Glenn Sun

972 Hilgard Ave, Apt 207
Los Angeles, CA 90024
☎ (848) 459 3160
✉ glennsun@ucla.edu

Education

Sep. 2019 – Jun. 2023 **B.S. Mathematics**, *University of California, Los Angeles*.
Current GPA: 3.86.

Research

2. **Deterministic Graph Coloring in the Streaming Model**, S. Assadi, A. Chen, and G. Sun, accepted to *STOC 2022*. arXiv:2109.14891.
   - Research performed at DIMACS REU at Rutgers University, summer 2021.
   - Advisor: Sepehr Assadi
   - In the semi-streaming model of computation, graphs have $O(n^2)$ edges, but we can only store $O(n \operatorname{polylog} n)$ bits of data. Let Δ be the maximum degree of a graph. It is known that in this model, a $(\Delta+1)$ vertex coloring can be found with randomization. We prove that in sharp contrast, no sub-exponential in Δ coloring can be found deterministically. In the paper, we collaborate with previous REU student Andrew Chen to include his results which give $\operatorname{poly}(\Delta)$ colorings when allowed to view the stream multiple times.
1. **Visualization Equilibrium**, P. Kayongo, G. Sun, J. Hartline, and J. Hullman, *IEEE Transactions on Visualization and Computer Graphics* **28** (2022), 465–474. arXiv:2108.04953.
   - Research performed at Northwestern University, summer 2020.
   - Advisor: Jessica Hullman
   - When playing (game-theoretic) games repeatedly, human behavior tends to converge to an empirical equilibrium. We studied how this equilibrium is affected by the style of visualization used to communicate the data, and consequently how to increase average payoffs at equilibrium through better visualizations.
   - Used R simulations to help form research questions and analyze data

Teaching Experience

Oct. 2020 – Present **Lead Instructor**, *UCLA Olga Radko Endowed Math Circle*.
- The Math Circle focuses on showcasing the beauty of mathematics and improving problem solving skills to K-12 students, going beyond standard school curricula.
- Teach a class of 20 high school students once per week on Sundays
- Create handouts and exercises on topics such as P vs. NP, Axiom of Choice, Mandelbrot set, dynamical systems, graph theory, etc.
- Collaborate with other lead instructors to decide topics and revise handouts
- Coordinate teaching assistants and incorporate their feedback into handouts

Oct. 2019 – Oct. 2020 **Teaching Assistant**, *UCLA Olga Radko Endowed Math Circle*.
- Assisted a group of 5 high school students by providing hints and explaining key concepts
- Provided feedback on weekly handouts written by lead instructors

Oct. 2020 – Mar. 2021 **Grader**, *UCLA Department of Mathematics*.
- Graded weekly quizzes or homework for proof-based linear algebra classes of 40 students
- Provided students with detailed individualized feedback

Jun. 2020 – Jul. 2020 **Teaching Assistant**, *AwesomeMath Summer Program*.
- TA'ed for AIME/USAMO-prep classes of 25 students in Algebra and Number Theory
- Ran review sessions, provided office hours, graded exams, and scribed lecture notes

Jun. 2018 – Jul. 2018 **Teaching Assistant**, *Program for Algorithmic and Combinatorial Thinking*.
- TA'ed for a section of 9 high school students in proofs and discrete math
- Graded exams and daily homework, wrote exam questions in collaboration with other TAs
- Tutored some students individually and witnessed improved exam scores as a result

Software Experience

List of known languages and libraries.
- LaTeX (beamer, tikz, bibtex, most standard libraries)
- Python (Jupyter Notebook, NumPy, Pandas, Matplotlib, TensorFlow, Flask)
- JavaScript (Node.js, React, Electron, p5.js), HTML/CSS
- GitHub, Linux, SSH, AWS
- Some familiarity with: R, MATLAB, C++

Various hackathon awards.
- Google and Facebook awards at LA Hacks 2020
  - An SMS/voice call interface allowing students with no internet to use Google Classroom.
- MongoDB award at QWER Hacks 2020
  - A Discord bot for automatic voice channel moderation.
- Wharton Risk Center award at PennApps Fall 2019
  - A proof-of-concept web app for simple investing

Feb. 2019 – Mar. 2019 **Software Intern**, *JP Morgan Chase*.
- Evaluated data transfer efficiency between different configurations of cloud databases
- Summarized findings in written report and made presentation
- Technologies used: Python, SQL, AWS S3 and EC2, Snowflake

Other

Dec. 2019 **Putnam Competition**, 30 points, rank 276.