Pitchayut (Mark) Saengrungkongka

psaeng@mit.edu markbcc168.github.io

Education

Massachusetts Institute of Technology . . . . . Class of 2026
Senior majoring in Mathematics (Course 18), 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 part of the 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. (1) rainbow matching in k-partite hypergraphs. (2) applying the method of spread approximation to variants of Erdős–Ko–Rado problems. One manuscript is at arxiv:2508.07331; additional work is forthcoming.

Gluing Genus 1 and Genus 2 Curves Along ℓ-torsion . . . . . Summer 2024
Pitchayut Saengrungkongka, Noah Walsh. Studied an algorithm to find all gluings between genus 1 and genus 2 curves in LMFDB. Conducted during MIT Summer Program in Undergraduate Research (SPUR), mentored by Edgar Costa and Sam Schiavone. Results 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. Improved NP-hardness results of snake cube puzzles. Initiated during open problem solving sessions in 6.5440. Results accepted at Canadian Conference in Computation Geometry 2024. arxiv:2407.10323

Selected Experience

MOP 2024 Head Teaching Assistant . . . . . June 2024
Led a 11-person team in exam creation, administration, grading, and solution-writing at Math Olympiad Program (MOP), a training program for 60 students, some of whom will represent USA in the current or future International Mathematical Olympiad (IMO). Taught classes and gave a seminar talk on 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 the 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 attracting 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, five of whom represented Bhutan for their first participation in the IMO.

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 at HMMT November 2025 Education.

Secret of Elliptic Curves ..... October 24, 2025
Gave a 10-minute general-audience presentation for the 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 (43rd).