TANMAY SINGH

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GeeksforGeeks | HackerRank | LeetCode

Summary

Final-year B.E. student in Artificial Intelligence and Data Science who builds AI software that solves practical problems. Skilled in Python, machine learning, deep learning, computer vision, and web development. Built a hand-gesture game controller that recognizes gestures with 99% accuracy, a self-learning agent that plays a game to find bugs on its own, and an AI shopping assistant that completes secure test payments. Seeking an entry-level AI Engineer role.

Education

K. S. School of Engineering and Management — Bengaluru, India
Bachelor of Engineering in Artificial Intelligence & Data Science | CGPA: 7.3/10 — *2023 - 2027*

Technical Skills

Languages: Python, TypeScript, JavaScript, SQL, HTML, CSS
AI & ML: PyTorch, Stable-Baselines3, Gymnasium, OpenCV
Generative AI & Agentic AI: RAG, FAISS, Sentence-Transformers, Ollama, AI Agents
Frameworks & Libraries: Next.js, React, Flask, Pygame, NumPy, Matplotlib
APIs & Databases: Google Gemini API, Razorpay API, REST APIs, PostgreSQL
Developer Tools: Git, GitHub, GitHub Actions, Vercel, CUDA

Projects

Academic Research Assistant | *Python, Flask, FAISS, Sentence-Transformers, Ollama* — View on GitHub

- Built a local Retrieval-Augmented Generation (RAG) assistant that answers questions on research-paper PDFs with page-level citations, using FAISS and BM25 hybrid search, cross-encoder re-ranking, and Llama 3.2 via Ollama
- Raised top-1 retrieval from 60.0% to 88.3% and answer accuracy from 86.8% to 97.1% on a 68-question test set
- Added offline OCR, streamed answers, and saved chats in a Flask dashboard, answering in 1–1.5 s on a CPU

Razorpay Agentic Commerce | *TypeScript, Next.js, PostgreSQL, Gemini API, Razorpay API* — View on GitHub

- Deployed on Vercel an AI buyer agent that uses Google Gemini to turn shopping requests into product picks
- Built a server-side policy layer that checks prices, budgets, and inventory, with human approval above Rs. 3,000
- Integrated Razorpay Test Mode with signature and webhook verification, retries, stock reservation, and audit logs

Glitch Hunter - AI Game Testing System | *Python, Stable-Baselines3, Gymnasium, Flask* — View on GitHub

- Trained a PPO reinforcement learning agent for 16 million steps across 8 parallel environments to explore a Mario-style game, raising level completion from 46.8% to 56.6% over 500 runs
- Developed a runtime glitch detector using 13 game-state rules to catch movement, clipping, score, and coin bugs, saving screenshot, GIF, and PDF evidence for each bug
- Built a live Flask and Socket.IO dashboard streaming AI gameplay, actions, rewards, and detected glitches

CNN-Based Gesture Controlled Pac-Man | *Python, PyTorch, OpenCV, CUDA, Pygame* — View on GitHub

- Fine-tuned a MobileNetV2 CNN on 2,000 HaGRID images for real-time hand gesture classification, achieving 99.0% test accuracy and 99.6% accuracy on 2,000 images of unseen people
- Developed a real-time computer vision pipeline with OpenCV, CUDA-enabled PyTorch inference, confidence thresholding, and temporal smoothing to turn webcam gestures into game controls
- Engineered a Pac-Man-style Pygame game with ghost AI and levels, running at 60 FPS with 30 FPS gesture input

Hackathons

Hire-4-Thon - National Level Hackathon (2026) — View Certificate
Hackathon-24 - College Level Hackathon (2024) — View Certificate

Certifications

Introduction to Machine Learning - VOIS (2025) — View Certificate
Getting Started with Artificial Intelligence - IBM SkillsBuild (2024) — View Certificate
Generative AI Literacy - IT-ITeS SSC / FutureSkills Prime (2025) — View Certificate