Saksham Ralhan

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Education

Thapar Institute of Engineering and Technology — Patiala, Punjab
B.E in Electronics and Computer, CGPA - 8.77 — *Sep. 2022 – May 2026*

Apeejay School — Jalandhar, Punjab
XII, Percentage - 82.4 — *April 2021 – May 2022*

Apeejay School — Jalandhar, Punjab
X, Percentage - 91.2 — *April 2019 – May 2020*

Experience

Data Science Intern — June 2024 – July 2024
Kion India — *Pune, India (Onsite)*

- Developed and deployed a dual-stage ML pipeline (Random Forest + DNN with TensorFlow/Keras) that classified over **30,000 mechanical components** with **94% accuracy**, leading to a **65% reduction** in manual classification errors.
- Applied predictive analytics to forklift assembly sequencing, reducing average cycle time by **18%** using **feature engineering** and **supervised learning**.
- Designed a real-time gesture and face recognition system using **OpenCV** and **scikit-learn (300ms latency)** to enhance accessibility, enabling differently abled operators to control factory systems hands-free.

Projects

ExcelifAI
Python, Streamlit, LangChain, Groq API, LLaMA 3, FAISS, PyMuPDF, SentenceTransformers

A **Retrieval-Augmented Generation (RAG)** platform enabling semantic Q&A and summarization over academic PDFs using LLMs.

* Built a Streamlit interface to upload and chat with **over 5 PDFs** using a conversational interface.
* Enforced RAG pipeline via **LangChain** and **Groq-hosted LLaMA 3 8B Instant** for real-time responses.
* Parsed and semantically chunked over **1,000+ text segments** from academic PDFs using **PyMuPDF**.
* Encoded text chunks into dense vectors using **MiniLM** from SentenceTransformers and indexed them with **FAISS**.
* Improved multi-turn Q&A coherence by **30–40%** using **ConversationBufferMemory** to retain prompt history.
* Reduced generative response time by up to **85%** vs. baseline by deploying on Groq's LPU servers.

YouTwit
MongoDB, Express.js, React.js, Node.js, Mongoose, Tailwind CSS, JWT, Cloudinary, REST APIs, Aggregate Paginate, Axios, Vite

A **full-stack** video and microblogging platform combining YouTube and Twitter features

* Implemented secure authentication with **6-token workflows** including login, refresh, logout, and session validation using **JWT**.
* Designed and tested **30+ RESTful APIs** for user content: tweets, videos, likes, comments, watch history, and subscriptions.
* Used **mongoose-aggregate-paginate-v2** to efficiently paginate comments, liked content, and user watch history.
* Enabled seamless upload of **video files up to 100MB** via **Cloudinary**, and designed a responsive **Tailwind CSS**-based UI with a consistent blue-white theme.
* Developed **5+ modular pages** including Dashboard, Video Feed, Tweet Panel, Channel View using **Axios**.

Technical Skills

Languages: C/C++, Python, Java, JavaScript, HTML/CSS, MySQL
Frameworks: React, Node.js, Express, Tailwind, Streamlit, Tensorflow, Keras
Developer Tools: VS Code, Github, MongoDB Atlas, Postman, Cloudinary, Jupyter Notebook
Libraries: Langchain, FAISS, HuggingFace Transformers,Sentence Transformers, PyMuPDF, pandas, NumPy, Matplotlib, Beautiful Soup, scikit-learn, OpenCV, seaborn
Coursework: Data Structures, OOPS, Computer Networks, DBMS, Operating Systems