

# TUSHAR HIREKHAN

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## EDUCATION

### Indian Institute of Information Technology, Pune

Bachelor of Technology in Computer Science and Engineering

November 2022 – Present

Pune, India

## TECHNICAL SKILLS

**Coursework:** Data Structures & Algorithms, Object-Oriented Programming, Database Systems, Computer Networks, Operating System, Distributed Computing

**Languages:** Java, Python, SQL, C, C++, JavaScript

**Technologies:** NumPy, Pandas, scikit-learn, Node.js, Next.js, Spring Boot, React.js, PostgreSQL, MongoDB, Redis, Git/GitHub, Linux

## EXPERIENCE

### C-DAC, Noida (A MeitY, Government of India Initiative)

May 2025 – June 2025

Cybersecurity Intern

Virtual

- Assessed offensive security tools across the early stages of the **Cyber Kill Chain**, enhancing readiness for real-world adversary simulations in lab environments.
- Performed reconnaissance on target systems using **Maltego** and **Recon-ng**, identifying **15+** vulnerabilities and attack vectors, contributing to improved security assessments.
- Simulated phishing attacks using **GoPhish**, executed multiple campaigns and analyzed **10+** exploitation techniques from **Exploit-DB** to support red-team strategy development.

### localhost - The Dev Community of IIIT Pune

November 2022 – Present

Core Member

- Led **Nexus**, a **36-hour national-level hackathon** sponsored by **Polygon**, **Devfolio**, **Rariko**, and **Replit**, attracting **1000+** registrations on Devfolio
- Directed **HackIn**, an **intra-college hackathon** sponsored by **Quine (now Quira)**, with **100+** participating teams, strengthening local innovation and collaboration.
- Spearheaded technical sprints, workshops, and briefing sessions on **Web3**, **web/app development**, and global programs like **GSoC** and **MLH Fellowship**, enabling students to gain hands-on experience and boosting **open-source participation**.

## PROJECTS

### AntiBOT | Python, TensorFlow, React, Node.js, Express.js

- Developed an **LSTM-based** behavioral CAPTCHA that analyzes mouse trajectories, achieving **99.26%** accuracy in differentiating human users from automated bots.
- Engineered a data capture pipeline using a **React** frontend and **Node.js** backend to collect and process thousands of coordinate data points from real-time mouse movements.
- Generated synthetic bot trajectories using mathematical functions (linear, quadratic, exponential) and velocity profiles.

### ShrinkerKit | Java, Spring Boot, Next.js, PostgreSQL, Redis

- Engineered the backend REST API for a URL shortener using **Java** and **Spring Boot**, implementing core logic for unique link generation and high-performance redirection.
- Implemented a **Base62** algorithm to generate unique 7-character short codes, providing over **3.5 trillion** collision-resistant combinations.
- Integrated a **Redis Cache (Upstash)** with **PostgreSQL (Supabase)** to boost redirection latency by over **95%** and reduce database read load.
- Containerized the application using **Docker** for cloud deployment and enforced API security with **Spring Security**.

## CERTIFICATIONS

### Google Cloud Skills Boost | Machine Learning & AI Skill Badges

- Prompt Design in Vertex AI
- Inspect Rich Documents with Gemini Multimodality and Multimodal RAG
- Develop GenAI Apps with Gemini and Streamlit
- Build Real World AI Applications with Gemini and Imagen

## ACHIEVEMENTS

- Achieved **LeetCode Knight** badge with a rating of 1876, ranking in the **Top 5%** globally.
- Achieved **Rank 235** globally in a LeetCode Weekly Contest.