

Rijul Jain

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Education

Williams College, Williamstown, MA | 2021-2025

- Bachelor of Arts, Computer Science and English; GPA: 3.98/4.0
- Coursework: Independent Research in CS, Principles of Prog. Lang., Algorithms, Computer Organization, Data Structures, Mathematical/Computational Approaches to Social Justice (research course)

University of Oxford, Oxford, UK | 2023-2024

- Visiting student at Exeter College as part of the competitive Williams-Exeter Programme at Oxford
- Coursework: Models of Computation, Machine Learning, Compilers

Selected Projects (Williams College)

BitFridge (Summer 2022 - Present)

- Tool working to ensure correct POSIX system call effects across OS platforms and versions by intercepting syscalls to express and execute them in a safe, correct intermediate representation programming language

PixelPunk (Spring 2022)

- Programming language to facilitate creation of highly unique pixel art, written in F#
- Wrote parser and interpreter to produce .svg files; formalized abstract syntax of the language

Experience

Carnegie Mellon University Software and Societal Systems Department, *Research Intern* (Summer 2023)

- Researched domain-specific program generation with large language models for diagram authoring with Penrose, a text-to-diagram platform; achieved 96% compile rate
- Worked under Joshua Sunshine and Keenan Crane as part of CMU's Research Experiences for Undergraduates in Software Engineering (REUSE) program; submitted work to SPLASH 2023

Williams College Department of Computer Science, *Summer Research Intern* (Summer 2022)

- Partially modeled the Unix filesystem with an intermediate representation by writing a programming language in C++ using systematically tested and safe POSIX system calls (BitFridge, under Professor Daniel Barowy)
- Cataloged unexpected system call behavior by probing 100 million inputs each with fuzzers written in C

Williams College Department of Mathematics, *Research Assistant* (Fall 2021 - Spring 2022)

- Compiled dataset of 2200+ musicians by scraping 30 websites' data to analyze gender and racial diversity in US professional orchestras under Professor Chad Topaz using R and HTML/CSS knowledge

Stanford University, Center for Computer Research in Music and Acoustics, *Intern* (Summer 2020)

- Updated website code for FAUST (Functional Audio Stream) programming language using HTML/CSS

Skills/Interests - PL design, text-to-visual software, parsers, compilers, C, C++, Java, R, F#, JavaScript, React, HTML/CSS, Git, Linux, systems, anything open-source, large language models & program synthesis, research.