

# Kabir Samsi

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## EDUCATION

### Cornell University

Ithaca, NY

*Bachelor of Arts – Computer Science, Mathematics & Music*

*Aug. 2022 – May 2026*

- **Relevant Coursework:** Analysis of Algorithms, Honors Data Structures & OOP, Advanced Programming Languages, Advanced Program Synthesis, Systems Programming, Functional Programming, Machine Learning, Probability Theory, Advanced Linear Algebra
- **Dean's List Recipient** (All Semesters), Pursuing CS Honors

## RESEARCH & TEACHING EXPERIENCE

### PL & Compiler Abstraction Researcher @ CAPRA

June 2024 – Present

*Cornell University*

*Ithaca, NY*

- Working with Prof. Adrian Sampson at Cornell's Computer Architecture & PL Abstractions research group.

### Head Lab/Teaching Assistant

August 2023 – Present

*CS3110 (Data Structures & Functional Programming) at Cornell University*

*Ithaca, NY*

- Taught concepts including data structures, functional programming, PL/interpreter design & formal verification.
- Hosted exam review recitations, led weekly TA meetings and grading; designed coursework and lab material.
- Taught discussion sections of 15-20 students, ran scheduled office hours and moderated course discussion forums.

## WORK EXPERIENCE

### Full-Stack Software Developer @ CMSX

August 2023 – Present

*Cornell University*

*Ithaca, NY*

- Working with Prof. Andrew Myers on Cornell's Course Management System, used by 8K+ users & 100+ courses.
- Improved server time by modifying the backend Java codebase and migrating the frontend framework to React.js.
- Developed new features including spreadsheet and CSV integrations and a streamlined interface for course staff.

### Machine Learning & Data Analysis Curatorial Assistant

October 2022 – May 2024

*Cornell Lab of Ornithology*

*Ithaca, NY*

- Curated data and developed machine learning models in audiovisual bird identification for the Merlin ID Project.
- Improved visual identification by designing Pandas data cleaning scripts and classifying over 5000 new images.
- Developed database profiles for 300+ species splits for the eBird packs in Indonesia & Taiwan.

## PROJECTS

### FindYourBird/CollabBirder | MEAN Stack, Fullstack Development, Neo4j

June 2020 – May 2024

- Developed a simplified bird identification and search platform (used by several Audubon Society chapters)
- Designed a system with the eBird API improving observation logging, target species info & location suggestions.
- Features include a system to identify sightings based on recorded form data, look up birds based on name and identifying attributes and access recommended species and habitats based on location and previous experience.

### MaTriX | OCaml, Python

November 2023 – Present

- Developed a functional language, interpreter and typesetter designed specifically to enable programmers to solve linear algebra problems and elegantly format operations and solutions.
- Features include functional structures, vector/matrix list comprehensions and mappings & matrix factorizations.
- Separately designed typesetter with a markdown framework for linear algebra operations that compiles to LaTeX.

### Saberchat | MEAN Stack, Fullstack Development, React.js, Nginx

June 2020 – May 2022

- Led the development of an intranet platform used to facilitate and improve community engagement.
- Features include multiple content-sharing systems, an online tutoring center for schools and a streamlined pre-ordering and inventory interface for retail groups. Targeted at high schools and student-run organizations.

## TECHNICAL SKILLS

**Languages:** JavaScript, HTML/CSS, Python, Java, C/C++, Rust, Haskell, OCaml, Go, Ruby, Swift, Assembly

**Frameworks:** React.js, MEAN Stack (MongoDB, Express, Angular, Node.js), JSON, SQL, Flask, Neo4j

**Libraries:** Pandas, Numpy, TensorFlow, PyTorch, Keras

**Skills:** Programming Languages, Full-Stack Development, Research, Machine Learning, Data Analysis