

Shihan Kanungo

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EDUCATION

Henry M Gunn High School GPA 3.96/4.46W | **San José State University (SJSU)** GPA 4.0 2022–2026

SELECTED HONORS

- USAMO (USA Math Olympiad) ('22-'25); Gold award ('25)
- MAA's Math Olympiad Program, 'Blue' MOP ('25)
- USAPhO (USA Physics Olympiad) Gold Medal & US Physics Team ('24)
- USAMTS (USA Math Talent Search) Gold medal ('23, '25)
- AIME, 6-time qualifier. 13/15 ('25); 11/15 ('22, '24)
- 85th Annual Putnam Competition. Honorable mention ('24)
- S.-T. Yau Science Award. USA Bronze medal in Mathematics ('24)
- Spirit of Ramanujan \$2k Fellowship ('23)
- WSS, World Science Scholar ('24)
- 2025 Global Child Prodigy Award. Recipient ('25)

RESEARCH HIGHLIGHTS

MIT PRIMES-USA (Combinatorics, Representation Theory, Commutative Algebra)

- Twisted Yangians in Complex Rank (with A.S. Kannan) [[arXiv](#)] Submitted to *Journal of Algebra* (2025)
- Mixed Tensor Products ...and Newton's Formula for $\mathfrak{gl}(m|n)$ (with S. Erat, A.S. Kannan) [[arXiv](#)] *Transform. Groups.* (2025)
- The Length Finite Factorization Property. (with H. Jiang, H. Kim) [[arXiv](#)] *Commun. Korean Math. Soc.* **39** (2024), no. 2, 313–329. (2024)

San José State University (SJSU) (Number Theory)

- On Product Formulas of Guillera and Sondow (with J. Schettler) [[arXiv](#)] Submitted to *Amer. Math. Monthly* (2024)

ADVANCED COURSEWORK

San José State University (Graduate courses shown in color)

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|----|---|------------------|--------|
| A | MATH 221A Higher Algebra I | Edgar Bering | '25 F |
| A+ | MATH 226 Theory of Numbers | Jordan Schettler | '24 Sp |
| A+ | MATH 285M Elliptic Curves & Modular Forms | J Schettler | '25 F |
| A+ | MATH 229 Advanced Matrix Theory | Wasin So | '24 F |
| A+ | MATH 285M Nonnegative Matrices | Wasin So | '25 Sp |
| A+ | MATH 275A Topology | Yan Zhang | '25 F |
| A+ | MATH 279A Graph Theory | Yan Zhang | '24 F |
| A+ | MATH 231A Real Analysis | Slobodan Simic | '24 F |
| A+ | MATH 231B Functional Analysis | Slobodan Simic | '25 Sp |
| A+ | MATH 233A Applied Mathematics I | Daniel Brinkmann | '25 Sp |
| A+ | MATH 234 Advanced Dynamical Systems | Liam Stanton | '24 Sp |
| A | MATH 285A Stochastic Methods | Liam Stanton | '25 Sp |
| A | MATH 39 Linear Algebra I | Dashiell Fryer | '23 F |
| A+ | MATH 129B Linear Algebra II | Wasin So | '24 Sp |
| A+ | MATH 131A Introduction to Analysis | Tim Hsu | '24 Sp |
| A+ | MATH 131B Introduction to Real Variables | Tim Hsu | '24 F |
| A+ | MATH 138 Complex Variables | Liam Stanton | '23 F |
| A+ | MATH 179 Introduction to Graph Theory | Sogol Jahanbekam | '24 F |

Euler Circle (Grades not assigned)

- Combinatorial Game Theory 2024–'25
Analytic Number Theory, Ergodic Theory, Number Theory 2023–'24
Differential Geometry, Generating Functions 2021–'22
Markov Chains, Abstract Algebra, Real Analysis 2020–'21

Art of Problem Solving (AoPS)

- Group Theory (A+), Calculus (A+) 2020–23

Technical Skills: Python, Java, MATLAB, L^AT_EX, Asymptote.

EXPOSITORY PAPERS

- David Gale's Subset Takeaway Game, Combinatorial Game Theory ('24)
- Space-Filling Curves, Real Analysis ('24)
- The Hahn-Banach Theorem and Applications, Functional Analysis ('25)
- Sobolev Spaces and Applications to PDEs, Theory of PDEs ('25)
- The Stochastic Gradient Descent Method, stochastic Methods ('25)
- Chromatic Polynomials, Graph Theory ('24)
- Lagrangian and Hamiltonian Mechanics, Dynamical Systems ('24)
- Large Gaps Between Primes, Analytic Number Theory ('24)
- Dynamical Billiards, Ergodic Theory ('24)
- Arithmetic Dynamics, Number Theory ('23)
- Minimal surfaces, Differential Geometry ('22)
- Herbert Wilf's snake-oil method, Generating Functions ('21)
- Mixing-time estimates for riffle shuffle, Markov chains ('20)
- Classifying groups of certain orders, Algebra ('20)

CAMPS & PROGRAMS

- MOP (Math Olympiad Program), IMSA, Aurora IL. ([Jun '25](#))
- USAPhO Team Training Camp, Univ. of Maryland. ([Jun '24](#))
- The Special Lectures, Kharkiv-Vienna Intl. Sc. School. ([Aug '23](#))

MUSIC

- Stanford Jazz Workshop ([2024](#))
Duke Ellington award; Outstanding Musicianship award
- Northern California Young Talents Competition ([2023](#))
First place, solo violin classical performance
- Golden State Youth Orchestra ([GSYO](#))
 - Assistant concertmaster. Camilla Kolchinsky Orchestra ([2023](#))
 - Concertmaster. Camerata & Chamber Players Orch. (['20–'22](#))

Languages: English (native) & French (beginner).