

Tulip S. Amalie

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EDUCATION

B.S. in Computer Science, B.S. in Theoretical Mathematics

Aug 2020–Present

Indiana University

Bloomington, Indiana

- » Current GPA: 3.84/4.00, Dean's List (all semesters)
- » Luddy School of Informatics, Computing, and Engineering Direct Admit

TEACHING

Proofs as Programs

Jan 2023–May 2023

CSCI-B 629

Bloomington, Indiana

- » Designed, lectured, and wrote assignments for course on type system implementation
- » Created entirely original coursework to give to students

Introduction to Computer Science

Jan 2021–Dec 2021, Aug 2022–Dec 2022, Aug 2023–Dec 2023

CSCI-C 211

Bloomington, Indiana

- » Demonstrated concepts from lecture, assessed student expertise, and communicated weak points to students
- » Taught students both how to program and how to explore new programming paradigms using Racket

RESEARCH EXPERIENCE

Property Testing Generators for Imperative Programs

May 2023–Aug 2023

CN Testing

Philadelphia, Pennsylvania

- » Developed a system to create parameterized generators for C programs with pointers
- » Constructed on top of the QuickChick property testing framework

Structured Editing for Cubical Type Theory

May 2022–Aug 2022

Coolttviz

Minneapolis, Minnesota

- » Designed and implemented a Rust visualization tool for performing hcoms in cubical type theory
- » Worked significantly with OpenGL and visualizing higher dimensional spaces

Program Synthesis for Teaching

Jan 2022–December 2022

Bingus

Bloomington, Indiana

- » Talks at ICFP Scheme 2022 and RacketCon 2022
- » Designed a program synthesizer to write programs following the How to Design Programs curriculum

Data Science Tooling for Racket

Jan 2021–Sep 2021

Graphite and Sawzall

Bloomington, Indiana

- » Talks at ICFP Scheme 2021 and RacketCon 2021
- » Designed R-inspired data science tools for ergonomic data visualizations in Racket
- » Assessed the usability of data manipulation tools, and designed new tools for efficient data wrangling

SKILLS

- » *Programming languages:* **Racket, Java**, Python, Haskell, C, Rust, R
- » *System administration:* **Linux, Nix/NixOS**, nginx, PostgreSQL, Windows
- » *Miscellaneous:* **Documentation writing, Git**, Microsoft Office, L^AT_EX, Autodesk Inventor

RELEVANT COURSEWORK

- » *Computer Science:* **Compilers, Programming Languages, Semantics**, Data Structures
- » *Mathematics:* **Abstract Algebra, Recursion Theory**, Topology, Logic, Linear Algebra