

Mankirat Singh

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LinkedIn

EDUCATION

Thapar Institute of Engineering and Technology, Patiala

Expected May, 2026

B.E. Computer Engineering

Dayanand Public School, Nabha

2022

CBSE - PCM (Physics, Chemistry, Mathematics)

EXPERIENCE

Open Source Contributor

May 2025 - September 2025

Google Summer of Code - PostgreSQL

Remote

- Built an [ABI compliance reporting system](#) for PostgreSQL with Perl and libabigail, improving software stability.
- Collaborated with PostgreSQL core contributors to refine the tool based on the community's requirements.
- Designed the tool to play a key role in PostgreSQL 18, ensuring ABI stability in future minor releases.
- Navigated a 20-year-old undocumented codebase of Postgres BuildFarm, demonstrating strong analytical abilities.
- Authored [technical documentation](#) to support the PostgreSQL community and promote knowledge sharing.

Associate Software Development Intern

June 2025 - August 2025

Fenmo.AI

Remote

- Automated financial reconciliation for 50+ daily PDFs using LLM, reducing huge manual processing effort.
- Implemented scalable backend with FastAPI and Celery workers to automate and speed-up financial reconciliation.
- Engineered reliable data extraction pipelines with 95% accuracy, multi-format support, and automated validation.
- Enhanced the data classification pipeline, increasing output coverage from 85% to 99% by resolving edge case issues.

Student Developer Intern

January 2024 - February 2025

Thapar Institute of Engineering and Technology

On Site

- Implemented constraints in Python for a Genetic Algorithm-based time-table scheduler handling 500+ courses.
- Developed FastAPI endpoints for seamless backend interaction with the scheduling dashboard interface.
- Integrated a responsive Next.js frontend to enhance user interaction with the scheduling system.

PROJECTS

LUNAR (ReactJS, ThreeJS, YOLOv5, U-Net Image Segmentation)

[Project Link](#)

Detection of Safe Navigation Routes on Moon for rovers based on Chandrayaan 2 Data.

- Reconstructed 3D lunar surface by geo-referencing Chandrayaan-2 data using Three.js in React.
- Analyzed IIRS spectral data to identify top 10 points of interest for research using Anomaly Detection.
- Simulated rover traversal on lunar terrain in a web-based 3D environment by using Cannon.js with Three.js.
- Awarded by **President of India** as National Winners of ISRO's Bharatiya Antariksh Hackathon.

Feedback Application System (Flutter, ReactJS, PHP, MySQL)

[Play Store Link](#)

App to seamlessly collect and manage student feedback for teachers.

- Developed a Flutter frontend with PHP APIs and role-specific interfaces handling 7 different types of users.
- Architected the system to handle scalability and performance for 10,000+ users across the institute.
- Coded 20+ data analytics APIs for the admin panel using advanced SQL queries, providing actionable insights.
- Implemented backend containerisation using Docker Compose to ensure seamless development across machines.

DocuChat (Python, Streamlit, Faiss, all-MiniLM-L6-v2, GeminiAPI)

[Project Link](#)

RAG application to answer any questions from the PDFs user provide.

- Built a chat with PDF system using RAG with Streamlit and Gemini and to process and chat with up to 20 files.
- Implemented FAISS vector search with MiniLM-L6-v2 embeddings, enabling fast semantic retrieval per query.
- Designed 2 hour expiry based session system storing PDFs and indexes locally, supporting anonymity of user data.

TECHNICAL SKILLS

Languages C, C++, Python, Perl, Bash, JavaScript, Dart, Go, PHP, Typescript, HTML/CSS

Tools Linux, Docker, Flutter, NextJS, NodeJS, FastAPI, Redis, DynamoDB, MongoDB, SQL

Libraries/Cloud ReactJS, SKLearn, Faiss, Instructor, Transformers, Firebase, AWS, GCP, GitHub Actions

Competitive Programming Rated 900+ on Codeforces([Profile](#)).

LEADERSHIP EXPERIENCE

Technical Head, Microsoft Learn Student Chapter, TIET

April 2024 - Present

- Mentored 150+ students on hackathons, open-source, and guiding the chapter's overall direction in technology.
- Led teams of 20 developers as Coordinator for Makeathon 6 [Website](#) (2000+ visitors) and [App](#) (300+ users).

ACHIEVEMENTS

National Winners	Bharatiya Antariksh Hackathon by ISRO on 1st National Space Day	August 2024
Runner Up	Rewarded at HackTU 5.0 hackathon conducted by CCS TIET	February 2024
Hackathon Winner	First place in OWASP TIET Internal Hackathon	July 2023