

Medha Jani

Software Engineering Intern

98217.medhajani@gmail.com ◇ [LinkedIn](#) ◇ [Portfolio](#)

SUMMARY

Built production-grade real-time computer vision applications integrating hand landmark tracking, gesture-based control systems, contour detection, blur scoring, and perspective correction pipelines, optimized for low-latency execution on mobile and desktop environments.

EDUCATION

Masters in Computer Science, University of North Carolina at Charlotte (GPA: 3.33)

Aug '25 — Present
Charlotte, USA

- Pursuing master's and majoring in systems and networks.

Courses like Computer Comm & Networks, Database Systems, Software Syst Design & Implementation, Visual Analytics, Algorithm & Data Structures and Mobile Application Development.

Bachelor of Engineering in Computer Science, Vidush Somany Institute of Technology and Research (GPA: 8.10)

Oct '21 — May '25
Gandhinagar, India

- Completed bachelor's with some important courses like Theory of Computation, Foundations of AI/ML, Data Science using Python, DSA, IoT and NLP.

SKILLS

Programming Languages HTML5, CSS3, JavaScript, C++, C, Python, React-Js, Next-Js, Express-Js, Node-Js, Java

Databases MongoDB, Firebase, SQL, MySQL

Tools Figma, Adobe-XD, VSCode, Jupyter Notebook, Android Studio, Power-BI

Soft Skills Collaboration and Teamwork, Critical Thinking and Problem Solving, Responsible and Reliable, Strong Verbal Communication Skills, Consistent

Languages English

PROJECTS

VirtualMouse

- Developed a **real-time gesture-controlled virtual mouse** using **Python, OpenCV, and MediaPipe**, enabling touchless cursor movement and system control through hand tracking.
- Designed custom **angle-based and distance-based gesture recognition algorithms** for left click, right click (pinch), double click, and screenshot actions with reduced false triggers.
- Optimized system performance using **movement smoothing, jitter filtering, and gesture state management**, achieving low-latency real-time interaction for Human-Computer Interaction (HCI) applications.

DocFraming SDK

- Architected a real-time **Android document scanning SDK** using **CameraX, OpenCV, and Kotlin Coroutines**, implementing contour-based quadrilateral detection, adaptive aspect-ratio validation (ID/A4/Passport), and confidence scoring.
- Engineered a multi-stage **computer vision pipeline** including grayscale preprocessing, Gaussian blur, Canny edge detection, polygon approximation (approxPolyDP), Laplacian variance blur detection, and perspective transformation for document flattening and OCR-ready output.
- Designed a low-latency frame analysis system using **ImageAnalysis backpressure strategies, coroutine-based background processing, and StateFlow-driven UI updates**, enabling intelligent capture gating (READY / ADJUST / BLOCKED) with real-time quality feedback.

Sakhi Link

- Built a **scalable full-stack MERN e-commerce platform** with role-based authentication (JWT), RESTful APIs, advanced search/filtering, cart, wishlist, and order management using **React/Next.js, Node.js, Express, and MongoDB**.
- Integrated **Python-based AI systems**, including an **intelligent chatbot for user assistance** and a **personalized recommendation engine**, enhancing user engagement through data-driven product suggestions.

Real-Time Multiplayer UNO-Game Link

Dec '25 — Dec '25

- Developed a **real-time multiplayer UNO game** using **Python** for the backend and **HTML, CSS, and JavaScript** for the frontend, utilizing **WebSockets** to enable low-latency, bidirectional communication and seamless turn-based gameplay.
- Designed and implemented **room-based matchmaking and game session management**, allowing players to create private rooms and join using unique room IDs, with **server-side validation** to enforce turn order, disable card interactions for non-active players, and maintain fair gameplay.

- Implemented the **complete UNO game engine**, including Wild, Reverse, Skip, Draw Two, and Draw Four card logic, automated card drawing when no valid moves are available, and **synchronized game state management** (deck, player hands, turns) across all connected clients.

Weather Application - [Android Link](#)

Oct '25 — Oct '25

- Built a multi-screen Android weather app using OkHttp to fetch real-time current and forecast weather data from OpenWeatherMap APIs in JSON (imperial units).
- Designed models for weather & forecast data and displayed dynamic weather information with icons using Picasso, RecyclerView, and fragment navigation.
- Designed multi-screen navigation using **Fragments and Bundles**, handling asynchronous network calls and error states gracefully.

Forums Application [Link](#)

- Designed and developed a **real-time Android Forums application** using **Java, Firebase Authentication, and Cloud Firestore** with scalable data modeling.
- Implemented **fragment-based architecture, RecyclerViews, and role-based UI logic** with atomic Firestore updates.
- Integrated **CRUD operations**, input validation, and role-based UI controls, following **clean code practices** and **version control with Git**.

Participations and Projects

- MERN Stack Workshop participation and project work.
- **Natural Language Processing by NPTEL**
- HackSVIT, HackNUTHon,5.0, SIH2024