

Thang Pang Ern

📍 Singapore ✉ therayagrowthopia@gmail.com in Thang Pang Ern 🎧 TheRayaGT

Education

National University of Singapore

Aug 2024 -

BSc. in Pure Mathematics, Honours (Highest Distinction)

- ▷ **Coursework:** Discrete Mathematics, Single and Multivariable Calculus, Linear Algebra, Real Analysis, Numerical Analysis, Probability Theory, Complex Analysis, Ordinary Differential Equations, Mathematical Modelling, Analytic Number Theory, Differential Geometry

École Polytechnique Fédérale de Lausanne (EPFL)

Sept 2026-Jan 2027

Bachelor's Degree in Mathematics (exchange student)

- ▷ **Coursework:** Non-Linear Programming, Partial Differential Equations, Topology, Linear Optimisation, Analytic Number Theory

Nanyang Junior College

Feb 2020 - Dec 2021

Singapore-Cambridge GCE A-Level

- ▷ **Coursework:** H2 Mathematics, H2 Further Mathematics, H3 Mathematics

Experience

Optiver

Aug 2026

Quantitative Trading and Research

- ▷ FutureFocus Program

PreciX

Oct 2025-Mar 2026

Algorithm Engineer

- ▷ Worked on knee biomechanics problems and implemented matrix-based geometric computation pipelines in Python, emphasising on numerical stability
- ▷ Developed and integrated spherical linear interpolation (SLERP) for smooth rotation/orientation transitions (quaternion/rotation matrix workflows)

NUS Department of Mathematics

Jul 2025-May 2026

Teaching Assistant

- ▷ Taught MA2001 Linear Algebra I as part of the Undergraduate Teaching Opportunities Programme (UTOP)
- ▷ Prepared comprehensive written solutions and video explanations to tutorial questions

NUS Mathematics Society

May 2025-Jul 2026

President and Project Director

- ▷ Organised Problemathic 2025, a faculty-wide mathematics competition and co-organised Sudoku Contest 2025, a faculty-wide puzzle competition
- ▷ Launched a professor sharing series on research and academic experiences
- ▷ Recruited speakers for a senior-junior sharing session on research, careers, and graduate studies
- ▷ Invited to London for the final round of the UK University Integration Bee

Math Vision Enrichment Centre

Feb 2024-Jun 2024

Mathematics Tutor

- ▷ Taught Mathematics: Analysis and Approaches (AA), Cambridge International AS & A Level Mathematics and Further Mathematics, Pearson Edexcel A Level Further Mathematics and STEP

Publications and Preprints

1. **Linear Algebra: A Balance of Visualisation and Abstraction**, with D. W. Wangsa, Joel Q. L. Chang, T. L. Kho
To appear in Springer
2. **The Three Square Geometry Problem and an Extension**
To appear in *Parabola*, Volume 62, Issue 3
3. **The Irrationality of $\zeta(2)$ and $\zeta(3)$ from the Theory of Modular Forms**, preprint
4. **On a Series involving Products of Consecutive Integers**, preprint
5. **A Proof of Ramanujan's Classic π Formula**, with D. W. Wangsa
arXiv:2411.15803 [↗](#)

Talks

The Area of a Triangle (Slides) ↗ <i>Future Generations of Scientists (FGS) Camp 2025</i>	Jul 2026
The Integers: Simple yet Complicated <i>Dunman High School</i>	Apr 2026
Pólya's Random Walk Theorem (Slides) ↗ <i>National University of Singapore, Mathematics Seminar</i>	Feb 2026
Weyl Sums and its Applications (Slides) ↗ <i>National University of Singapore, UROPS Sharing Session</i>	Oct 2025
The Life and Legacy of Srinivasa Ramanujan (Slides) ↗ <i>National University of Singapore, Mathematics Seminar</i>	Oct 2025
The Art and Analysis of Assumptions (Slides) ↗ <i>Future Generations of Scientists (FGS) Camp 2025</i>	Jul 2025
The Prime Number Theorem (Slides) ↗ <i>National University of Singapore, Mathematics Seminar</i>	Mar 2025
Bridge Crossing (Slides) ↗ <i>Future Generations of Scientists (FGS) Camp 2024</i>	Aug 2024
Simple yet Complicated Numbers (Slides) ↗ <i>Future Generations of Scientists (FGS) Camp 2023</i>	Aug 2023

Technologies

Languages: Python, Java, HTML, CSS, MATLAB, $\text{\LaTeX}$, Mathematica

Technologies: Microsoft Office, VEGAS Pro, Premiere Pro, After Effects, Illustrator, Photoshop, Lightroom

Contributions to the Online Encyclopedia of Integer Sequences (OEIS)

A039686: [↗](#) Squares which are the concatenation of two nonzero squares. May 2026
Contributed the following property: the sequence is infinite because it contains $49 \cdot 10^{2i}$ for $i \geq 0$ since $(7 \cdot 10^i)^2$ can be split into the initial 4 and $9 \cdot 10^{2i}$ with square root $3 \cdot 10^i$.

A395338:  Primes whose square is a concatenation of exactly 2 distinct strictly increasing non-zero squares.

Apr 2026

A342316:  Decimal expansion of $\frac{\pi}{2} - \log 2$.
Contributed the integral representation

Feb 2026

$$\int_1^{\infty} \log \left(1 + \frac{1}{x^2} \right) dx.$$

A392834:  Time taken to get n people from one side of a bridge to the other where (a) the only flashlight must be carried when crossing; (b) at most three people may cross at the same time; (c) a group crosses at the speed of the slowest member; and (d) the k^{th} person requires k seconds to cross the bridge.

Jan 2026

A392835:  Number of ordered pairs (i, j) with $1 \leq i, j \leq n$ such that $\gcd(i + j, ij) = \gcd(i, j)$
With Loh Wei Xuan Ryan and Malcolm Tan Jun Xi

Jan 2026