Mika Han

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Education

The Hong Kong University of Science and Technology Sep 2026 – May 2030
Bachelor of Science in Quantitative Finance *Hong Kong*

- **Coursework:** Calculus II, Business Statistics, Principles of Accounting I
- **Activities:** Bloomberg Global Trading Challenge 2026; CME Group University Trading Challenge; MATHSC

Nord Anglia International School Hong Kong Aug 2019 – Aug 2026
International Baccalaureate Diploma *Hong Kong*

- **IB Diploma: 42/45** (7 in Mathematics AA HL, Economics HL, Chemistry HL) | **SAT Math: 800/800**

Honours & Awards

Scholarship Recipient, The Hong Kong University of Science and Technology 2026
1st Place of 60+, Mathematics Research Project – The University of Hong Kong Jul 2025
Gold Certificate & Best in School, UKMT Senior Mathematical Challenge (100,000+ entrants) Oct 2025
Finalist (top 8 teams), Hong Kong Chemistry Olympiad – HKASME Jun 2025

Research

Dimensionality Optimisation and Spectral Thresholding Jul 2025 – Aug 2025
Mathematics behind AI Programme, HKU – 1st place of 60+ (co-authored) *Hong Kong*

- Derived PCA from first principles as a constrained variance-maximisation problem using Lagrange multipliers.
- Used random matrix theory (Marchenko–Pastur law, BBP transition) to separate signal eigenvalues from noise.

Forecasting Speedrun World Records with Survival Models Jun 2025 – Nov 2025
Independent Research *Hong Kong*

- Modelled 32 world records with a log-linear least-squares progression curve ($R^2 = 0.88$).
- Compared exponential and Weibull models (MLE, likelihood ratio test); older records appeared harder to break.
- Built 95% prediction intervals for the next record and evaluated both forecasts against the outcome.

Profit Maximisation under a Resource Constraint 2025
Independent Research *Hong Kong*

- Fitted revenue and cost functions to 11 weeks of sales data for a two-product business ($R^2 > 0.998$).
- Optimised the production mix under a non-linear resource constraint (Lagrange multipliers, bordered Hessian).

Fiscal Policy & Externalities Analysis May 2025 – Nov 2025
Extended Essay, Economics *Hong Kong*

- Measured HP2030 Pigouvian taxes' effect on Korean e-cigarette use via interrupted time-series regression.

Leadership & Experience

Founder, EcoSphere 2024 – 2026
Youth environmental non-profit *Hong Kong*

- Led a team of five running a planting stall; raised $3,000+, funding the planting of 300+ trees.

Founder & Lead Tutor, Academic Support Programme Nov 2024 – May 2026
Nord Anglia International School Hong Kong *Hong Kong*

- Taught weekly Additional Mathematics and Economics sessions to 40+ IGCSE students.
- Recruited and trained the next cohort of tutors, who now run the programme.

Varsity Basketball Team Captain & Point Guard Aug 2022 – Jun 2026
Nord Anglia International School Hong Kong *Hong Kong*

- Captained a 15-player squad and ran team practices; led the team in points (20+ per game) and assists.
- Won an ISSFHK silver medal as a starting guard.

Private Mathematics Tutor Aug 2025 – Jun 2026
Self-employed, IBDP and OSSD students *Hong Kong*

Additional Information

Languages: English (Native), Korean (Native), Spanish (Basic)
Tools: LaTeX, Microsoft Excel
Interests: Clash Royale (6× Ultimate Champion), Chess, Piano, Basketball