Long-Yo (Leo) Lee

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ckocklly

Education

University of Illinois Urbana-Champaign Aug 2023 – expected May 2027
BS in Mathematics and Computer Science, Minor in Physics GPA: 3.9/4.0

- **Dean's List:** Fall 2023, Spring 2024, Fall 2024, Spring 2025

Experiences

Undergraduate Presenter Aug 2025
MAA MathFest, Mathematical Association of America Sacramento, CA

- Communicated technical ideas clearly through an accepted undergraduate poster session
- Engaged with researchers through workshops, strengthening applied problem-solving and technical communication skills

Student Researcher Jan 2025 – Oct 2025
Illinois Mathematics Lab, University of Illinois Urbana-Champaign Urbana, IL

- Applied computational methods to analyze complex quantum systems and form conjectures, emphasizing scalable and efficient numerical experimentation
- Implemented simulations and data analysis pipelines using NumPy and PennyLane
- Translated mathematical theory into computational experiments to validate conjectures
- Presented results to a technical audience during the Illinois Mathematics Lab Poster Session
- Contributed to a research manuscript submitted to Quantum Information Processing

Course Assistant of CS 173: Discrete Structures Jan 2025 – present
Siebel School of Computing and Data Science, UIUC Urbana, IL

- Supported a 400-student course by grading proof-based assignments and providing actionable, structured feedback
- Held weekly office hours to help students reason rigorously about algorithms, logic, and correctness
- Strengthened communication skills by explaining abstract concepts effectively

VR Game Development Intern Aug 2024 – Dec 2024
Applied Technologies for Learning in the Arts & Sciences (ATLAS), UIUC Urbana, IL

- Designed and developed VR minigame RageRoom using Unity and C#, focusing on user-VR interaction
- Integrated VR frameworks and packages to build immersive, responsive gameplay experiences
- Collaborated in an agile team environment, presenting progress in weekly client meetings
- Delivered a polished demo showcased at the ATLAS final presentation

Audio Lead Jan 2024 – May 2024
ACM GameBuilders Urbana, IL

- Composed background music for our video game; assisted with sound effect production
- Discussed with story planners and found best style of music for the game theme

Tutor of CS 124: Introduction to Computer Science I Jan 2024 – May 2025
Siebel School of Computing and Data Science, UIUC Urbana, IL

- Debugged student code and explained design decisions for exams, homework, and machine projects
- Improved instructional materials by designing new practice problems and clarifying edge cases
- Mentored and supervised assistant tutors, strengthening leadership and technical review skills

Teaching Minister Aug 2021 – May 2022
Chien-Kuo Electronic Industrial Study Club Taipei, Taiwan

- Gave lectures about algorithms used in competitive programming and Python libraries
- Assisted freshman students with machine projects
- Held social events, summer/winter training camps, tech company visiting, club fair, board selection exams, etc.

Student Researcher Nov 2020 – May 2022
Graduate Institute of Photonics and Optoelectronics, National Taiwan University Taipei, Taiwan

- Determined numerical relationships between capacitance, electrode area, and inter-electrode distance
- Applied concepts in electricity & magnetism, electronic circuits, photolithography, and AutoCAD
- Presented research at my high school's symposium; awarded First Runner-Up at the school's science fair

Projects

RageRoom — Unity, C#, Oculus SDK github.com/ckocklly/rage-room

- Designed an interactive VR minigame featuring real-time player interaction and physics-based mechanics
- Implemented core features including object manipulation, collision detection, and user input handling

Publications

- Vairogs, C., Chablani, A., **Lee, L.**, Sha, H., Vaughan-Lee, A., and Beckey, J. L. 2025. *Localizing entanglement in high-dimensional states*. arXiv:2510.08501 [quant-ph]. doi.org/10.48550/arXiv.2510.08501

Technical Skills

- **Programming Languages:** C/C++/C#, Java/Kotlin, Python, TeX/LaTeX, R
- **Libraries:** pandas, matplotlib, NumPy, pennylane, torch
- **Framework/Tools:** git/GitHub, VS Code, Android Studio, RStudio, Overleaf, Unity, ChatGPT
- **Spoken Languages:** Mandarin Chinese, English

Honors & Awards

Get Experience Scholarship, College of Liberal Arts & Sciences, UIUC	2025
Rank 9, Freshman Mathematics Competition, Dept. of Mathematics, UIUC	2023
Distinction (score: 123/150), American Mathematics Competition 12	2022
Fourth Place Award, International Division, American Regions Mathematics League (ARML)	2022
Individual Silver Medal & Team Honorable Mention, International Linguistics Olympiad	2022
Gold Medal, Asian Pacific Linguistics Olympiad	2022
10/15 (top 5%), American Invitational Mathematics Examination (AIME)	2022