

DHIRAJ SURVASE

Machine Learning Engineer

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Hi, I'm a machine learning engineer with a passion for developing intelligent systems that make a real-world impact. With 4+ years of experience in computer vision and machine learning, I have a proven track record of developing state-of-the-art models for a wide range of applications. If you're looking for a dedicated, results-oriented machine learning engineer, I'd love to help take your projects to the next level.

EDUCATION

VJTI , Mumbai, India (Autonomous)

B.Tech, Aug 2016 – June 2019

SKILLS

Computer Vision, Machine Learning, Image Processing, Machine Vision, Python, C++, Data Structures, TensorFlow, Pytorch, Keras, OpenCV, OCR, NumPy, Pandas, Scikit-Learn, Paddle, Yolo, Transformers, LayoutLM, Docker, Kubernetes (GKE), Linux, Android Linux, Embedded Android, git, Jenkins, Prompt Engineering.

EXPERIENCE (4 Years)

Idfy - Machine Learning Engineer (Jan 2022 - Present)

- **Inhouse-OCR:** Developed highly robust text detection and recognition models that resulted in significant cost savings of 70 millions+ GCV calls in a year. The accuracy of my inhouse models surpassed that of Google's TEXT_DETECTION models. These models are lightweight, enabling them to process images within 250ms while maintaining **high accuracy**.
- **Key Information Extraction:** Conducted extensive research and development on key information extraction from ID card images (PAN, Aadhar, Voter, Driving Licence, Passports). Employed various methods, including Paddle's KIE, LayoutLM, XGBoost, YOLOv5, regex, and other techniques, to achieve accurate extraction of essential information. These APIs generated revenue of approximately 75 million INR.
- **Document Preprocessing:** Implemented preprocessing techniques to handle common issues in uploaded images such as background noise, orientations, and low image quality. Employed methods to upscale the images, correct angles, and remove background noise, ensuring optimal data quality for further processing and analysis.
- **Image Quality Check:** Developed Image Quality Check models to prevent the use of low-quality images and noisy images. Implemented real-time feedback and alerts for users to submit high-quality images, improving the overall reliability of the KYC process.
- **ID Card Validation:** Helped in conducting research and development to create models that classify ID card images. These models determine whether the uploaded document is valid or not. This API created revenue over 150 millions INR.
- **Face Models:** Helped in developing and implementing robust models for face detection, liveness detection, and face matching, NSFW functionalities within a KYC product. These models were designed to enhance security measures and prevent fraud by accurately identifying and verifying individuals through their facial features.
- **Signature Matching:** These models are employed for the purpose of identifying and aligning signatures on cards with the user's signature. They perform tasks such as preprocessing and signature detection, including the analysis of signature strokes and other relevant aspects.
- **Model Deployment with Docker & Kubernetes:** Deployed models as APIs using Docker, Kubernetes (GKE). These APIs successfully handled a load of 100+ RPS, demonstrating their ability to efficiently handle a large workload while ensuring scalability and effectiveness.
- **MLops:** Developed pipelines for training machine learning models and preparing annotated data using Google's Vertex AI tool. These pipelines automated the process of model training and data preprocessing, making it easier and more efficient to create high-quality machine learning models.

GIBots - Senior Computer Vision Developer (Sept 2020 - Jan 2022)

- **Image Processing Bots:** Developed image processing APIs (bots) for complex use cases, enabling seamless integration of various bots to perform different image operations. These interconnected bots worked together to carry out diverse operations providing flexibility in handling a wide range of image-related operations.
- **Invoice Automation:** Developed an invoice automation system using machine learning techniques. Implemented various image processing operations and ML models to extract invoice information accurately. The system

seamlessly integrated with a database, allowing the extracted results to be efficiently stored for further processing and analysis.

- **Contract Extraction:** Implemented advanced OCR techniques to accurately identify and extract important details from contract documents, enhancing efficiency in processing and analyzing contract data.
- **Complex Mechanical and Civil CAD Diagram Recreation:** Developed advanced image processing algorithms to convert scanned images into AutoCAD diagrams (DXF format). These algorithms accurately extracted the necessary information from the images, allowing for the recreation of detailed AutoCAD diagrams.
- **Diagram Comparison with Image Processing:** Developed complex image processing algorithms to compare intricate diagrams specified by clients with the actual designs created by CAD developers. Highlighted any changes or differences between the two versions, enabling accurate comparison and quality assurance.
- **Barcode/Data-Matrix Automation:** Detected Barcodes and Data-Matrix from invoice images and extracted data from that.

Univision - Software Developer (Jul 2019 - Aug 2020)

- **Blister Inspection System:** Designed Blister (Tablet/Capsule Packet) Inspection System which will inspect bad tablets from the blister packets.
- **Washer Inspection System:** Designed Washer Inspection System which will find the washer parameters at subpixel level. Using this we can find image parameters at micro level.
- **Image Processing Algorithms:** Created 30+ algorithms in C without using any external libraries. These are traditional image processing algorithms with use of plain C language, which works on all platforms.
- **Bayer to RGB Conversation:** This algorithm helps to conversion of raw(Bayer) images to 8 bit and 32 bit RGB color images.
- **Best fit shape algorithms:** This algorithm finds best fit circle from the given set of points with more iterations and less time. This algorithm is helpful for computer vision applications.
- **Subpixel level Contour Analysis:** This is OpenCV based application which will find contours of image at subpixel level. Using this we can find more accurate parameters of image.
- **Research Papers Implimentation:** Implemented 4 research papers of computer vision for various applications in Drug Industry.

XDA Developers - Freelance Android Developer (2017 - 2019)

- Did successful Nougat bring up for Moto C Plus and Lenovo Vibe P1m smartphones.
- Rebased Android Kernel 3.18 for MT6737 chipset devices.
- Contributed in 14+ custom rom and custom kernel projects for various smartphones.

Note: I sought assistance from ChatGPT to help correct my grammar in this CV. However, please note that the provided information is genuine