

HARSHIL PATEL

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🌐 [Website](#)

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Skills

- Language: C, C++, Java, Python, SQL, Kotlin
- Tools: Versel, Android studio, Mediapipe, CameraX

Projects

Pushup Lock App

Feb 2026

- Engineered a real-time pose estimation system using MediaPipe and CameraX, achieving 30+ FPS performance on mid-range devices by optimizing image processing through Kotlin Coroutines and background threading.
- Built a low-latency Accessibility Service that monitors foreground app usage with <15ms response time and negligible battery drain (<2%), effectively blocking distracted usage while maintaining smooth system performance.

Cost and Nutrition Paradigms in Indian Dietary Patterns

Nov 2025

- Developed an ML-based meal cost-nutrition optimization system using Linear Regression, K-Means, and Decision Trees on 1,000+ Indian foods, achieving R^2 up to 0.835 and 35–41% cost reduction while maintaining 100% RDA compliance.
- Created a 30-day rolling analytics pipeline and 6-tab interactive dashboard, analyzing 10 daily metrics, uncovering 3–5× protein cost variability, and identifying upto ₹23,787 annual savings via data-driven food substitutions.

Real-time Indian Sign Language (ISL) recognition system

Nov 2025

- Built a real-time Indian Sign Language (ISL) recognition system using pure computer vision (no deep learning) with 13 geometric features and cosine similarity, achieving 2.1 ms/frame latency (~483 FPS) on CPU-only hardware for 27 static gestures.
- Designed a skin-tone adaptive preprocessing pipeline (YCrCb + CLAHE) and a 2-second stability-based gesture commitment mechanism, reducing false positives and enabling robust recognition under varying lighting with zero training data requirement.

Canteen Management System

April 2025

- Built a Python (Tkinter) + MySQL desktop application to automate canteen operations, covering menu management, order processing, billing, and inventory tracking, reducing manual errors and improving efficiency.
- Designed and optimized secure relational schemas in MySQL, ensuring data integrity and smooth front-end/back-end interaction with a user-friendly UI.

Education

Manipal Institute of Technology (MIT)

2023-2027

B.Tech Computer Science (AI&ML)

Manipal

Mount Carmel High School

2023

Class XII

Gandhinagar

CERTIFICATES

- Prompt Engineering in ChatGPT
- Data Structures in C
- Data Analytics Job Simulation at Deloitte