Abhigyan Chatterjee

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https://github.com/abhigyan-chatterjee

Professional Summary

Software-focused engineering student with hands-on experience building CLI tools, Linux-based system utilities, and ML-powered applications. Strong interest in backend development, systems programming, and applied machine learning.

Technical Skills

- **Languages:** Python, C/C++, Go, JavaScript , SQL
- **Frameworks/Libraries:** PyTorch, Scikit-Learn, Pandas, NumPy, Streamlit, Cobra
- **Tools & Platforms:** Linux, Bash, Fish, Git, Docker, DigitalOcean
- **Operating Systems:** Proficient with GNU/Linux (Arch, Debian), Windows

Education

Techno Main Salt Lake, B.Tech in Electronics and Communications September 2023 – July 2027

- GPA: 7.7
- **Coursework:** Digital Systems, Microcontrollers & Interfacing, Computer Architecture, Computer Networks

Projects

Aurora GitHub

- *CLI Tool for Transparent AUR Package Management on Arch Linux*
- Designed and developed an opinionated CLI tool to simplify AUR package installation while preserving full user awareness of system changes.
- Implemented a multi-command CLI workflow supporting install, remove, search, and help operations.
- Replaced flag-heavy workflows with human-readable commands and explicit system action explanations.
- Orchestrated **pacman** and **makepkg** with safety checks, dependency previews, and clear error messaging.
- **Tools Used:** Go, pacman , makepkg, Arch Linux

Malicious URL Detection Tool Github

- *URL-Based Malicious Link Classifier*
- Built a lightweight web-based tool to detect **malicious URLs** using a trained **Recurrent Neural Network (RNN)**.
- Implemented end-to-end inference pipeline with real-time URL validation and instant classification feedback.
- Achieved **92.84%** classification accuracy on malicious vs safe URLs.
- Deployed a minimal, user-friendly interface using **Streamlit** for easy access and testing.
- **Tools Used:** Python, PyTorch, Streamlit, scikit-learn, Pandas

StreamLlama Github

- *Python Script for Offline AI Chat with Locally Running LLMs*
- Developed a standalone **Streamlit** wrapper for **Ollama**, allowing users to chat with local large language models (LLMs) completely offline.
- Implemented an auto-installation feature for Ollama and required models, simplifying the setup process for non-technical users.
- **Tools Used:** Python, Streamlit, Ollama, Open Source LLMs

8-Bit Computer

- Worked in a team of 4 engineers to build a programmable Turing-complete machine from scratch using fundamental logic gates.
- Closely followed Ben Eater's 8-Bit computer architecture, implementing custom tweaks and changes for improved execution and reliability.

Digital Clock

- Designed and wired logic and timing circuits entirely from scratch using discrete components, basic ICs, and a 32.768KHz crystal oscillator.

Certifications

- **CS50x** - *Harvard University*, 2024
- **Supervised Machine Learning: Regression and Classification** - *Stanford University*, 2024
- **Python for Data Science, AI & Development** - *IBM*, 2024