

# VEDANT SINGH

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phone no - +91-8873001000 | location - Ghaziabad, UP & Bangalore

## Technical Skills

**Languages and DataBases:** Python, SQL, C++, Git, AWS, OOPS, Java (Basic), Github  
**Visualization Tools:** OpenCV, sqlite3, Tkinter, TensorFlow, PyTorch, gTTS, Pandas, Numpy  
**Other Skills:** python development, SQL database, team management, leadership qualities.

## Experience/Projects

### Altair Engineering

2<sup>nd</sup> April, 2025 – present

#### Intern HPC

Bangalore

- Integrated applications into HPC environments, leading to a 37% improvement in workflow efficiency through automated resource scaling.
- Monitored distributed systems and logs across Linux and Windows, enabling a 60% faster incident response time.
- Provisioned scalable cloud infrastructure on AWS, OCI using Terraform, cutting deployment time by 40%.

### Proeffico Solutions pvt.

23oct,2024 – 28 jan,2025

#### Software Engineer Intern

NOIDA

#### Computer Vision and AI Surveillance

- AI-Powered Employee Monitoring & Surveillance: Developed and deployed YOLOv8-based models for detecting employee activities, including mobile phone usage, inactivity, and sleeping behavior, enhancing compliance and operational efficiency.
- Object Detection & Safety Systems: Built AI-driven solutions for tracking street dogs in restricted areas and deploying high-accuracy YOLO Pose Estimation models to improve workplace and community safety.
- IoT System Monitoring & Industrial Automation: Engineered C++ applications for Raspberry Pi health monitoring, automated alerts, and remote access, along with Python-based weight measurement systems integrating barcode scanners and real-time data transmission.
- Generative AI & RAG Integration: Fine-tuned generative AI models, developed Retrieval-Augmented Generation (RAG) pipelines, and integrated Google Speech-to-Text (GSTT) for AI-driven voice and text automation in custom applications.

### TATA Motors

12 Feb,2024 – 12May,2024

#### Software Engineer Intern

Jamshedpur

- Gained hands-on experience with actuators and sensors, focusing on their role in automating production-line robotics to improve efficiency and precision at Tata Motors.
- Designed and implemented object detection systems using Python and YOLO, enhancing real-time safety and monitoring capabilities in manufacturing processes.
- Applied core concepts of Artificial Neural Networks (ANN), and Convolutional Neural Networks (CNN)
- to develop innovative solutions for automotive systems and driver assistance technologies.
- Conducted research on deep learning applications, contributing to the development of next-generation vehicles with improved design, safety, and user interaction features.

### Centre for Railway Information Systems

30 Jun,2023– 14 Jul,2023

#### Software Engineer Intern

Delhi

- Gained practical experience with train ticketing systems, including path and destination mapping, utilizing SAP and MySQL for data storage optimization and workflow management.
- Improved the Passenger Reservation System (PRS) and Unreserved Ticketing System (UTS) to enhance the speed, accuracy, and efficiency of ticketing processes, ensuring a seamless passenger experience.
- Managed the operational layer of query resolution in thin client environments, focusing on troubleshooting, error resolution, and ensuring system reliability.
- Researched and implemented cloud-based solutions to optimize real-time ticketing workflows, driving innovation and enhancing overall system performance for large-scale operations.

## Personal Projects

### UTS/PRS ticket system for vision impairment. | software developer - Python, DBMS, SQL

July 2023

- Designed and implemented an innovative Python application leveraging Tkinter, NumPy, and SQLite to empower visually impaired users to seamlessly reserve train tickets via a user-friendly text-based interface. Additionally, the application utilized a relational database management system (RDBMS) to interact with previous data, ensuring smooth connectivity and enhancing the overall user experience.
- Developed a secure system to generate and manage unique random ticket numbers, storing them in a relational SQL database, and translating them into Braille symbols, ensuring inclusivity and accessibility for visually impaired users.

### Object Tracking and Targeting System. | using Arduino uno and ultrasonic sensor

May 2024

- Developed a real-time object detection and targeting system using **ultrasonic sensors** and **servo motors**, designed for enemy tracking or automated aiming.
- Programmed in **C++** to process distance measurements, identify the closest object, and dynamically align the servo motor for precise targeting.
- Optimized sensor performance by minimizing noise with stabilization delays and ensuring efficient hardware resource utilization.
- Achieved high accuracy and responsiveness, demonstrating real-time object detection and automated alignment within a 180° field of view

### TEXT TO AUDIO CONVERTER (audio book) | Software developer - python,gTTS,tkinter

2022

- Developed a versatile tool for **converting PDF content into audio book**.
- Key features: PDF text extraction, **Text-to-Speech (TTS) training**, and user-friendly interface using **tkinter**.
- Practical use case: **Enhancing book consumption during travel or busy schedules.**

### Parallel Programming with OpenMP in C++

2024

- Leveraged OpenMP to implement parallelized algorithms, optimizing performance by distributing workloads across multiple CPU cores.
- Enhanced computational efficiency for complex operations such as matrix multiplication, numerical integration, and data processing.
- Utilized parallel for-loops, thread management, and workload balancing to minimize execution time and achieve scalability.
- Demonstrated proficiency in high-performance computing by reducing synchronization overhead and improving application speed

## Education / certification

### SRM Institute Of Science and Technology

Sep 2021 – June 2025

Bachelors Of Technology CSE(CORE)

CGPA: 8.21

### Bharti Public School

July 2021

Class 12th P.C.M(Physics, Chemistry, and Mathematics) From CBSE Board

- Cloud Computing and Distributed Systems – NPTEL
- Introduction to Cybersecurity – CISCO
- Introduction to Data Analytics – IBM (Coursera)
- NCC 'C' Certificate – Demonstrated leadership, discipline, and a commitment to community service through active participation in the National Cadet Corps (NCC) Army wing