

# Harsh Kumar

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## EDUCATION

### VIT Bhopal University

*B. Tech. Computer Science & Engineering; CGPA:8.32*

Bhopal, India

*Sept. 2022 – Sept. 2026*

**Courses:** DSA, Computer Networking, DBMS, Object Oriented Programming, Operating Systems, Machine Learning, Cloud Computing

### Army Public School

*Matriculation (10th): 86%*

Jodhpur, India

*Mar. 2019 – Mar. 2022*

*Intermediate (12th): 77.6%*

## SKILLS SUMMARY

**Languages:** Python, C, C++, Java, MySQL

**Frameworks:** PyTorch, TensorFlow, Keras

**Developer Tools:** Git, AWS, VS Code

**Libraries:** Pandas, NumPy, Matplotlib, OpenCV

**Tech Skills:** Machine Learning, Deep Learning, Computer Vision, NLP, DSA, OOP

**Soft Skill:** High Agency

## PROJECTS

### Realtime Face Mask Detection | *TensorFlow, Keras, OpenCV, VGG16, HaarCascade*

- Developed a deep learning-based face mask detection system using **custom CNNs**, achieving **96.2% training accuracy** and **94.3% test accuracy** on a dataset of **7,500+ labeled images**.
- Integrated with **OpenCV** for real-time webcam inference at **30 FPS** on **CPU-only systems**, ensuring smooth performance **without GPU dependency**.
- Utilized **Haar Cascade Classifier** to perform face detection in under **20 ms per frame**, enabling precise region extraction and reducing false positives by **15%** compared to naive detection methods.

### 3D Object Detection Using LiDAR Data | *Python, TensorFlow, PyTorch, Open3D, MATLAB*

- Developed a 3D object detection model achieving **92% accuracy** on over **5 datasets**.
- Implemented a processing pipeline for feature extraction, segmentation, and classification, reducing computational time by **1.2 hours** across **10,000+ LiDAR frames**.
- Optimized detection using **spatial filtering** and clustering, cutting false positives by **200 instances per 1,000 predictions** and improving overall performance.

## ACHIEVEMENTS AND CERTIFICATIONS

- All India Rank (AIR) 57** and **College Rank 1** in **ICPC Preliminary Round 2024**
- Pupil @ Codeforces** (1215 max), **3 star** coder on **CodeChef**, **1608** rating on **LeetCode**
- Smart India Hackathon (SIH) 2024** Internal Round Finalist
  - Selected as one of the top 50 teams from over 430+ idea submissions.
- Deep Learning Specialization** by DeepLearning.AI
  - Supervised Machine Learning: Regression and Classification
  - Neural Networks and Deep Learning
  - Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization

## HOBBIES AND INTERESTS

- Reading about new advancements in the field of Artificial Intelligence
- Problem solving and competitive programming
- Playing Chess