Koo Kim

Class of "2026", RuamRudee International School

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Introduction

Energetic and enthusiastic mathematics, computer science, software engineering, and economics student who is studying in Ruamrudee International School, Bangkok, Thailand currently. Have experiences creating few research papers and assisting others in their school's mathematics courses until Pre-Algebra up to Calculus I. Enjoy working on machine learning and web designing projects, programming game or daily life software, and working on data simulations labs. Eagering to learn from experts in the areas of my interests and eventually aiming to earn my PhD.

Education

- **RuamRudee International School** (11th - 12th Grade)
  2024- 2026 (Present)

  Key Courses: AP Calculus BC, AP Macroeconomics, AP Microeconomics, AP Computer Science A, AP Physics 1, AP Statistics (Online), AP World History: Modern, Differenation Equations (Online), IB English Language and Liteature SL Year 1, IB Mathematics Analysis and Approaches HL Year 2, Linear Algebra (Self Study), Multivariable Calculus (UC Berkeley Extension), Real Analysis I (Partner Study with Senior in Oxford), Vector Calculus (Self Study), Hacking (Online)

  - 11th Grade:
    - AP Calculus BC, AP Physics I (Self Study), Biology, IB English Language and Liteature SL Year 1, Intro to Computer Science, Multivariable Calculus (UC Berkeley Extension), Real Anaylsis (Partner Study with 12th Grade Student in Oxford)
  - 12th Grade (Current):
    - AP Computer Science A, AP Macroeconomics, AP Microeconomics, AP Statistics (Online), Differential Equations (Online)) English Language and Research, IB Mathematics Analysis and Approaches HL Year 2, Linear Algebra (Self Study), Vector Calculus (Self Study), Hacking (Online)

- **TMI Episcopal** (9th - 10th Grade)
  2022 - 2024

  - 9th Grade:
    - Honors Geometry, Honors Physics, Honors English, Honors History, The Hebrew Scripture/The Christian Scriputre, Band I, Spanish I
  - 10th Grade:
    - Honors Algebra II, Honors Chemistry, Honors English II, AP World History: Modern, Creative Writing, Digital Music Composition, Spanish II

Research Experiences

- **Research in Mini Paper forb Mathematical Game Theory via Monty Hall Problem** (2024 June - December)
  Ongoing research exploring mathematical game theory and probability problems, with plans for independent publication. Inspired the concepts and the backgrounds of famous game theory problem, Monty Hall Problem. The problem itself is a mixture of other famous game theories problem besides monty hall problm, such as The Two Envelope Problem.

- **Alternating Permuations and The Skyscrapper Puzzles Research Paper with Professor Robert W. Bell from Michigan State University** (2025 Janaury - June)

  Research intership with a mathematics professesor in Michigan State University on the theories in Skyscraper Puzzles, Game Theory, Algorithm, Sudoku, Combinatorics, Permuations, Combinations, and N-Grids. Goal is to create several problems into the notes, uploding solutions and proofs, then publishing into my own official website.

- **Additive Combinatorics and The Sidon Sets Research Paper with Professor. Jozsef Balogh from University of Illionis Urbana-Chamapign** (2025 September - Continue)

  Research intership with a mathematics professesor at University of Illionis Urbana-Chamapign in The Sidon Sets, Additive Combinatorics, Summation Algebra, Inequalities, Enumerative Combinatorics, Computer Theory. Goal is to create around 12-15 pages research paper, conjecturing theorems and solutions plus proofs of the theorem, then publishing into my own official website.

  Independent Computational Research with a Stanford Professor in High-Performance Systems

- **Computational Research with a Stanford Professor in High-Performance Systems** (2025 December - Continue) Engaged in an independent computational systems research project under the guidance of a Stanford professor working in large-scale, high-performance, and interactive computing systems. Exploring numerical modeling, performance analysis, and computational methods relevant to system design and workload-driven optimization. Investigating topics such as black-body spectral simulation, human perceptual models, and constraints in computational physics and visualization. Receiving high-level research feedback while independently developing simulations and computational tools. Expanding the project into a potential research paper integrating physics-based modeling, numerical computation, and perceptual system behavior.

Honors, Awards, and Achievements

- First 9th Grader in History to Solve Steiner Lehmus Theorem at TMI Episcopal (2022-2023)
- Mastered Mathematics Research Scholar (2023-2024)
- 2nd place for Purple Comet Competition Team at TMI Episcopal (2023-2024)
- 5th place for American Mathematics Competition at TMI Episcoapl (2023-2024)

Other Extracurriculars and Community Services

- **Clubs:**
  - Robotics Club, Stock Market Club, Math Tutoring Club, Sports Marketing Club, Web Designing Club (Current)
- **TMI Episcopal Varsity Baseball Manager** (2022-2023)
- **RICE University Tapia Summer Camp** (2024)
- **TMI Episcopal's Ewing House Quality of Life President** (2022-2024)
- **TMI Episcopal's Mathematics Teacher TA** (2023-2024)

- **TMI Episcopal Innovation and Design Summer Camp** (2024)
- **Learn to Be Mathematics Tutor** (2024-2025)
- **Private Own Non-Profit Tutoring Organization for STEM Fields** (Current)
- **Ruamrudee International School Redeemer Dorm Hall Mathematics Tutor** (Current)
- **Founder and Owner of DELONEX Company (Physics and Mathematics Education Association)** (Current)
- **Programmed Mathematics Tool and Physics Tool)** (Current)
- **Website Builder (Private Request)** (Current)

Skills

- Mathematical Problem Solving (Game Theory, Probability, Geometry, Additive Combinatorics, Calculus, Vectors, Discrete Mathematics, Matrices, Geometry)
- Programming (Python, LaTex, Java Script, Java (Currently Learning))
- Data Simulations and Statistical Analysis
- Strong analytical, logical, and creative thinking skills

Languages

- English (Fluent)
- Korean (Fluent)