PRABHAT KUMAR

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ABOUT ME

Computer Science graduate with strong backend and embedded systems development skills. Experienced in building real-time, scalable systems. Passionate about systems programming, low-level tooling, and open-source contributions.

EDUCATION

Amity University **Noida, India**
Bachelor of Technology in Computer Science and Engineering Aug 2021 – Jun 2025

- **CGPA**: 7.18 CGPA
- **Courses**: Applied Cryptography, Generative AI, Cyber Security, Exploring Networks, Data Structures in C
- Runner-up in a 24-hour hackathon focused on embedded systems for medical applications; built a prototype within one day.

SKILLS, LANGUAGES, INTERESTS

- **Languages**: Rust, Zig, Go, C/C++, Java, Python, TypeScript, JavaScript
- **Frameworks**: React, Next.js, Tailwind, Node.js
- **Databases**: SQLite, MongoDB, MySQL
- **Tools**: Git, Docker, VS Code, ESP-IDF, PlatformIO

WORK EXPERIENCE

Locamart Online Services **Noida, India**
Backend Developer Intern May 2024 – Jul 2024

- Developed and maintained backend services using Node.js and REST APIs for B2B and B2C platforms, improving response times and scalability significantly.
- Migrated infrastructure from AWS to Firebase for easier SDK integration with mobile apps, simplifying development and reducing deployment complexity.
- Leveraged Firestore and Firebase Cloud Functions to build serverless, low-latency data workflows, improving performance and reducing server management overhead.
- Collaborated with cross-functional teams and refactored backend modules to increase code maintainability, accelerate feature releases, and enhance test coverage.

PROJECTS

MNIST ESP-Cam
Number Identifier using ESP-Cam Apr 2025 – May 2025

- Built a digit recognition system using ESP32-CAM and Wi-Fi video streaming; captured MJPEG frames and processed them using a Rust-based MNIST inference pipeline.
- Implemented the MNIST model in Rust with image preprocessing and classification handled on the host machine for real-time digit detection.

Web-Serial Debug
Serial Over Web Apr 2025 – May 2025

- Built a cross-platform browser-based serial monitor using the Web Serial API with Alpine.js and Primer CSS for a responsive and minimal UI.
- Enabled real-time bidirectional communication with microcontrollers via serial ports directly within Chromium-based browsers, with dynamic baud rate control and live data logging.

Pack.c
Cross Platform Compression Tool May 2024 – Jul 2024

- Developed a high-performance compression tool in C, utilizing Zstd for file compression and SQLite as the primary storage backend for compressed data.
- Designed a modular C API wrapper around Zstd to simplify initialization and integration into external applications. Optimized buffer strategies to maximize throughput and minimize memory overhead.

OpenCCTV
Open Source Surveillance System Apr 2024 – May 2024

- Built an open-source surveillance system using ESP32-CAM with custom firmware; enabled real-time video streaming to a central Go-based server.
- Implemented device auto-discovery and persistent TCP connections for robust and low-maintenance video node communication.

Stash-IT
Browser Tab,Bookmark Exporter Jan 2024 – Apr 2024

- Developed a Chrome extension using JavaScript and Chrome API to export and import browser tabs and bookmarks as structured JSON backups.
- Added selective export features and a UI to manage tab groups, enhancing session portability and workflow flexibility.

FireWatch
Chat Application made with ESP32 Sep 2023 – Dec 2023

- Developed a real-time text messaging application on ESP32 using WebSockets for inter-device communication over Wi-Fi networks.
- Implemented dual-mode networking:- devices operate in Access Point mode to create a joinable Wi-Fi network, or in Station mode to integrate with existing infrastructure.

LICENSES AND CERTIFICATIONS

Python for Data Science
Issued by *NPTEL* Jul 2024