Rohan Bafna

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EDUCATION

University of Michigan, Ann Arbor, MI — August 2026 – ongoing
PhD in Electrical and Computer Engineering
Advised by Professor Inigo Incer

Georgia Institute of Technology, Atlanta, GA — August 2022 – May 2026
BS in Computer Science, BS in Mathematics
Cumulative GPA: 4.0

Advanced coursework: Abstract Algebra I & II, Algebraic Topology, Honors Algorithms, Analysis I, Automata and Complexity Theory, Compilers & Interpreters, High-performance Computer Architecture, Honors Multivariable Calculus, Operating Systems, Programming Languages, Secure Communication Protocols, Secure Computer Systems

RESEARCH EXPERIENCE AND TRAINING

Systems for AI Lab, Georgia Tech, School of Computer Science — August 2024 – May 2026
Undergraduate research assistant
Advised by Professor Alexey Tumanov

Evaluated a new scheduler for datacenter workloads that captures scheduling requirements, including job dependencies, resource affinities, and deadlines, in a domain-specific language that describes placement decisions in a resource/time space and compiles to ILP in order to find optimal placements for any given workload. Tested the scheduler on a real-world cluster manager and in simulation, and helped implement a mechanism to ensure consistent behavior of the scheduler in simulation and in practice, so that experiments could be performed efficiently in simulation but would still accurately reflect real-world scenarios. Studied the use of this scheduler for large language model inference serving.

Summer Undergraduate Applied Mathematics Institute, Carnegie Mellon University — May – July 2025
Undergraduate researcher, Using Lean to Teach Proof Writing
Advised by Doctor Pavel Kovalev

Engaged in an intensive 8-week research program as part of CMU's Summer Scholars Program. Selected as one of 12 applicants from a pool of hundreds. Worked in a group with two other undergraduates on developing teaching materials for instructors of introductory proof writing courses using the proof assistant Lean. Adapted the content of CMU's proof writing course textbook into an online game in the same format as the Natural Number Game. Designed and wrote tactics (programs in Lean that support proof writing) to teach students the fundamental steps in proof writing and how they are used to build up proofs. Gave regular presentations to other researchers in SUAMI and SSP, as well as the Hoskinson Center for Formal Mathematics, and presented a poster at the end of the program. Poster accepted to the Joint Mathematics Meetings 2026 Pi Mu Epsilon session.

Oregon Programming Languages Summer School — June 2024

Attended a competitive summer school as one of 19 undergraduates in a mix of participants consisting of PhD students and industry professionals. Explored advanced topics and areas of current research in the theory of programming languages. Attended lectures given by top researchers, including Prof. Amal Ahmed (Northwestern University) discussing

logical relations to prove type soundness and language interoperability, Prof. Alexandra Silva (Cornell University) discussing Kleene algebra with tests, and Prof. Steve Zdancewic (University of Pennsylvania) discussing interaction trees, a technique for formally verifying interactive computations.

PUBLICATIONS

Sukrit Kalra, Alind Khare, Elton Pinto, Dhruv Garg, **Rohan Bafna**, Hong Zhang, Ion Stoica, Alexey Tumanov. *DSched: A Declarative Deadline and DAG-Aware Scheduler.* 2025. Manuscript submitted for review to NSDI '26.

Joint with Sydney Badescu and Suhas Allabadoina; advised by Pavel Kovalev. *Using Lean to Teach Proof Writing.* 2025. Poster presented at Joint Mathematics Meetings Pi Mu Epsilon 2026 session.

TEACHING EXPERIENCE

Operating Systems, CS 3210, Georgia Tech August 2025 – May 2026 (2 semesters)
Head teaching assistant
Course instructors: Professors Michael Specter, Ketan Bhardwaj (Fall 2025), Professors Alexey Tumanov, Francisco Romero (Spring 2026)

Managing a team of 10 graduate and undergraduate TAs in a project-based class where students design and implement several large-scale modifications to an existing operating system codebase. Guiding improvements to course assignments and infrastructure and setting direction to supervised labs where students learn supplementary information about the course. Also teaching and designing supervised labs and weekly assessments, grading student code and exam submissions, and holding weekly office hours to help guide students' design decisions and debug their implementations in course projects.

Operating Systems, CS 3210, Georgia Tech January 2025 – May 2025
Undergraduate teaching assistant
Course instructors: Professor Alexey Tumanov and Adam Hall

Advised students in a project-based class where students design and implement several large-scale modifications to an existing operating system codebase. Taught and designed supervised lab sections to a class of about 25 students which consist of material that supplements the operating system design principles which learn in class and gives practical advice for understanding the operating system students work with and completing the projects. designed weekly assessment material where students practice content learned in supervised lab. Holding weekly office hours to help guide students' design decisions and debug their implementations.

Operating Systems, CS 3210, Georgia Tech August 2024 – December 2024
Undergraduate teaching assistant
Course instructor: Professor Anand Iyer

Advised students in a project-based class where students design and implement several large-scale modifications to an existing operating system codebase. Designed and taught a lecture to give students key information and advice on one of the projects. Held weekly office hours to help guide students' design decisions and debug their implementations.

Computer Organization and Programming, CS 2110, Georgia Tech August 2023 – May 2024 (2 semesters)
Undergraduate teaching assistant
Course instructors: Professor Tom Conte, Pulkit Gupta, Austin Adams (Fall 2023), Daniel Forsyth, Mark Moss, Aaron Hillegass (Spring 2024)

Taught weekly recitation sections to a class of about 50 students where students learn the fundamental principles of how computers work at the levels of hardware and software. Designed assignments where students practice digital logic and learn to program in assembly and C. Held weekly office hours for students to reinforce concepts learned in class and get help with programming assignments.

TECHNICAL SKILLS

Agda, Coq, Lean, Rust, Python, C, C++, x86 assembly, and Linux command line and tools.
English: native. French: intermediate.

SELF-DIRECTED PREPARATORY WORK

Textbooks read
Benjamin Pierce et al. *Software Foundations*. 2024.
Philip Wadler, Wen Kokke, Jeremy G. Siek. *Programming Language Foundations in Agda*. 2022.
The Univalent Foundations Program. *Homotopy Type Theory: Univalent Foundations of Mathematics*. 2013.
Emily Riehl. *Category Theory in Context*. 2016.
Benjamin Pierce. *Types and Programming Languages*. 2002.

dependently-typed, student organization at Georgia Tech August 2022 – present

Member of a student organization focusing on programming languages, where students give talks on topics in language design, compilers, and PL theory.

HONORS AND AWARDS

Dean's List and Faculty Honors, Georgia Tech (All semesters from Fall 2022 to Fall 2026)
USA Computing Olympiad, Gold division competitor (December 2020 – April 2021)