Abhinav Kumar Singh

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Education

Thapar Institute of Engineering and Technology **Aug. 2024 – May 2028**
Bachelor of Engineering in Computer Engineering *Patiala, Punjab, India*

Dewan Public School **2018 – 2023**
Class 8–12 (Schooling) *Meerut, Uttar Pradesh, India*

Achievements

- Ulster University, UK – Agentic AI Hackathon **1st Prize**.
- University of Derby, UK – **Cyber AI Innovation Award**.
- GTBIT Delhi – Pitchcraft, **Most Innovative Idea** (Special Mention).

Projects

KissansevaAI - Secure Agentic Agri-Platform | *Kotlin, TFLite, Gemini API* **LINK**
– Engineered an **end-to-end Hybrid Agentic AI platform** that fuses on-device TFLite diagnosis with Gemini VLM and live weather data, delivering sub-second, trustworthy therapeutic protocols to farmers across all seasonal issues. Successfully adapted and showcased this solution's **Agentic Orchestration** across **three hackathons (ACHIEVEMENTS)**, validating its resilience and market-readiness.

Lumo - Real-Time Collaborative Whiteboard | *React, Next.js, Node.js, Socket.IO, Tailwind CSS, Liveblocks* **LINK1,LINK2**
– Engineered a **full-stack collaborative whiteboard** using **Next.js**, **Node.js**, and **WebSockets**. Integrated **Liveblocks** for **real-time data synchronization**, supporting multi-user collaboration and drawing tools.

Telecom Tension - Customer Churn Prediction | *Python, Scikit-learn, Pandas, Streamlit, Machine Learning* **LINK**
– Developed an **end-to-end machine learning model** to **predict customer churn**, followed by building a **Streamlit web application** for **interactive visualization** and **proactive retention** strategy enablement.

RAG QnA Pipeline | *Python, FastAPI, Vector Databases, GenAI (RAG), JWT* **LINK**
– Designed and implemented a Retrieval-Augmented Generation (RAG) pipeline with FastAPI to ground LLM responses in a domain-specific knowledge base.

Spaceship Game with Gesture Control | *Python, OpenCV, MediaPipe, Computer Vision* **LINK**
– Developed a gesture-controlled spaceship shooter using OpenCV and MediaPipe for real-time hand tracking, creating an immersive, controller-free gaming experience with precise on-screen controls.

Technical Skills

Programming Languages: C, C++, Python, JavaScript, Kotlin
Web & App Development: React.js, Next.js, Node.js, Express.js, Socket.IO, FastAPI, Streamlit, Firebase, Jetpack Compose, React Native (basic)
Machine Learning & AI: Scikit-learn, Pandas, NumPy, RAG Pipelines, Vector Databases, GenAI
Computer Vision: OpenCV, MediaPipe, Real-time Hand Tracking
Backend & Databases: REST APIs, MongoDB, SQLite, JWT, WebSockets
Developer Tools: GitHub, VS Code, Android Studio

Leadership / Extracurricular

Microsoft Learn Student Chapter (MLSC), TIET **Jul. 2025 – Present**
Technical Coordinator *Patiala, Punjab, India*
– Developing games, websites, and internal tools as part of the chapter's technical team and contributing to the MLSC GitHub organization.
– Created a spaceship shooter game controlled via real-time hand gestures using Python, OpenCV, and MediaPipe.