Utkarsh Sarvjeet Tiwari

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Education

- **Shah and Anchor Kutchhi Engineering College**
  B. TECH in Electronics and Computer Science Engineering (Third year, Semester 5)
  Graduation: 2027 **Sept 2023 – Present**
  Mumbai, Maharashtra

Certifications

- **Linux Essentials – Cisco Networking Academy**
  Covered Linux system commands, file management, and basic shell operations.
- **Embedded System Developer – AICTE Virtual Internship (Eduskills Foundation)**
  Gained experience in microcontrollers, sensor interfacing, and Embedded C programming
- **Google AI-ML Virtual Internship -** *(Ongoing)*

Summary

Electronics and Computer Science student with project experience in Python, AI/ML, and IoT-based automation. Passionate about building intelligent, data-driven solutions and applying technical and analytical skills through software or AI internships.

Technical Skills

- **Programming Languages:** Python, C, C++, JavaScript, HTML, CSS.
- **AI & Machine Learning:** Machine Learning, NLP, Sentence Transformers, Logistic Regression, TF-IDF, Negation Handling, TensorFlow, Keras, Scikit-learn.
- **Data & Visualization:** NumPy, Pandas, Matplotlib, Data Preprocessing, Model Evaluation.
- **Web & Frameworks:** Flask, Node.js, React.js (JSX)
- **Databases & Tools:** MySQL, MongoDB, Git, VS Code, XAMPP, OpenCV
- **Quantum (Basics):** Qiskit, PennyLane

Projects

- **Quantum Computing Research Project (Industry-Defined Problem by Cybranex Pvt. Ltd.)**
  (*Under Faculty Mentorship – **Ongoing)***
  - Designed and trained quantum autoencoder models for data compression and feature extraction as part of an industry-defined research problem under faculty mentorship.
  - Simulating **quantum circuits** and exploring hybrid quantum–classical architectures for dimensionality reduction.
  - Conducting research and documentation under faculty mentorship as part of a **college–industry collaboration program**.
  - **Tech:** Qiskit, Python, NumPy, Matplotlib

- **Local Voice AI Agent** (GitHub)**:** **August-2025**
  - Developed a Windows-first voice chat app using local AI models (Gemma 3 via Ollama) with real-time STT/TTS pipeline.
  - Implemented conversational memory, retry logic, and performance metrics while defaulting to 1B model for minimal downloads.
  - Created configurable CLI with tuning parameters and multiple deployment modes (local/LAN/public sharing).
  - Technologies: Python, Ollama, Gradio, WebRTC, YAML

- **Ecommerce Web Application – Artha Mart** (Github): **June-2025**
  - Developed a group-based E-commerce web application providing a seamless online shopping experience.
  - Designed and implemented the **MySQL** database schema for users, products, orders, and cart management.
  - Built backend logic in **Flask** to handle user authentication, product management, cart operations, and order processing.
  - Wrote secure and efficient SQL queries for data retrieval and manipulation.
  - Ensured smooth communication between the Flask application and the MySQL database.

- **Harry Potter Invisibility Cloak using OpenCV and Python** (Github): **March-2025**
  - Developed a computer vision project simulating the invisibility effect using color detection and HSV masking in real-time video.
  - Utilized **OpenCV** and **NumPy** libraries to capture background, apply color masks, and blend frames to produce the invisibility illusion.
  - Included real-time trackbar tuning and a demo video demonstration.
  - Hosted code and video on GitHub.
- **Smart Home Automation System** (Github): **Dec - 2024**
  A C++ project simulating a smart home automation system to control devices like lights and fans. The system features temperature monitoring, energy usage calculation, and state saving. Key highlights include:
  - Toggle Lights/Fans: Turn devices ON/OFF interactively.
  - Temperature Monitoring: Simulate real-time temperature changes.
  - Energy Usage Calculation: Estimate energy consumption of devices.
  - State Persistence: Save device states to a file for continuity.

Hackathon & Innovation Experience

- **Innovate-a-thon – IIT (ISM) Dhanbad (Concetto'25) | Finalist**
  - Proposed *Reloop*, an AI-driven circular economy platform promoting waste reduction and sustainability.
- **HackWithUttarPradesh 2025 – Chandigarh University | Shortlisted (Agentic AI Theme)**
  - Designed a *Smart Irrigation System* using IoT sensors and ML for intelligent water optimization.
- **HackSetu 1.0 – Amity University, Gwalior | Grand Finale Shortlist**
  - Built an *AI + IoT irrigation prototype* integrated with real-time sensor data and predictive analytics.
- **E² Calonics'25 – E.G.S. Pillay Engineering College | Paper Presentation Selection**
  - Presented a *machine learning approach* for optimizing irrigation using environmental parameters.
- **Bharatiya Antariksh Hackathon 2025**
  - Proposed *AI-based drought and land risk prediction* using satellite imagery and geospatial analysis.

Achievements

- Led and managed a team of campus ambassadors at ISRC, strengthening leadership and communication skills.
- Finalist in national-level innovation challenges at IIT (ISM) Dhanbad and Amity University.
- Shortlisted for multiple hackathon grand finales with AI/IoT-based solutions (HackSetu 1.0, E² Calonics'25).