Bharath V K

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PROFILE

Aspiring Automotive Software Engineer with hands-on experience as a Machine Vision Intern and Part-Time Associate Software Engineer. Skilled in Python, embedded systems, and scalable full-stack development. Developed deep learning vision systems and RESTful APIs in agile teams, contributing to both research and production-grade solutions. Passionate about building intelligent, safety-focused systems at the intersection of robotics, AI, and mobility software.

PROFESSIONAL EXPERIENCE

Nila Products **May 2025 - Present**
Associate Software Engineer (Part-Time) *Tiruppur, India*

- Contributed as part of a team of full-stack developers to architect a scalable e-commerce platform using ReactJS and NodeJS, currently serving 200+ daily users.
- Participated in the development of a real-time inventory management system, helping reduce stock discrepancies by 15%.
- Collaborated on optimizing MySQL queries and database structures, resulting in a 30% improvement in performance.
- Assisted in building RESTful APIs with Express.js to support user sessions, order workflows, and payment systems, enabling 50+ concurrent users.

Effica Automation, PSG Groups, **Apr 2024 - Jun 2024**
Machine Vision Developer Intern *Coimbatore, India*

- Contributed to a machine vision research project by developing deep neural architecture models using CNNs and transfer learning, achieving a 90% accuracy rate across 3+ architectures for localizing and extracting package coordinates.
- Implemented computer vision solutions using 3D cameras, improved packaging system localization efficiency by 25%, reducing processing time from 4 minutes to 3 minutes per package.
- Conducted optimization of the machine vision pipeline with a multidisciplinary team by integrating hardware and software solutions to ensure live data processing with reduced system latency by 15%

EDUCATION

Amrita Vishwa Vidhyapeetham **Sep 2022 - Jun 2026**
Bachelor of Technology, Automation and Robotics *Chennai ,India*

- **GPA:** 8.17
- **Coursework:** Minors in Data Science

SKILLS

- **Interests**: Real-Time Computer Vision, Human-Al Collaboration
- **Software & Programming**: Python, C++, C programming , SQL, RESTful APIs, API Integration, Advanced Java, Shell Scripting, Flask, MySQL, Git
- **AI, ML & Data Engineering**: Machine Learning, Deep Learning, Natural Language Processing, TensorFlow, PyTorch, Transfer Learning, CNNs, PySpark, Hadoop, Generative AI , Real-Time Inference
- **Computer Vision & Robotics**: OpenCV, YOLO, 3D Reconstruction & Point Cloud Processing, Instance & Semantic Segmentation, Embedded Systems, ROS2, Autodesk Fusion, Path Planning algorithms
- **Cloud & Infrastructure**: AWS, DevOps Basics

LANGUAGES

- Tamil (Native)
- English (C2)
- Kannada (C2)
- Hindi (B1)

ORGANISATIONS

Amrita Vishwa Vidhyapeetham **Aug 2024**
Coordinator, RoboWar 2024 – Hackathon Organizer

- Spearheaded the planning and execution of RoboWar 2024, a flagship robotics competition with 20+ participating teams.
- Managed scheduling, rule enforcement, and real-time scoring systems to ensure smooth and fair operations.

CERTIFICATES

- **Data Science Professional Certificate**: IBM April 2025
- **Microsoft Al & ML Engineering**: Microsoft Corporation December 2024

- **Generative AI with Large Language Models**: DeepLearning.AI
- **Supervised Machine Learning: Regression and Classification**: DeepMind

PROJECTS

Real-Time Fake Job Detection , Technologies Used: PySpark, Kafka, Hadoop, DistilBERT, PyTorch **Jan 2025 - Apr 2025**

- Developed a real-time fake job detection system for Telegram job feeds, using Kafka for data streaming and PySpark for scalable processing.
- Designed and trained a NLP model to classify job postings as real or fake, improving fraud detection

Emotion Aware Chatbot, Technologies Used: TensorFlow, OpenCV, Flask **Oct 2024 - Jan 2025**

- An emotion-aware chatbot that achieves 79% accuracy in adjusting responses based on user's emotional state
- This chatbot utilizes NLP with Transformer Architecture to analyze user sentiment and generate contextually appropriate responses.

DriveSafeAlert, Technologies Used: Pytorch, OpenCV, Flask **Jun 2024 - Aug 2024**

- DriveSafeAlert is a safety system that uses real-time sensors and DL frameworks to detect drowsiness, seatbelt usage, and phone usage, aiming to reduce accidents caused by driver fatigue and distraction, achieving 82% accuracy in driver fatigue detection .
- The system analyzes the driver's condition and provides alerts to improve road safety and prevent potential risks.
- Relevant to real-time automotive safety applications

SECUREBOT – Autonomous Safety & Tool Management Robot for High-Security Laboratories **Jan 2025 - Present**

Department of Mechanical Engineering, School of Engineering, Amrita University *Amrita Vishwa Vidyapeetham*

- Designed and implemented an AI-powered autonomous robot for secure tool handling and safety compliance in high-risk lab environments (e.g., DRDO, ISRO, defense R&D facilities).
- Integrated YOLOv5 object detection for real-time PPE violation monitoring (helmet, gloves, lab coat) using onboard vision models.
- Deployed natural language processing (NLP) to interpret tool requests from voice or text and convert them into actionable robotic commands.
- Relevant to real-time automotive safety applications