Vaishnavi Singh

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Summary

Final-year Computer Science student specializing in AI, with expertise in C++, Python, machine learning, and MySQL. Experienced in developing AI-powered applications, including a RAG-based document QnA tool and a tactile image generator for the visually impaired. Seeking to apply technical skills in a challenging and innovative environment.

Education

B.Tech in Computer Science-Artificial Intelligence July 2022 - Present
Banasthali Vidyapeeth [Expected: May 31, 2026]
CGPA: 7.82 [up to sixth semester]

Skills

- **Programming Languages:** Python, C, C++
- **Database Management:** MySQL
- **Core Areas:** Oops, Machine Learning, Deep Learning, NLP, Operating Systems, DBMS

Projects / Reports

Bookbot-Insight Project April 2025

- Developed an AI-powered tool where users can upload PDF files and ask questions about them, and the system gives smart answers based on the document.
- Used Flask (Python) to extract text from PDFs and connected it to Google Gemini AI to generate responses.
- Focused on user experience by creating a clean and interactive frontend where users can easily upload PDFs and view AI-generated responses.
- Designed the system to simulate a Retrieval-Augmented Generation (RAG) workflow, enabling accurate, real-time answers grounded in the uploaded content.

Real-Time Image Generation for Tactile Display using AI [Report work] Sep 2024

- A system where visually impaired children access visual information through touch-based image representation.
- Tactile display that present visual information in a raised dot matrix pattern.
- The AI simplifies complex visuals into touch-friendly images, improving learning and accessibility for the visually impaired.

Experience

Internship at IIT BHU under Prof. Sanjay Kumar Singh Sept 2025

- Developed an AI-powered web application that assists visually impaired individuals by converting voice commands into tactile images. The system uses speech recognition to understand prompts, generates simplified images, and converts them into a dot matrix format suitable for tactile interpretation.
- Converted generated images into simplified dot matrix formats for tactile display interpretation using NumPy.
- Implemented speech-to-text recognition to process natural language input and generate images using Hugging Face's diffusion models.
- Integrated APIs with Flask backend to support real-time image generation and voice input processing.

Achievements / Certifications

- Worked as a core member of the team in a 30-hour Hackathon organized by Banasthali Vidyapith, with nearly 150 participants. Played a key role in coordinating event operations, ensuring smooth execution, and supporting participants throughout the competition.
- Participated in a 30 hour Hackathon organized by Reskill, competing against hundreds of students, and showcasing skills in innovation and problem solving.