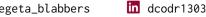
# Yuvraj Chauhan

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X vegeta\_blabbers https://yuvraj-portfolio-olive.vercel.app





### **About**

About Me

I'm Yuvraj, a GATE CSE 2025 qualified pre-final year Computer Science student at the Indian Institute of Information Technology, Vadodara. I have a strong interest in Security & Privacy, AI/ML, Full Stack Web Development and IoT. I'm also keen on exploring interdisciplinary areas including Metaverse and AR/VR, Cryptography, Reinforcement Learning, and Embedded Systems.

### Skills

C/C++, Python, JavaScript, TypeScript, HTML/CSS Languages

Frameworks & Libraries React.js, Next.js, Flask, Node.js, Express.js, Auth.js, Tailwind CSS

> Databases MySQL, PostgreSQL, MongoDB, CockroachDB, CosmosDB

Machine Learning PyTorch, Scikit-learn, Unity ML-Agents Toolkit

> AR/VR Unity, Blender

Arduino Uno, ESP32, ESP8266, Raspberry Pi Pico W, Raspberry Pi 4 **Embedded Systems** 

Git, Linux, Postman, Thunder Client Tools & DevOps

### **Education**

2022 - 2026

B.Tech. in Computer Science and Engineering, IIIT, Vadodara Current CGPA: 8.14 / 10 Qualified GATE CSE 2025 - with AIR 6277, 45.33 Marks and a GATE Score of 514

## **Experience**

May- Aug. 2025

Research Intern, National Institute of Technology, Karnataka Studied and implemented schemes in Python for Secret Image Sharing. Developed a scheme that improved the precursor scheme by 11% in storage optimization. Technologies: MATLAB, Simulink

Jan.-May 2025

Teaching Assistant, Basics of Electrical Engineering – IIIT Vadodara Taught 100+ Semester 2 students and supervised lab sessions. Technologies: Python, Google Colab

Sept.-Dec. 2024

Teaching Assistant, Physics – IIIT Vadodara

Guided 100+ Semester 1 students through weekly MATLAB-based lab sessions.

Technologies: MATLAB, ode45

### **Projects**

### Cryptography and Security & Privacy

2024 Electronic Elections: Secure Two-Party Voting System (Delfs & Knebl)

Developed a cryptographic voting protocol using ElGamal encryption and Shamir's Secret Sharing. Deployed a secure web interface with SSL/TLS and three Dockerized servers. *Technologies*: Python, Flask, Docker, OpenSSL, HTML, CSS, JavaScript, Node.js, EJS,

Secret Image Sharing: Multi-Secret Sharing Scheme (Patil et al.)

Implemented an MSS protocol for secure image distribution with constant-size shares and histogram normalization. Achieved lossless reconstruction, evaluated on grayscale images. *Technologies*: MATLAB

#### Metaverse & AR/VR

■ Virtual Electrical Lab: IoT-Virtual World Integration

Created a Unity-based virtual lab with Blender 3D models, syncing IoT hardware (Arduino, ESP32) for real-time electrical experiments. Validated usability with a 6o-participant study. *Technologies*: Blender, Unity, C#, Node.js, Arduino, ESP32

#### AI/ML and Reinforcement Learning

Adaptive Enemy AI: Proximal Policy Optimization (PPO)

Created a Street Fighter-style game in Unity with PPO-based RL agents, varying AI difficulty via neural network architectures. Confirmed performance gains in a 40-participant study. *Technologies*: Unity, C#, Python, PyTorch, Unity ML-Agents, PPO

### **Awards and Achievements**

First Position – Battlebots X Sentience, Horizon 2025 @ IIIT Vadodara, ICD.

2024 Volunteering Awards – For developing official websites for Stavya 2024 and Horizon 2024.

#### **Research Publications**

### **Conference Proceedings**

S. Sharma, T. Patel, Y. Chauhan, T. Patel, G. Pareek, and P. B. R, "On (k, n) threshold secret image sharing based on pixel coordinates for simple images," in *Proceedings of the 16th IEEE International Conference on Computing, Communication and Networking Technologies (ICCCNT)*, Presented at the conference; to appear in proceedings, IEEE, IIT Indore, Madhya Pradesh, India, Jul. 2025.