GRENISH RAI

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SUMMARY

Full-stack engineer and researcher with 4+ years of experience building high-performance systems and scalable web applications. Active open-source contributor focused on **AI/ML research**, specifically in fine-tuning small language models. Skilled in modern web architectures and currently expanding into **Rust** for systems programming and developer tooling.

EXPERIENCE

Full Stack Developer

Freelance Developer   **December 2024 – Present, India**

· Developed and maintained reusable UI and backend components across multiple projects to ensure code consistency, scalability, and faster delivery cycles; integrated automated testing for continuous deployment workflows.
· Delivered custom web applications tailored to client requirements, implementing responsive UIs with React/Next.js and scalable backends using Node.js, Express, and cloud databases.
· Integrated third-party APIs and payment gateways, applying secure authentication, input validation, and encryption to meet data privacy and industry security standards.

PROJECT

Metabot

AI/ML · ollama.com/grenishrai/matbot1.4 · November 2025 – December 2025

· Achieved **10% accuracy on GSM8K** and **2% on MATH-500** benchmarks by fine-tuning the **SmolLM2 360M** base model on specialized mathematical reasoning datasets.
· Eliminated **100% of template repetition loops** observed in prior versions by optimizing training dynamics to produce consistent and interpretable mathematical outputs.
· Demonstrated the viability of low-resource reasoning by successfully training a compact **360M parameter model** to solve complex problems without suffering from mode collapse.
· Validated training improvements by conducting a controlled evaluation across a **100-problem sample set**, proving a measurable increase in reasoning capability over the previous 0% baseline.

Ai Cookbook

Fullstack Development · github.com/Grenish/prompt-share · August 2025 – December 2025

· Built a scalable content platform using **Next.js 15** and **React 19**, integrating **Supabase** to manage authentication, PostgreSQL database interactions, and object storage within a unified serverless environment.
· Enhanced social discoverability by engineering a dynamic **Open Graph image generator** that programmatically renders custom metadata and preview images for 100% of shared prompts and user profiles.
· Secured user-generated content by implementing strict **Row Level Security (RLS)** policies and **TypeScript** server actions, ensuring granular access control for media uploads and database modifications.
· Facilitated real-time user interaction by developing a comprehensive notification and engagement system (likes, saves, comments) that leverages **optimistic UI updates** to ensure zero-latency feedback for users.

Clipboard Manager

Rust · github.com/Grenish/clipboard-manager · December 2025 – October 2025

· Achieved a clipboard capture latency of **~150ms** by engineering a lightweight background daemon in Rust that continuously polls system buffers for text and image changes.
· Extended system support to **2** major Linux display protocols (Wayland and X11) by implementing a dual-backend architecture that dynamically bridges `wl-clipboard` and the `arboard` library.
· Optimized the **50**-item rolling history buffer by integrating content hashing algorithms to identify and prevent the storage of **100%** of duplicate clipboard entries.
· Ensured **100%** history retention across sessions by developing a robust serialization module that persists state to local JSON storage with automatic file recovery.

Authrix

Typescript · github.com/Grenish/authrix · July 2025 – August 2025

· Engineered a TypeScript authentication library that secures user sessions using signed JSON Web Tokens and implements automatic cookie rotation to extend session validity safely.

- Designed a modular storage architecture that isolates database interactions to enable support for multiple backends like MongoDB and PostgreSQL via a unified interface.
- Constructed a robust security module featuring two-factor authentication with server-side rate limiting, cryptographic code generation, and bcrypt hashing to protect user credentials.
- Built specialized middleware for Next.js and Express that handles request validation, session extraction, and third-party OAuth integrations directly within the application request lifecycle.

EDUCATION

Bachelor of Computer Applications

Minor in Computer Applications · Sikkim Manipal Institute of Technology · Majitar, Sikkim, India · 2025
- Built a strong foundation in data structures, algorithms, database systems, web development, and software engineering principles through coursework and lab work.
- Applied concepts in personal projects involving full-stack development, UI/UX design, and introductory implementations of AI/ML models using tools like Python and TensorFlow.

High School

Minor in Biology · Kendriya Vidyalaya Bengdubi · Bengdubi, India · 2022
- Completed Higher Secondary Education (CBSE, 2022) from Kendriya Vidyalaya, Bengdubi, with a focus on Bio-Science.
- Studied core subjects including Biology, Chemistry, Physics, and English, building analytical and scientific reasoning skills.

CERTIFICATIONS

Problem Solving

HackerRank · 2024
- Earned HackerRank Problem Solving Certificate by demonstrating proficiency in algorithmic thinking, data structures, and efficient coding practices through timed, real-world coding challenges.

Dark Pattern Buster Hackathon

DPBH · 2024
- Participated in Dark Pattern Buster Hackathon 2024, building a browser-based tool to detect and neutralize deceptive UI patterns using DOM analysis, rule-based filtering, and user-centric design principles.

Python

HackerRank · 2023
- Earned HackerRank Python Certificate by completing challenges focused on core Python concepts, including data types, control flow, functions, and problem-solving with efficient code.

AWARDS & HONORS

Web Building Competition

Sikkim Manipal Institute of Technology (SMIT) · 2024
- Awarded First Prize in the Web Building Competition at college for designing and developing a fully functional, responsive website demonstrating strong frontend and backend integration skills.

SKILLS

Containerization: Docker, Docker Compose

Languages: English, Hindi, Nepali

Programming: Javascript, TypeScript, Python, Express.js, Node.js, Rust, Machine Learning

Frameworks: ReactJS, Next.js

Design: Figma

Version Control: Git, GitHub, GitLab