# Samaksh Sethiya

samakshsethiya22@gmail.com | +91 90390 14722 | linkedin | github | leetcode

## Education

**Vellore Institute of Technology, Bhopal** **CGPA: 9.09** Sep 2022 – Present
*B.Tech. in Computer Science and Engineering*

**Bhanpura Public School** *12th Grade* (**92.0%**) May 2022
**Smt Kamala Saklecha Gyan Mandir** *10th Grade* (**93.2%**) April 2020

## Skills

| | |
|---|---|
| **Languages** | C, C++, Python, Java, SQL |
| **Libraries/Frameworks** | PyTorch, OpenCV, Scikit-learn, SDL, Libsodium |
| **Tools & Cloud** | Git, Docker, Linux, Amazon Web Services (AWS) |
| **Databases** | MySQL, SQLite, LevelDB |
| **CS Fundamentals** | Data Structures & Algorithms, OOP, Distributed Systems |
| **Coursework** | Database Management Systems, Computer Networking, Operating Systems |

## Projects

**Secure Tactical Chat** (Encryption, SQLite, C++) *Jun 2025*

- Designed a C++ CLI tactical chat application featuring 100% end-to-end encryption using the Libsodium library. Introduced key management, authenticated message encryption, and decryption.
- Developed a client-server architecture with a relay server utilizing LevelDB as a high-performance key-value store for encrypted message blobs. Ensured that all data in transit and at rest on the server is unreadable to unauthorized parties.
- Leveraged SQLite to build a reliable, persistent message queue. Built a comprehensive testing environment with Docker containers and Docker Compose to simulate a multi-client and server chat system.

**Mini GPT Model** (NLP, PyTorch) *Mar 2025*

- Architected and implemented a character-level GPT language model capable of autoregressive next-token prediction, trained on a corpus of Shakespearean text to learn contextual language patterns.
- Engineered the full Transformer architecture from first principles including self-attention, multi-head attention, positional encodings, and causal masking, following the "Attention Is All You Need" framework.
- Formulated and executed the complete training pipeline—data preprocessing, forward and backward pass implementation, cross-entropy loss calculation, and parameter optimization.

**ASL Translator** (Computer Vision, CNN) *Dec 2024*

- Developed a real-time hand gesture recognition system that translates American Sign Language (ASL) gestures into English letters, aimed at improving communication accessibility for the deaf and hard-of-hearing community.
- Collected and labeled a dataset of approximately 8,000 images, with 300–350 samples per alphabet letter, and trained a Convolutional Neural Network (CNN) model achieving around 90% accuracy in recognizing static ASL gestures.
- Implemented the system using Python, TensorFlow, Keras, and OpenCV, combining deep learning and computer vision techniques to build an efficient and accurate real-time gesture-to-text conversion pipeline.

## Achievements

- **Specialist on Codeforces** – Achieved a Codeforces rating of 1400, with over 700 questions solved on various online platforms, establishing a solid foundation in Data Structures and Algorithms.
- **C Programming for Everybody (University of Michigan) –** Mastered pointers, memory management, and data structures in C through a rigorous 4-course specialization, building a strong foundation for systems programming.
- **Top 180 Finalist, HP Power Lab Hackathon (Jan 2025) –** Directed a team of 4 in developing next-gen energy efficiency solutions for Hindustan Petroleum Corporation Limited.

## Extracurricular Activities

- **Design Lead, The Poesis Society –** Led the design of promotional materials for well-attended poetry and creative arts events. Managed events with over 150 attendees.
- **Core Member, Data Science Club –** Gamified statistical concepts through interactive "Data Sprints," fostering a collaborative sandbox where peers bridged the gap between textbook theory and real-world implementation.
- **Event Coordinator, Pi Association –** Created visuals that increased event turnout and expanded audience engagement.