

Noah Singer

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🌐 singerng.github.io

Education

Spring 2022 (anticipated) **A.B. in Computer Science and Mathematics**, *Harvard University*, Cambridge, MA, GPA 4.00/4.00.

Selected coursework. *Computer science:* Computational Complexity^g; Error-Correcting Codes^g; Spectral Graph Theory^g; Quantum Computing^{gm}; Systems Security^g; Advanced Machine Learning^g; Cryptography; Operating Systems; Algorithms. *Mathematics:* Commutative Algebra^g; Boolean Functional Analysis^{gm}; Algebraic Geometry; Measure Theory & Functional Analysis. (^g denotes graduate courses. ^m denotes MIT courses.)

Papers

Conference Papers

- [3] Noah Singer, Madhu Sudan, and Santhoshini Velusamy. “Streaming Approximation Resistance of Every Ordering CSP”. In: *Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques*. APPROX 2021 (Aug. 16–18, 2021). Ed. by Mary Wootters and Laura Sanità. Vol. 207. LIPIcs. Schloss Dagstuhl — Leibniz-Zentrum für Informatik, Sept. 2021, 17:1–17:19. DOI: 10.4230/LIPIcs.APPROX/RANDOM.2021.17.

Manuscripts

- [1] Joanna Boyland, Michael Hwang, Tarun Prasad, Noah Singer, and Santhoshini Velusamy. “Closed-Form Expressions for the Sketching Approximability of (Some) Symmetric Boolean CSPs”. Dec. 2021. arXiv: 2112.06319 [cs.DS].
- [2] Noah Singer and Madhu Sudan. “Point-Hyperplane Incidence Geometry and the Log-Rank Conjecture”. Previous version appeared in the National Collegiate Research Conference in January 2021. Sept. 2021. arXiv: 2101.09592 [math.CO].

Teaching

Graded and hosted office hours and recitation sections for the following courses:

- *CS 121: Introduction to Theoretical Computer Science* (Fall 2021, Fall 2020, Fall 2019)
- *CS 124: Data Structures and Algorithms* (Spring 2021)
- *CS 161: Operating Systems* (Spring 2020)

In CS 121 and 124, organized advanced sections with weekly guest lectures.

Internships

Summer 2021 **Research Intern**, *DIMACS REU*, New Brunswick, NJ (remote).

Worked with Prof. Eric Allender at Rutgers University studying complexity of circuit minimization and related problems. Supported by NSF grant CCF-1852215.

Summer 2020– **Research Intern**, *Harvard University Department of Computer Science*, Cambridge, MA.

Worked with Prof. Madhu Sudan on communication and streaming complexity, supported by Herchel-Smith Fellowship and Harvard College Research Program.

Summer 2019 **Software Engineering Intern**, *Airbnb*, San Francisco, CA.

Built a production data pipeline to discover and manage large quantities of search advertising keywords targeting Airbnb hosts, efficiently scaling up listing creation due to search ads by over 20% and generating tens of thousands of dollars in weekly revenue.

Community Involvement

- 2020– **Peer Concentration Adviser**, *Computer Science, Harvard College*.
- 2020– **WiCS Mentor**, *Harvard Women in Computer Science*.
- Spring 2019 **Volunteer**, *Digital Literacy Project*.
Taught basic programming in Scratch and Processing.js to middle school students in Allston.

Skills

Programming languages: Python, Java, C/C++, JavaScript, x86 assembly, and OCaml.
Tools and frameworks: L^AT_EX, Django, PyTorch, Mathematica, SQL, and Git.

Awards

- 2022 **Computing Research Association Outstanding Undergraduate Researcher Award**, Honorable Mention.
- Spring 2021 **Phi Beta Kappa, Alpha Iota of Massachusetts**.
Elected in group of 24 juniors from the Harvard College Class of 2022.
- 2018–2021 **John Harvard Scholar**.
- 2019–2021 **Certificate of Distinction in Teaching**.
Awarded by Harvard Office of Undergraduate Education on basis of instructor ratings in student evaluations. Overall scores were: CS 121 Fall 2019, 4.83/5; CS 121 Fall 2020, 4.88/5; CS 124 Spring 2021, 4.82/5.

Grants

- Fall 2021 **Harvard College Research Program**.
- Summer 2020 **Herchel-Smith Fellowship**.

Updated December 22, 2021.