

Education

Courant Institute, New York University

PhD in Computer Science

New York, NY

Sep 2025 - Present

- Advised by **Prof. Sam Westrick** in the **ParCour** lab. Supported by the **MacCracken** fellowship.

University of Michigan

B.S in Computer Science

Ann Arbor, MI

Aug 2021 - May 2025

- **Minor:** Mathematics B.S and Music B.S

- **Honors:** Graduated Summa Cum Laude, James B. Angell Scholar, University Honors

Publications

- **Papers:** *Grove: A Bidirectionally Typed Collaborative Structure Editor Calculus, POPL '25*

- **Posters:** SURE Poster Symposium

- **Talks:** Midwest Programming Languages Summit 2024 (UChicago), SURE CS-Symposium

Research Experience

Summer Undergraduate Research in Engineering

Student Researcher

Ann Arbor, MI

May 2024 - Aug 2024

- Co-authored comprehensive **formalism**, **rigorous proofs**, and **research paper** titled *Grove: A Bidirectionally Typed Collaborative Structure Editor Calculus, accepted artifact* ([link](#)) to *Principles of Programming Languages (POPL) '25*

Future of Programming Lab

Directed Independent Study

Ann Arbor, MI

Jan 2023 - Present

- Building **Grove**, a cutting-edge **CRDT-backed** collaborative **structure editor calculus** with sophisticated algorithms for a **labeled, directed multigraph edit system** enabling efficient, intuitive conflict resolution mechanisms.
- Exploring **functional programming**, **type theory**, and **HCI** with Professor **Cyrus Omar** through **Hazel**, a **live-programming environment** capable of running and **typechecking incomplete** programs. [Demo](#)

Industry Experience

Illumina

Software Engineer Intern, DRAGEN R&D

San Diego, CA

May 2023 - Aug 2023

- Designed and implemented a **performant job submission tool** in **Django**. Exposed **REST API** endpoints supporting **CRUD** operations, reducing job submission time by **50%** powering **genomics** research and **precision medicine**.
- Expanded application for DRAGEN secondary analysis **bioinformatics** pipelines on specialized **FPGA** hardware.
- Orchestrated robust **Jenkins** CI/CD pipelines, driving **40%** reduction in time-to-market for artifact publication and **accelerated SDK creation** for intra-operability within Illumina's product ecosystem.
- Launched product and deployed services to **AWS**, created **ECS + RDS** clusters with **blue-green** strategy to maximize service **reliability**, established a **seamless** deployment experience, and saved Illumina **\$50k+** annually.

TIBIL Solutions

Software Engineer Intern

Bengaluru, India

Aug 2020 - Oct 2020

- Engineered a robust 2-stage **predictive analytics** model combining hybrid **ARIMA** and **Artificial Neural Networks** in **Python** to **forecast** power output and evaluate wind farm viability.
- Achieved a notable **20% enhancement** in power output prediction accuracy by model **performance tuning**, and optimized decision-making and resource allocation through **FB Prophet**.

Skills

Languages: C, C++, Python, OCaml, Rust, HTML/CSS/JavaScript, TypeScript, Dafny, Go, Agda

Technologies: AWS RDS, ECS, S3, Docker, NextJS, React, Linux, Unix, NoSQL, Git, Bash

Teaching

- **MPLSE Summer '24 Learning Group**, Programming Language Foundations in Agda

Service

- **Student Volunteer**, ACM SIGPLAN Principles of Programming Languages (POPL) 2025
- **Student Volunteer**, ACM SIGPLAN Programming Languages Design and Implementation (PLDI) 2024
- **Student Volunteer**, ACM SIGPLAN Systems, Programming, Languages and Applications: Software for Humanity (SPLASH) / International Conference on Functional Programming (IFCP) 2025

Programs

Oregon Programming Languages Summer School, 2025

On Types, Logics, and Formal Methods

- Supported by the OPLSS Travel Grant

Eugene, OR

Jun 2025 - Jul 2025