Pitchayut (Mark) Saengrungkongka

psaeng@mit.edu Thailand

Education

Massachusetts Institute of Technology . . . . . Class of 2026
Senior majoring in Course 18 (Mathematics), with a minor in computer science and physics.
Received King's Scholarship from the Royal Thai Government.

Brewster Academy . . . . . 2021 - 2022
Enrolled for a postgraduate year as a part of Royal Thai Scholars preparatory school program.

Bangkok Christian College . . . . . 2009 - 2021

Selected Coursework

Probabilistic Methods (18.226), Commutative Algebra (18.705), Number Theory (18.785-786), Algorithmic Lower Bounds (6.S954), Complexity Theory (18.405), Algebraic Geometry (18.725-726), Algebraic Topology (18.905-906), Algebraic Groups (18.737), Riemannian Geometry (18.965)

Selected Research

Duluth Mathematics REU . . . . . Summer 2025
Under the direction of Joe Gallian and Colin Defant, I worked on two projects in extremal combinatorics. One is on rainbow matching in k-partite hypergraphs. The other is on applying the method of spread approximation to variants of Erdős-Ko-Rado problems. arxiv:2508.07331. More papers are in preparation.

Gluing Genus 1 and Genus 2 Curves Along ℓ-torsion . . . . . Summer 2024
Pitchayut Saengrungkongka, Noah Walsh. We studied an algorithm to find all gluings between genus 1 and genus 2 curves in LMFDB. Research conducted during MIT Summer Program in Undergraduate Research (SPUR), mentored by Edgar Costa and Sam Schiavone. Presented at LMFDB, Computation, and Number Theory (LuCaNT) 2025. arxiv:2502.09753.

Complexity of 2D Snake Cube Puzzles . . . . . Fall 2023
Nithid Anchaleenukoon, Alex Dang, Erik D. Demaine, Kaylee Ji, Pitchayut Saengrungkongka. We improved NP-hardness results of snake cube puzzles. The main part of the work was done during open problem solving sessions in 6.5440. In Canadian Conference in Computation Geometry 2024. arxiv:2407.10323

Selected Experience

MOP 2024 Head Teaching Assistant . . . . . June 2024
Led a 11-person staff team in exam creation, administration, grading, and solution-writing at Math Olympiad Program (MOP), a training program for 60 students, some of which will represent USA in the current or future International Mathematical Olympiad (IMO). Taught classes and gave a seminar talk about the reciprocity laws to students.

MIT Undergraduate Assistant . . . . . Fall 2023 - present
Hired to grade problem sets and run office hours for students in 18.701 (Algebra I), 18.702 (Algebra II), 18.100B (Real Analysis), and 18.A34 (Putnam Seminar, a first-year seminar focusing on mathematical communication and preparation for Putnam Competition).

HMMT Officer 2022-Present
Historian (2025-26), **Problems Czar Advisor** (2024-25), **Problems Czar** (2023-24), **Problems Staff** (2022-23).

Wrote problems (95 made into the contest). Selected and led a team of around 50 undergraduate students from both Harvard and MIT to create tests for the HMMT, a math tournament organized that attracts over 1000 high school students to participate each year. Organized problem-writing, testsolving, and day-of grading sessions.

MISTI-Bhutan Math Olympiad Training Camp Instructor ..... January 2024
Recruited to run a three-week camp for top 30 students in Bhutan, six of which will represent Bhutan for their first participation in the International Mathematical Olympiad.

Thailand IMO Team Selection Coordinator 2024-2025
Led a committee that designed a series of tests that will select six students to represent Thailand in IMO 2025.
Also **Camp Instructor** (2021-23). Taught classes in Olympiad geometry and number theory, designed the mock IMO exam, and ran the mock IMO grading for the Thailand team competing in the International Math Olympiad.

Math Competition Problems Proposer 2024-present
Proposer of Problem A4 of the IMO 2024 Shortlist, Problem 6 of the USA TST 2025, Problem 8 of the USA TSTST 2025, and 14 more in Thailand team selection camps.

Selected Talks and Presentations

Primality Testing in Polynomial Time ..... November 8, 2025
Gave a 50-minute talk for high school students in HMMT November 2025 Education.

Secret of Elliptic Curves ..... October 24, 2025
Gave a 10-minute general-audience presentation for MIT Mathematics Department parent weekends reception.

Gluing Genus 1 and Genus 2 Curves Along ℓ-torsion ..... July 10, 2025
Gave a 20-minute research talk in LMFDB, Computation, and Number Theory (LuCaNT) 2025.

Selected Awards

2025 Peter Baddoo Community Building Award: MIT Department of Mathematics.

William Lowell Putnam Mathematical Competition: 2024 N1 (13th), 2023 HM (37th), 2022 N2 (18th).

USA Mathematical Olympiad (USAMO): 2022 Gold (4th).

International Mathematical Olympiad (IMO): 2019 Gold (28th), 2020 Gold (43th).