# Vijay Singh Purohit

*AI Engineer | Computer Vision | R&D*

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Experienced in computer vision and R&D for satellite, drone-based, and ground video surveillance with domain expertise in FIBC, F&B, Pharma, and Aerial Surveillance. Proficient in C++, Python, Deep Learning, and Process Mining. Key skills include:

- **Deep Learning & AI**: Image segmentation, classification, and transfer learning using TensorFlow, PyTorch, and Keras.
- **Scalable Solutions**: Deployment on AWS/Azure/Google cloud platforms.
- **Development & Deployment**: POCs, API development (Node.js), and containerized solutions with Kubernetes/MicroK8s.
- **Data Management**: Postgres, ArangoDB, and ML algorithms to manage and analyze large-scale satellite datasets.
- **End-to-end Systems**: Designed and deployed production-ready AI systems for the machine vision industries, and satellite/drone imagery data.

## Experience

**SkyServe: Senior Software Engineer - Image Processing** **Jan 2024 - Present**

- Reduced software size by **95%**
- Deploy privacy-preserving techniques
- Configure the execution pipeline to reduce Downlink time
- Perform ML **model encryption** and post-training **model quantization**
- Deploy solutions on Open Embedded Linux (Yocto project), Petalinux
- Optimization of utilities on edge computing devices (Nvidia Jeston, Xilinx)
- Responsible for the development of utilities and mission-critical software for orbit missions

**Inferigence Quotient: Computer Vision Engineer** **July 2022 - Dec 2023**

- Collaborated with **3+ cross-functional teams** to develop innovative computer vision products
- Build computer vision solutions that contribute to a **30-35% increase in operational efficiency**
- Improved model **performance** by **20%** through exploration of new techniques and technologies
- Deployed models achieving **95%+ accuracy** while optimizing for speed and efficiency in production
- Trained over **7+ machine learning models** for drone-based visible and thermal imagery data analysis
- Implemented **3 ML techniques** to enhance the solutions including object localization for drone imagery

**Robro Systems: AI Engineer** **Nov 2021 - July 2022**

- Built reusable C++ and Python libraries using STL for efficient and robust code
- Built a **high-speed** inspection pipeline, scanning at the rate of **120 meters per minute**
- Designed and deployed end-to-end systems on cloud services and embedded systems
- Developed CUDA, GPU, and OpenCV applications to accelerate image-processing tasks
- Implemented Neural Networks and Deep Learning to enhance computer vision applications
- Spearheaded Vision Inspection projects, enabling defect detection and **Industry 4.0 solutions**
- Deployed a machine vision pipeline in the textile industry, achieving a **70% reduction in waste**.
- Optimized deep learning models for object detection, classification, tracking, and counting tasks
- Collaborated with the CEO and founding team, contributing to strategic decision-making and production-ready solutions

**Pipli: Data Scientist** **May 2021 - Nov 2021**

- Work closely with the founding team to develop & test classification models
- Build invoice data extraction pipeline using segmentation and classification models for data extraction, and analyze the data to produce insights.

## Education

**School of Data Science & Forecasting (DAVV), Indore** **July 2020 - June 2022**

- M.Tech. - Data Science

**Mahakal Institute of Technology, Ujjain (MIT, Ujjain)** **July 2015 - June 2019**

- B.E. - Computer Science and Engineering

## Skills

- Image Segmentation
- Image Analysis
- C++
- Deep Learning
- TensorFlow
- Keras
- Neural Networks
- Image Processing
- Docker
- Microsoft Azure
- Python
- OpenCV
- Cloud Computing
- Machine Learning Algorithms
- Computer Vision
- Kubernetes
- GCP
- CUDA
- Amazon Web Services (AWS)
- Node.js