

RACHIT KUMAR TIWARI

CSE Undergraduate | Software & AI Developer

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TECHNICAL SUMMARY

Computer Science Engineering student with hands-on experience in building AI-driven and full-stack web applications. Proven ability to design scalable, real-world solutions using TypeScript, React, Firebase, and APIs. Actively involved in hackathons, product-based projects, and social-impact tech platforms.

Visit my portfolio for detailed projects and live demos: <https://rachitkrtiwari.vercel.app/>

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, Python

Frontend: React, Next.js (App Router), HTML5, CSS3, Tailwind CSS, shaden/ui

Backend & APIs: Node.js (basic), REST APIs, WebSockets, API Integration (third-party services)

Databases & Storage: MongoDB, Firebase, Supabase

AI/ML & Computer Vision: OpenAI APIs, OCR (Optical Character Recognition), AI-based Verification Systems, Face Recognition (OpenCV, face-recognition)

Tools & Platforms: Git, GitHub, Postman, Figma, Vercel

Architecture & Concepts: Real-time Systems, API Design, Modular Architecture, IPC (Inter-Process Communication), Monorepo Structure

Deployment & Others: Web Applications, Progressive Web Apps (PWA), Responsive Design

PROJECT EXPERIENCE

VITAMEND—AI-Driven Medicine Donation Platform

Tech Stack: React, TypeScript, MongoDB, OCR, AI Verification

- Architected a scalable platform enabling users to donate unused medicines in exchange for credits, improving accessibility for underserved communities
- Implemented AI-based verification and OCR pipelines to detect medicine authenticity and expiry, reducing risk of unsafe redistribution
- Designed QR-based offline validation system aligned with WHO-inspired guidelines for secure verification workflows
- Developed end-to-end data flow for donation listing, validation, and redistribution with modular frontend-backend integration
- Optimized user experience for real-world adoption with structured workflows and secure handling of sensitive medical data

PRIVSIGHT v2.0 — AI-Powered Desktop Privacy System

Tech Stack: Electron, React, TypeScript, Python, OpenCV, face-recognition, WebSockets

- Engineered a cross-platform desktop application that dynamically protects on-screen data using real-time facial recognition
- Built a Python-based computer vision pipeline leveraging OpenCV and face-recognition for facial encoding and user identification
- Designed a low-latency WebSocket IPC layer for seamless communication between Electron frontend and Python backend
- Implemented intelligent privacy logic to blur/hide notifications upon detection of unknown or multiple users (shoulder-surfing protection)
- Ensured complete data privacy through fully local processing with no cloud dependency
- Structured a monorepo architecture enabling modular scalability across frontend, backend, and shared types

khabri.ai—AI-Based News Verification Platform

Tech Stack: Next.js 16, TypeScript, Tailwind CSS, Framer Motion, Serper API

- Developed a real-time misinformation detection platform that verifies news using AI-driven cross-referencing with trusted sources
- Integrated Google Search API (Serper) to fetch and analyze live data for evidence-backed verdict generation
- Designed a classification system to label content as TRUE, FALSE, MISLEADING, or NOT VERIFIED
- Built multilingual support (English, Hindi, Bengali) to improve accessibility across diverse user groups
- Delivered a high-performance UI with dynamic animations and responsive design for seamless user interaction

Welcome to My City—Multi-City Transport & Tourism Platform

Tech Stack: Next.js 15, React 19, TypeScript, Tailwind CSS, shadcn/ui

- Built a unified civic-tech platform integrating transport planning, tourism discovery, and itinerary generation across 12 Indian metro cities
- Developed multi-modal route comparison system (Metro, Bus, Taxi, Walking) with cost and time estimation
- Designed scalable data architecture to manage city-specific transport and place datasets
- Implemented itinerary optimization logic for generating efficient 1–3 day travel plans
- Integrated real-world datasets including metro routes and 80+ bus routes for Kolkata
- Engineered responsive UI with modular components and dark/light theming support

VOCALIS—Web-Based Virtual AI Assistant

Tech Stack: JavaScript, Web Speech API, APIs

- Developed a browser-based AI assistant supporting voice commands and real-time text-to-speech responses
- Implemented speech recognition pipeline using Web Speech API for continuous command processing
- Integrated external APIs for dynamic responses and background task execution
- Designed modular architecture to support extensibility for features like reminders and smart device control
- Optimized interaction flow for seamless conversational experience in web environments

EDUCATION

Bachelor in Technology (B.Tech)

MCKV Institute Of Engineering, West Bengal, India

CGPA: 8.64 (SEM 1)

CGPA: 7.66 (SEM 2)

YGPA: 8.12 (YEAR 1)

CERTIFICATIONS

- SQL (BASIC) HACKERRANK
- PYTHON (BASIC) HACKERRANK