

RISHIT TANDON

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PROFESSIONAL SUMMARY

Fourth-year Computer Science student (B.Tech, SRM IST, 2027) with hands-on experience in AI/ML, Computer Vision, Multimodal AI, IoT, and full-stack development. Proficient in Python, C++, Java, JavaScript, and SQL. Experienced building AI-powered systems, REST APIs, geospatial ML pipelines, and real-time applications. Maintained an active GitHub profile with 12,000+ contributions and over 90+ GitHub repositories, authored multiple research papers with one accepted publication, and achieved multiple national and international hackathon wins.

EDUCATION

B.Tech, Computer Science & Engineering | SRM Institute of Science and Technology 2023 – 2027 (Expected)
Selected for Industry Coursework: Metaverse (Top 80/Batch) & Responsible AI (Top 120/Batch) – Faculty Selected.
Senior Secondary (XII), CBSE Science | Delhi Public School, Lucknow 2023
Secondary (X), ICSE | Seth M. R. Jaipuria School, Lucknow 2021

TECHNICAL SKILLS

AI/ML & Gen AI: PyTorch, TensorFlow, Scikit-learn, OpenCV, Computer Vision, Multimodal AI, Vision-Language Models, LLaVA, Llama 3.2, LangChain, LangGraph, RAG Pipelines, NLP, Gen AI, Hugging Face, Agentic AI, Prompt Engineering
Programming Languages: Python, Java, C++, JavaScript, SQL, C
Web & Cloud: React.js, Next.js, Tailwind CSS, HTML5, REST APIs, GitHub Actions
Databases: MySQL, PostgreSQL, Supabase, Neo4j (Graph DB), ChromaDB (Vector DB)
Backend: Java, Python, RESTful APIs, Webhooks, Authentication, Microservices
DevOps & Tools: Git, GitHub, Linux, Docker, CI/CD
Robotics, IoT & Embedded: ESP32, Arduino, IoT Digital Twins, Motor Drivers, Autonomous Rovers, Unity (Simulations)

PROFESSIONAL EXPERIENCE

Software Development Intern | DGTL Innovations May 2025 – July 2025

- Engineered high-performance REST APIs using Python and MySQL, reducing query response time by 20%.
- Designed responsive frontend components using HTML, CSS, and JavaScript, increasing user retention by 15%.
- Streamlined development workflows using Git and participated in rigorous code reviews, achieving 99% code stability.

Research Intern – ML & Image Processing | SRM IST in collaboration with NIDM Oct 2025 – Present

- Built an automated GLOF early-warning pipeline using Python, Google Earth Engine, Rasterio, and multimodal satellite imagery (Sentinel-1 SAR, Sentinel-2, Landsat-5), processing 35+ years of geospatial data. pipelines to monitor glacial expansion, enhancing hazard detection accuracy by 15%.
- Developed a feature-engineering and Decision Tree ML pipeline using SAR and multispectral indices (NDWI, NDVI, NDSI), reducing false positives in glacial lake detection by ~18%.

KEY PROJECTS

DocMind – Agentic Graph RAG Platform | *Python, LangChain, LangGraph, Qwen3, Neo4j, ChromaDB, RAG, Agentic AI*

- Built an agentic Graph RAG platform for PDF ingestion, semantic retrieval, and LLM-powered question answering using Neo4j knowledge graphs and ChromaDB vector search.
- Developed multi-agent workflows with LangGraph, incorporating memory, personas, and tool-calling to enhance document understanding and contextual reasoning.
- Designed an evaluation framework using retrieval metrics, semantic similarity, and keyword-based scoring to measure response quality and reduce hallucinations.

Agent Marketplace | *React, Next.js, Python, FastAPI, Supabase, REST APIs, Razorpay, AWS*

- Built and deployed a full-stack AI agent marketplace enabling developers to discover, purchase, and integrate AI agents through auto-provisioned REST APIs.
- Developed a Python/FastAPI backend with Supabase (PostgreSQL), implementing secure multi-tenant authentication, API key management, and request isolation.
- Automated payment processing and agent provisioning using Razorpay webhooks, enabling real-time API key generation and delivery.
- Deployed on AWS with scalable architecture, environment-based configuration management, and production-ready security controls.

NeuroVibe – Brain-Controlled Smart Wheelchair | *ESP32, BioAmp EXG Pill, Machine Learning, Arduino*

- Built a Brain-Computer Interface (BCI) system using EEG signals (BioAmp Band + ESP32) to control wheelchair movement in real time.
- Trained a Random Forest classifier to decode mental commands (Move, Stop, LED ON/OFF) from processed EEG data.
- Delivered a low-latency, low-cost assistive mobility solution integrating ML model with motor control and appliance systems.

AI Negotiation System | *Python, Flask, Gemini 2.0, Playwright, Ollama, Llama 3.2*

- Built an autonomous multi-agent negotiation system (Buyer vs. Seller) using Gemini 2.0 and recursive feedback loops to optimize product selection.
- Implemented a neuro-symbolic evaluation pipeline using Llama 3.2 as an LLM judge.
- Engineered a Playwright-based scraper with Google Shopping fallback, achieving 99.9% data reliability by bypassing CAPTCHAs.

AI Smart Glasses (AISGR) | *Python, ESP32-CAM, LLaVA, Llama 3.2 Vision, OpenCV, FastAPI, Agentic AI*

- Built a wearable AI assistant powered by Vision-Language Models for real-time scene understanding, object recognition, visual question answering, and voice interaction.
- Architected a multi-agent system integrating vision, memory, and planning agents with local Ollama models and OpenAI fallbacks for multimodal reasoning.
- Developed ESP32-CAM firmware with gesture controls, MJPEG streaming, and real-time edge-to-cloud communication for assistive applications.

QML-PLACE – Quantum ML VLSI Placement Engine | *Python, PennyLane, PyTorch, OpenROAD, Docker, PyQt6*

- Engineered a Variational Quantum Circuit (VQC) based global placement engine as a drop-in TCL hook replacement for OpenROAD's RePIAce, achieving **8–15% HPWL improvement** on Sky130 HD benchmarks with 1.31× speedup.
- Implemented a quantum-classical hybrid optimization pipeline using PennyLane + PyTorch with CUDA-accelerated inference, extracting 8 features per cell from DEF/ODB netlists for Sky130-normalized placement.
- Containerized the full EDA flow using Docker + nvidia/cuda base with a PyQt6 desktop GUI featuring real-time HPWL, density overflow, and GPU utilization visualization across 8-stage placement pipeline.

LinkedOut – AI LinkedIn Post Scheduler | *Next.js, Python, FastAPI, Supabase, Gemini API, LinkedIn OAuth, PWA*

- Built a full-stack LinkedIn post scheduling PWA with LinkedIn OAuth 2.0, secure session management, and persistent token storage using Supabase (PostgreSQL).
- Developed an AI-powered content generation and scheduling engine using Gemini API and FastAPI, enabling persona-based caption generation and automated post publishing through Vercel deployment.

Multiverse – IoT Digital Twin Platform | *React, Next.js, Tailwind CSS, Unity, C#, REST APIs*

- Built a real-time Digital Twin system synchronizing live telemetry from 20+ ESP-based nodes (100+ sensor data points) into a Unity 3D environment.
- Implemented bi-directional control over a custom API pipeline, enabling remote actuation and achieving a 40% improvement in monitoring responsiveness.

TREAT – Community Meal Discovery Platform | *Java, MySQL, Twilio API, SMS & WhatsApp Automation*

- Built a multilingual WhatsApp chatbot supporting food donations, event registration, volunteer onboarding, feedback, and location-based temple meal discovery.
- Implemented Java backend with MySQL for user/event/donation management and automated SMS/WhatsApp notifications via Twilio webhooks.

CERTIFICATIONS

- Machine Learning (NPTEL) – IIT Kharagpur
- Python for Data Science, AI & Development – IBM
- Unity Essentials – Unity Technologies
- Database Management Systems (DBMS) – Udemy
- Machine Learning Bootcamp (Arcade Intelligence) – Next-Gen AI, SRM IST
- Learn Ethical Hacking From Scratch – Udemy
- Getting Started with AI on Jetson Nano – Nvidia

AWARDS & ACHIEVEMENTS

- **1st Place:** SUTD Smorphi (Singapore), CismoHack (National Level), ML Project Expo (College Level), South India Conclave, Semiconductor Expo, NWC Expo.
- **2nd Place:** C.Tech Project Expo, Arduino Hackathon, SUTD Smorphi (Category).
- **Top Rankings:** 3rd at BIS Hackathon, 4th at Hack Sustain, 5th at SRM Founder's Hackathon.