

# YUVRAJ SINGH

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## SUMMARY

*Highly motivated Computer Science undergraduate with strong fundamentals in **object-oriented programming**, **cloud-based development**, and **data-driven AI systems**. Proven experience in developing scalable **full-stack** and **Generative AI projects**, solving 150+ algorithmic problems, and working collaboratively in agile teams.*

## PROJECTS

**YOUTUBE VIDEO SUMMERISER** | *Engineered A YouTube assistant that allows you to query any YouTube video and get meaningful, context-rich answers based solely on the video's transcript.*

- Integrated Google Gemini LLM via LangChain to generate context-rich answers.
- Achieved <3s response time using FAISS vector search and Gemini embeddings.
- Secured API key input through runtime entry (no .env usage) for enhanced privacy.
- Deployed via Streamlit Cloud with over 150+ unique video queries processed.

**AI TUTOR** | *Developed an AI-powered tutoring application using a multi-agent architecture where a Tutor Agent delegates subject queries to specialized Math/Physics Agents.*

- Integrated Google Gemini API for natural language understanding, enabling domain-specific explanations with step-by-step reasoning.
- Built a **full-stack system**: backend in Python (multi-agent logic, tools like calculator) and frontend in React/Next.js with Tailwind for responsive UI.
- Achieved **seamless query routing** with subject-specific accuracy; deployed prototype on Vercel (frontend) and Railway (backend).  
**Github Repository Link**

**AUTOCAR** | *Built An Autonomous (self-driving) Car Model.*

- Built a **Convolution Neural Network** based model for steering angle prediction using Nvidia's research.
- Applied **OpenCV**-based augmentation on 500+ images; achieved **94%** test accuracy.
- Integrated the model into a simulated environment for real-time decisions.
- Integrated real-time steering feedback in simulator environment for closed-loop control testing.

**SMARTMERGE (AI-Powered GitHub Branch Merge Assistant)** | *Collaborated in building a desktop assistant that connects to GitHub repos and analyzes differences between branches.*

- Integrated Gemini API to generate **AI-driven merge recommendations** and flag potential conflicts proactively.
- Designed a **PyQt5-based GUI** for intuitive repo/branch selection and merge operation management.

## CERTIFICATIONS

- Generative AI with IBM Watsonx - IBM Career Education Program
- Prompt Design in Vertex AI Skill Badge by - Google
- GitHub Foundations Certified - Proficient in commits, branching, markdown, collaboration

## TECHNICAL SKILLS

*Languages & Algorithms:*

- Python (Advanced)
- Java (Intermediate)
- JavaScript (Intermediate)
- HTML / CSS (Advanced)

*Frameworks & Libraries:*

- TensorFlow (Intermediate), PyTorch (Beginner), FAISS (Intermediate), LangChain/ LangGraph (Intermediate), Streamlit (Intermediate), PyQt (Intermediate).

*Databases & Tools:*

- MySQL (5+ Star HackerRank), MongoDB (Beginner).
- Git, GitHub, Jupyter, Linux.
- Docker (Beginner), AWS (Beginner).

## EXTRACURRICULAR

*Participant - SECVIT 2024: Ranked top 20 / 1400.*

## EDUCATION

**VIT BHOPAL UNIVERSITY**

*Bachelor of Computer Science and Engineering with, Specialization in AI & ML*

*Expected December 2026*

*Cum. GPA: 7.93 / 10.0*

## LINKS

**LeetCode:** <https://tinyurl.com/4ut6m3af>

**Website:** [yuvraj-ai.github.io/](https://yuvraj-ai.github.io/)

**GitHub:** [github.com/Yuvraj-ai](https://github.com/Yuvraj-ai)