Rhea Prakash

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Education

University of Leeds, BS in Computer Science (Predicted 1:1) Sept 2022 – June 2025

- **Modules:** Object Oriented Programming - 85, Algorithms - 81, Artifical Intelligence - 80
- **Thesis:** Researching pointer doubling optimization for large-scale graph computations, with a focus on benchmarking, parallel architectures, and graph algorithm performance.
- Received the Undergraduate International Excellence Scholarship from the School of Computing based on performance on final high school exam.

Experience

Web Developer (Part-Time), Leaning Technologies – Leeds, UK September 2024 – Present

- Built a high-performance corporate website using Astro in a monorepo, improving development efficiency by 25% through modular code organization.
- Optimized deployment with Cloudflare and automated CI/CD pipelines via GitHub Actions and Cloudflare checks, reducing load times by 30% and deployment errors by 40%.
- Collaborated with the manager and design team, providing regular updates and aligning technical implementations with design requirements, improving cross-team communication and project clarity.

Web Developer (Part-Time), DRS Software - Leeds, UK May 2024 – Present

- Developed a fully responsive website using Astro, improving user engagement by 20% through optimized UI/UX components.
- Deployed via Cloudflare, reducing deployment time by 40% and improving site uptime by 15%. Enhanced collaboration through version control using Github.
- Regularly met with the manager to provide updates, ensuring alignment with project goals and refining communication.

Projects

CheerpX Hackathon github.com/cheerpx_hack

- Won **first place** by developing a client-side Python platform using CheerpX and WebAssembly to run code directly in the browser. Integrated real-time feedback for immediate Python code execution and output in the browser console.
- Collaborated in a fast-paced hackathon / team environment, to plan and develop the project within a limited timeframe, successfully delivering a fully functional browser-based coding platform

Chess Game with AI github.com/chess

- Developed a Java chess game with an interactive interface and AI opponent, using an object-oriented architecture for modularity.
- Optimized performance for AI decision-making using minimax with Alpha-Beta Pruning for better move selection.
- Used Java Swing for graphical visualization to enhance the user experience with a GUI-based board representation.

Shell Script for xv6 github.com/OS

- Developed a custom shell for xv6, supporting command execution, I/O redirection, and piping to enhance functionality.
- Designed and optimized the command execution loop and edge case handling for commands like cd and special formatting issues.
- Integrated the shell into the xv6 build process, leveraging C programming and system-level scripting, resulting in a functional shell executable that runs directly in the operating system environment.

Compiler in C github.com/compiler

- Built a lexical analyzer and recursive descent parser for JACK, processing **10,000+** lines of code and extracting tokens.
- Developed a symbol table for identifier resolution, enabling semantic analysis with <2% error and reducing runtime memory usage by 15%.

Technologies

Languages: C, C++, CSS, HTML, Java, JavaScript, Python, TypeScript, bash

Frameworks: React, Astro, Cloudflare, Tailwind, SQL

DevOps & Tools: Git, GitHub, Google Cloud, Azure Functions, Firebase, Figma, Postman, Blender, Krita, Xcode, Django