Lakshay Chauhan

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Education

Indraprastha Institute of Information Technology (IIIT) Delhi Jul 2021 – Jun 2025
Bachelor of Technology in Computer Science and Engineering *Delhi, India*

Work Experience

Member of Technical Staff Jul 2025 – Present
ZL Technologies, Inc / ***Website*** *Hyderabad, India*

- Contributed to the development of ZLUA, a core component of ZL Tech's unified cloud-native data governance platform, used by Fortune 500 enterprises to manage unstructured data at scale.
- Designed and implemented backend features using Java, C#, JSP, and XML, integrating with Apache Tomcat, Maven, Tika, and Ant for deployment and content processing.

Research Assistant | ***GitLab Project Organization*** May 2024 – May 2025
Networks and Systems Security Lab - IIITD / ***Website*** *Delhi, India*

- **Objective:** Address quality degradation in video streaming applications when fallback from QUIC to TCP occurs due to UDP blocking.
- **Solution:** Implemented a mechanism to send notifications in QUIC packets to anticipate UDP blocking. Server logs the kernel congestion window state to be used in the upcoming TCP connection. Improved user experience by avoiding TCP slow start, thus preventing buffering during fallback.

Projects

Minimal Compiler Infrastructure | ***Repository*** May 2024 – Present

- ***Key Skills:*** *Compiler Infrastructure, Design and Optimization, Rust, FASM, WASM, Graphviz*
- Developed a minimal compiler infrastructure inspired by LLVM. It converts source code into an optimized control flow graph (CFG) and translates it into target-specific assembly code.
- Implemented CFG optimization passes, such as identifier validation, constant folding, and CFG simplification, ensuring high-performance code generation.

C Federated Machine Learning Library | ***Repository*** Nov 2024 – Feb 2025

- ***Key Skills:*** *C Programming, Federated Learning, Machine Learning, Networking, Distributed Systems*
- Built a federated learning framework in C enabling distributed clients to collaboratively train models without sharing raw data.
- Implemented socket-based client-server communication and global model aggregation across multiple training participants.

Real Estate Aggregator Platform | ***Repository*** Apr 2024 – May 2025

- ***Key Skills:*** *System Design, Rest API, Authentication, Cryptography, Security, Django, Python*
- Developed a comprehensive real estate aggregator platform designed to secure transactions and protect user data by implementing advanced security protocols like end-to-end encryption and Kerberos authentication.
- Integrated multiple security features, including SSL, HTTPS, PKI, OTP, SQLite, Nginx, and e-signatures, which collectively reduced fraud incidents by 85%.

Technical Skills

Languages: C, C++, Rust, Assembly, Java, Kotlin, JavaScript, Python, Bash, Haskell
Frameworks: PyTorch, Django, ReactJS, Numpy, Pandas, Tauri, LibGDX, Raylib
Developer Tools: Emacs, Linux, Git, GDB, Markdown, Google Cloud Platform, OpenLiteSpeed, SqlLite3
Technical Electives: Data Structures & Algorithms, Operating Systems, Cryptography, Database Management, Computer Security, Computer Networks, Compilers, Machine Learning, Natural Language Processing

Awards

Awarded **Summer Undergraduate Research Fellowship** in 2023 by IRD-IIITD for the project *"Utilizing ultrasonic distance sensors as a mapping tool to design user-friendly CST"*.
Awarded **CHANAKYA Fellowship** by **iHub Anubhuti Foundation** in 2024 for the project *"A Unified Approach to User Emotion Detection through Emojis and Textual Analysis"*.