Bhushan Kumar

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EDUCATION

VIT Bhopal University, Bhopal, Madhya Pradesh
B. Tech in Computer Science & Engineering (Artificial Intelligence & Machine Learning) • **CGPA:** 8.4/10 • Expected: May 2026

Kendriya Vidyalaya No 2 Kochi
12th • Kochi, Kerela • Jul 2021 • **Percentage:** 94%

Kendriya Vidyalaya No 2 Kochi
10th • Kochi, Kerela • May 2019 • **Percentage:** 93.5%

PROJECTS

Bhopal Water Quality Monitoring (February 2023 – April 2023) Omdena VIT BHOPAL local chapter

- Designed a **satellite-based GIS water quality monitoring system**, eliminating need for IoT sensors while ensuring accuracy.
- Extracted **pH, turbidity, chlorophyll, oxygen levels** from satellite imagery to analyze **14 lakes in Bhopal**.
- Developed a **real-time dashboard** for monitoring and early detection of water quality deterioration.

Artificial Intelligence Road Detection System (April 2023 — June 2023) Omdena VIT BHOPAL local chapter & Mexico chapter

- Collected and annotated **1,200+ raw images** for dataset preparation.
- Built a **machine learning pipeline** with **transfer learning + CNN architectures** to classify multiple **road defects**.
- Improved model accuracy and robustness despite limited dataset by applying **data augmentation and transfer learning**.

Facial Recognition Attendance System (July 2023 — August 2023)

- Developed facial recognition system with **95% accuracy**, reducing authentication time by **50%**.
- Automated Excel-based attendance for **140+ students**, improving efficiency.

Heart Disease Prediction using Boruta Feature Selection Algorithm (December 2023 — February 2024)

- Built a **Heart Disease Prediction model** using **Random Forest Classifier**, achieving **98.6% accuracy**.
- Applied Boruta Algorithm to extract 118 significant features from the dataset enhancing the model's accuracy and performance.
- Conducted comparative analysis of multiple classifiers, validating **Random Forest** as the optimal choice.

EEG-Based Brain Computer Interface for Automotive Control (November 2024 — April 2025)

- Designed an **EEG-based Brain-Computer Interface (BCI)** to control automotive functions (**acceleration, braking, steering**).
- Processed real-time brainwave signals using **non-invasive EEG sensors + ML algorithms** for accurate classification.
- Built and demonstrated a **working prototype**, showcasing high accuracy and responsiveness for enhanced vehicle accessibility.

SKILLS

Programming Languages: Python, C++, SQL, HTML/CSS
Frameworks & Libraries: TensorFlow, PyTorch, OpenCV, Scikit-learn
Tools & Platforms: Git, Linux, VS Code, Blender, Unreal Engine
Concepts: Machine Learning, Deep Learning, Computer Vision, Data Analysis

CERTIFICATIONS

- Applied Machine Learning Using Python Michigan University – Coursera (Nov 2023 – Dec 2023)
- Privacy and Security in Online Social Media – NPTEL (Jan 2024 – April 2024)
- DevOps – IBM (Feb 2025 - May 2025)
- Cyber Security – IBM (Feb 2025 - May 2025)
- Machine Learning with Python – Simplilearn (Oct 2024 – Mar 2025)

EXTRACURRICULAR ACTIVITIES

Member: SEDS Nebula • October 2023 – September 2024

- Contributed to space exploration initiatives through **educational workshops and engineering projects**, collaborating with a team of peers.

Student Coordinator: RTASCE 2023 • July 2023

- Coordinated and led an international conference with **200+ participants** and **15+ national & international experts**.
- Managed **event logistics, communication, and scheduling**, strengthening leadership and organizational skills.