# Er. Anmol Sharma

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## Summary

Aspiring Software Engineer with a strong foundation in computer science and a passion for developing innovative solutions. Proficient in Python, Flask, and JavaScript, with hands-on experience in AI-powered applications, web development, and database management. Demonstrated ability to solve complex problems through collaborative projects and independent research. Eager to leverage technical expertise and analytical thinking to contribute effectively in a dynamic team environment.

## Education

**International Institute of Information Technology, Hyderabad (IIIT-H)**
B.Tech in Computer Science & Engineering
**JEE Mains Rank:** 778 (99.94 Percentile)
**Relevant Coursework:** Data Structures & Algorithms, Digital Systems and Microcontrollers, Computer Programming, Discrete Structures, Internet of Things, Introduction to Software Systems, Computer System Organization

## Projects

**AIr Piano: Interactive AI-Powered Musical Instrument** *Python3, cv2, threading, pygame, Hand Tracking, MIDI*

- Developed an innovative system integrating video scene recognition with gesture-based input to simulate piano playing,enabling intuitive human-computer interaction.
- Engineered an event triggering framework for precise detection of hand, finger, and mimetic actions, translating gestures into MIDI commands.
- Implemented real-time audio integration and hardware audio playback, while supporting concurrent multi-user interactions for collaborative performance.

**Photo-slideshow App: Web-Based Video Creation Platform** *HTML, CSS, JavaScript, Python, SQL, Flask*

- Developed a user-friendly web application that allows users to upload images and convert them into a cohesive video file (e.g., mp4).
- Implemented image upload with drag-and-drop support, video customization with background music, and transition effects.
- Integrated a Flask backend with MySQL database to store user data and media files.
- Developed authentication and user management using JWT tokens, enhancing security and access control.
- Deployed Python scripts for image processing, video generation, and audio integration.
- Collaborated effectively within a team to complete the project milestones, delivering a fully functional application within the timeline.

**BioMatch: Open-Source Fingerprint Authentication** *Python3, OpenCV, NumPy, Matplotlib, scikit-image, Tkinter*

- Developed a GUI-based fingerprint verification system that captures, processes, and compares fingerprint images using fully open-source components.
- Engineered an image processing pipeline to extract fingerprint features via cropping, morphological operations, boundary tracing, skeletonization, and enhancement.
- Employed structural similarity metrics for accurate fingerprint matching, calculating scores and match percentages without relying on specialized hardware.
- Integrated an intuitive GUI with dedicated buttons to streamline fingerprint capture, processing, and comparison for seamless user interaction.

**IoT-Based Intelligent Parking System** *Arduino, Ultrasonic Sensor, IR Sensor, Servo Motor*

- Designed and implemented a smart parking system using Arduino that detects vehicle presence and indicates available slots in real-time.
- Utilized ultrasonic and IR sensors to monitor slot occupancy and control system behavior with high accuracy.
- Integrated a servo motor-based access control mechanism that allows vehicle entry only when slots are available.
- Developed logic for automated slot status indication using LEDs and ensured real-time response from sensors to actuators.
- Aimed at reducing parking congestion and improving vehicle flow efficiency through automation and real-time feedback.

## Professional Experience

**Freelance Web Developer – Portfolio Website Project**

- Designed and developed a fully responsive personal portfolio website for a client, showcasing their professional background, skills, and projects.
- Collected and structured client-provided content to ensure clarity, aesthetics, and ease of navigation.
- Implemented modern web technologies including HTML, CSS, and JavaScript to create an engaging user experience.
- Deployed the website to a live server with custom domain and optimized it for performance and mobile responsiveness.
- Maintained active communication with the client, delivering the project on time and to full satisfaction.

## Skills

**Programming Languages:** Python, C, C++, Java, Arduino
**Web Development:** HTML, CSS, JavaScript
**IoT and Embedded Systems:** Arduino, Ultrasonic Sensors, IR Sensors, Servo Motors, RFID Modules, ESP32, NodeMCU, GPIO, HC-SR04, DHT11 (Temperature and Humidity Sensor), Relay Modules, MQTT Protocol, ThingSpeak, Blynk
**Tools and Technologies:** Git, GitHub, Visual Studio Code, MATLAB, Linux
**Concepts:** Data Structures and Algorithms, Object-Oriented Programming (OOP), Microcontrollers, Embedded Systems, Computer Networks, Database Management, Problem Solving

## Core Competencies

- Problem Solving and Analytical Thinking
- Object-Oriented Programming (OOP)
- Problem Solving and Analytical Thinking
- Embedded Systems and IoT Development
- Software Development Lifecycle (SDLC)
- Web Application Development
- Circuit Design and Sensor Integration
- Team Collaboration and Project Management
- Effective Communication and Documentation
- Critical Thinking and Decision Making
- Adaptability and Continuous Learning