Kabir Samsi

kabirsamsi.com | samsikabir@gmail.com | in/kabir-samsi | github.com/KabirSamsi

Education

Cornell University August 2022 – May 2026

Bachelor of Arts ***(Cum Laude, Dean's List)*** *– Computer Science & Mathematics* *Ithaca, NY*

- **Grad Coursework**: PhD Compilers, PhD Programming Language Theory, PhD Software Verification (Rocq)
- **UGrad:** Algorithms, Honors DS & OOP, Machine Learning, Deep Learning, Functional Programming, Systems Programming, Operating Systems, Abstract Algebra, Numerical Analysis, Linear Algebra, Probability Theory

Professional Experience

Software Engineer – ML Compilers July 2026 – Present

Qualcomm *New York City, NY*

- Joining Qualcomm's Machine Learning Compilers Team as a research/software engineer in July 2026.
- Developing the next generation of powerful compiler representations for modeling and optimizing ML workloads.

Software Lead – Classic UI August 2023 – May 2026

Course Management System X (CMSX) @ Cornell University *Ithaca, NY*

- Led the engineering team for Cornell COE/CIS's course management system, advised by Andrew C. Myers.
- Core full-stack developer & supervisor of 20+ developers on CMSX's JSP and React frontends.
- Developed a staff model for securely **serializing, importing & exporting course templates** in XML & JSON.
- Developed new features including **student comments**, **regrades** & **secure enrollment** for over 100 courses.
- Co-led the designing, engineering and shipping of CMSX's feature for **rubrics-based grading**.

Teaching & Research Experience

Researcher – Compiler Design June 2024 – May 2026

Capra Research Group @ Cornell University *Ithaca, NY*

- Researched programming language design for **packet scheduling & networking**, advised by Adrian Sampson.
- Developed the Rio **language, compiler & arbiter** for compiling packet scheduling policies to FPGA hardware.
- Led the design, formalization & hardware representations of the PIEO and PIEO Tree data structures.
- Developed a **type system, typechecker** and **formally verified semantics** for the Rio programming language.
- Software engineer for the **Calyx compiler infrastructure** for languages targeting **hardware accelerators**.

Head Teaching Assistant August 2023 – May 2026

Cornell University Bowers College of Computing & Information Science *Ithaca, NY*

- CS 3110 (**Functional Programming – Head TA**), CS 2112 (**Honors DS/OOP**) & CS 5150 (**SWE**).
- Taught functional programming in OCaml, OOP, data structures, PL theory, formal methods & software design.
- Designed labs for 1000+ students; wrote projects & exams; led CS 3110's recitation team; hosted discussion sections.
- Inagurated & hosted both courses' exam recitation programs (150+ students); wrote 300+ review material slides.
- Trained 100+ TAs at CS 3110 over three semesters in lab management. 4x Outstanding TA Award Recipient.

Projects

Franz | *Rust* March 2024 – Present

- An intermediate language representation and compiler infrastructure for developing music composition languages. Targeted towards compact & modular composition, using text-based music notation and motifs for representation.

Saberchat (Team Lead) | *Node/Express/Angular, React, MongoDB* June 2020 – May 2022

- Led the development of a community platform infrastructure used by schools & student-run organizations. Includes content-sharing systems, an online tutoring center & a streamlined preorder/inventory platform for retail groups.

Technical Skills

Languages: Java, Rust, TypeScript, C++, Python, OCaml, Kotlin, C, JavaScript, Go, Swift, Haskell, HTML/CSS
Fullstack: React/Vue, Node/Express/Angular, AJAX, Flask, MongoDB, SQL, Bootstrap, template engines (JSP, EJS)
Machine Learing: PyTorch, TensorFlow/Keras, Pandas, MapReduce, ScikitLearn, Hugging Face
Other Tools: LLVM, MLIR, Rocq Prover, Verilog, CUDA, LaTeX, Git