE methods in complex geometry workshop". American Institute of Mathematics, Aug. 26, 2024.

[2023] Shuang Liang. "Continuity equation and its applications". Differential Geometry, Topology, and Special Structures Seminar, City University of New York, Oct. 6, 2023.

Working Experience

Susquehanna International Group	*Philadelphia, US*
Quantitative Research and Systematic Trading Internship	Jun 2025 – Aug 2025

- Applied statistical and machine learning methods to research and validate options-market signals, producing robust equity alphas. Developed systematic strategies from options-derived signals and achieved consistent positive P&L with disciplined risk controls in the final week of competition.

AIA Group	*Hong Kong*
Actuarial analyst	2017

- Worked with the reporting team to integrate the annual report and helped with database management following the International Financial Reporting Standard (IFRS) 17, newly released then.

Teaching Experience

Columbia University, Instructor, Calculus II	2022
Columbia University, Teaching Assistant, Calculus I–IV, Linear Algebra, ODE, PDE	2021 – 2025

Honors and Awards

HKU Doris Chen Undergraduate Project Prize	2020

Best undergraduate research project in HKU mathematics. The project is supervised by Prof. Ngaiming Mok on the theory of L^2-estimates and $\bar{\partial}$-equations (US \$2500 in total).

Skills

Programming: Python, LaTeX
Languages: English, Chinese (Mandarin)
Extracurricular: Rock climbing, Soccer