Prabhjot Singh Assi

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Summary

National Winner at Smart India Hackathon 2024 and **AI/ML Engineer** with expertise in building innovative systems using **Python**. Secured **$4k IEEE Grant** for delivering accessible AI solutions. Proven track record in **Machine Learning and Full-Stack Development**, seeking to leverage my skills to build high-impact applications.

Technical Skills

- **Programming Languages**: Python, SQL
- **AI/ML & Data Science**: Scikit-Learn, Machine Learning, Agentic AI
- **Generative AI & LLMs**: LangChain, RAG (Retrieval-Augmented Generation), Vector Databases (FAISS), Prompt Engineering, Model Context Protocol
- **Web & Mobile Development**: HTML5, CSS3, Tailwind CSS, FastAPI, Flask, REST APIs
- **Developer Tools & DevOps**: Git, GitHub, VS Code, Android Studio, Figma, Postman, Linux, Docker, CI/CD
- **Core CS Fundamentals**: DSA (Data Structures & Algorithms), Object-Oriented Programming, System Design, DBMS

Education

Acropolis Institute of Technology and Research — Indore, India
Bachelor of Technology in Computer Science (AI & ML); CGPA: 7.22 — *Expected June 2026*

Experience

IEEE SIGHT Acropolis (Funded by IEEE HTB) — Jul 2024 – Mar 2025
Technical Lead – IEEE Tech4Good Grant Project ($4,000 USD) — *Indore, India*

- **Led end-to-end development** of "Harvesting Hope," a humanitarian AI+IoT platform awarded **$4,000 grant** by IEEE Humanitarian Technology Board.
- **Managed cross-functional team** of 5 engineers using **Git workflows**, and **code reviews** to build and deploy the *Krishi* mobile application.
- **Engineered ML pipeline** for precision soil analytics, achieving **20% crop yield improvement** across 10+ farmers in production deployment.
- **Architected RAG-based chatbot** using **LangChain** and **Google Gemini API**, delivering context-aware agricultural recommendations with 40% higher relevance than rule-based systems.
- **Designed IoT data pipeline** with sensor nodes for real-time field data collection, integrated with cloud infrastructure for analytics.

Projects

Signify – Real-Time ISL Translation | *Python, Flutter, MediaPipe, Scikit-Learn, REST APIs*

- **Developed award-winning** (**National Winner, Smart India Hackathon 2024**) real-time bidirectional Indian Sign Language translation system achieving **90% recognition accuracy**.
- **Implemented ML pipeline** with optimized **MediaPipe** hand-tracking and **Random Forest classifiers**, deployed via scalable **REST API** architecture.
- **Optimized inference latency** to under **100ms**, enabling real-time bidirectional communication.

TabFlow – Browser Tab Manager | *TypeScript, JavaScript, HTML5, CSS3, Vite, Chrome APIs*

- **Built high-performance** Chrome extension for advanced tab management, reducing navigation latency to under **100ms** with optimized **JavaScript** algorithms.
- **Architected modular codebase** using **Shadow DOM** for style isolation and **LRU Cache** data structure for memory-efficient screenshot storage.
- **Engineered keyboard-driven UI** handling **100+ concurrent tabs** while maintaining **60fps** smooth scrolling performance.

Sentient – AI NPC | *React.js, FastAPI, Python, FAISS, LangChain, Docker*

- **Architected full-stack AI platform** enabling dynamic NPC interactions via **RAG pipeline**, integrating **React.js** frontend with high-performance **FastAPI** backend.
- **Implemented semantic search** using **FAISS vector database** and **embedding models**, achieving **sub-200ms** query response times for context-aware dialogue.
- **Designed responsive UI** with **Tailwind CSS** and implemented secure **RESTful APIs** with **CI/CD pipelines** for automated testing and deployment.

Honors & Awards

- **National Winner – Smart India Hackathon (SIH) 2024** (Dec 2024) — Problem Statement 1716: Real-Time ISL Translation; Ministry of Education, Government of India.
- **IEEE Tech4Good Grant Recipient ($4,000 USD)** (Jul 2024) — Grant ID: 24-T4G1-118; "Harvesting Hope" Project; IEEE Humanitarian Technology Board.
- **Additional Hackathon Achievements (5 Wins):** Intellify 3.0 (1st Place), HackWave (1st Place), Code for Bharat 2 (2nd Place), Codespire (2nd Place), Prayatna (4th Place).