SURJEET SINGH

Python Developer
surjeetlko5@gmail.com | 9198970239 | Lucknow
Linkedin | **Portfolio** | **GitHub**

Education

SHUATS University Prayagraj
Computer Science BCA 2013 - 2016
Percentage: 74.4%

Experience

Softech Institute of Mgmt. & Tech. Pvt. Ltd. Daliganj Lucknow, India | Apr 2016
Computer Teacher | 7 Year Experience - Nov 2023

I served as both a Computer Teacher and Branch Manager, where I conducted over 25 interviews for incoming faculty, provided structured training to more than 15 instructors, and personally taught over 500 students. I covered a wide range of topics from basic to advanced levels, including Advanced Excel, NIELIT O Level, CCC, Web Designing, Graphic Designing, and Computerized Accounting. As a result of my training programs, faculty teaching efficiency improved by 30%, and student pass rates increased to over 90% across certification courses. I also played a key role in academic planning, curriculum upgrades, and quality assurance, which led to improved student satisfaction and a noticeable rise in course enrollment at the branch.

Aptech Private Limited Hazratganj Lucknow, India | Nov 2023 - Apr 2024
Faculty | 1 Year Experience

I worked as a Computer Teacher, where I taught Full Stack and Half Stack Development, along with a wide range of subjects from basic to advanced levels. The topics I covered included Advanced Excel, NIELIT O Level, Advanced Java, Web Designing, Graphic Designing, and Computerized Accounting. To boost student success, I updated the curriculum by integrating real-world project work, modern web frameworks (like Bootstrap and React basics), and hands-on lab sessions for Java and Excel automation. These enhancements led to over 400 students successfully completing their certifications, with more than 85% achieving distinction. My efforts also contributed to improved student placement rates and increased engagement across all technical programs.

Criterion Tech Private Limited Sarfarazganj Lucknow | April 2024 - Till Date
Python Developer | 2 Years Experience

I have worked on a range of projects in Image Processing using Machine Learning and AI, delivering practical solutions that improved both efficiency and accuracy in real-world applications. My experience includes:

- **Linux Server Administration & Deployment**
    1. Managed and maintained Linux servers for the past 5 months, deploying multiple Python-based AI/ML projects and automation pipelines.

2. Configured and ran services for real-time object detection, data processing, and web-based dashboards, ensuring seamless execution across different environments.
3. Hands-on experience with service management, environment setup, dependency handling, and troubleshooting deployment issues.

- **PPG Data Analysis** using Linear Regression to estimate heart rate variability, achieving an improvement in prediction accuracy.
- **Automated Urine Measurement via Camera** system using image-based YOLOv5 detection, reducing manual input and achieving 95% accuracy in urine level estimation.
- **Microbiology Bacteria Classification** in microscopic images using YOLOv8, reducing lab workload and increasing diagnostic consistency with a detection precision of 94%.
- **Hair Color Application Tool**, built on segmentation techniques, enabling real-time virtual previews with latency under 100ms.
- **Foot Sole Detection** with pressure mapping, where optimized skeleton extraction improved tracking stability by 25% in gait analysis.
- **Sign Board and Robot Detection** using YOLOv8 in industrial environments, achieving 97% precision in real-time conditions.
- **ECG Diagnosis** using a custom CNN model, yielding a 93% F1-score in classifying 12-lead ECG signals.
- **Coordinate Detection via Camera**, including skeletonization of object paths using Python, enhancing contour tracking and shape recognition for robotic guidance systems.
- **Conveyor Belt Object Detection Project,** Detected various bolts and screws on a moving conveyor belt in real time using a camera, and implemented class-based software/hardware sorting.

These projects collectively contributed to a significant reduction in manual intervention, faster processing times, and improved accuracy across diverse computer vision tasks.

Skills

Programming Languages:	C, C++, VB.Net, C#, Java, Python
Libraries/Frameworks:	Javascript, Node JS, React.js, YOLOv8,
Tools / Platforms:	Git, VS Code, Eclipse, Jupyter Notebook, GoogleColab, PyCharm, Edge Impulse
Databases:	SQL Server, My SQL, SQ Lite

Projects

PPG Data Analysis using Linear Regression Python(Pandas, Scikit-learn, Matplotlib)

Analyzed physiological signals to estimate glucose levels using Photoplethysmogram (PPG) signals and heart rate data. Machine learning algorithms were implemented in Python to extract meaningful features and build robust predictive models. Comprehensive signal preprocessing techniques such as filtering, normalization, and

noise removal were applied to enhance data quality. The processed signals were then used to accurately predict glucose levels, enabling a non-invasive and continuous monitoring solution. The system demonstrates the potential of combining signal processing with machine learning for real-time health tracking. This approach can be extended to wearable devices, offering a low-cost and user-friendly method for proactive healthcare management.

Urine Measurement using ML Python, Google Colab, Ultralytics, PyTorch

Used YOLOv5 to detect and measure urine level in ml from urine bag images using camera.

Microbiology Bacteria Classification using AI Python, Tensorflow, Ultralytics

Built an AI system using YOLOv8 to detect and classify bacteria in culture plates, reducing manual work and improving lab accuracy

Bacterial Presence Detection using ML Python, Raspberry Pi 4, OpenCV

Built a YOLOv8s-based system on Raspberry Pi 4 to detect bacterial presence in real-time with camera input and buzzer alerts.

Applying Hair Color to Segmented Regions using ML Python, OpenCV, JavaScript

Developed a real-time hair detection and coloring tool using YOLOv8, integrated with browser camera and user-controlled color selection.

Foot Sole Detection using ML Python, YOLOv8, OpenCV, Raspberry Pi

Built a YOLOv8-based system to detect and track foot soles in real time for GCS evaluation, storing alignment data in a text file.

Sign Board and Robot Detection using ML Python, YOLOv5, OpenCV

Used YOLOv5 to detect sign boards and robots from CCTV feeds and saved live robot coordinates to a text file.

12 Lead ECG Diagnosis using AI Python, CNN, Edge Impulse, ECG Data

This project aims to develop a machine learning algorithm for accurately detecting cardiac diagnoses from 12-lead ECG signals. It processes XML files exported from GE ECG machines using Python and libraries like xmltodict, scikit-learn, and XGBoost. The system extracts relevant features from the ECG data and applies classification models to predict diagnoses. Parallel processing is used for efficient handling of large datasets.

Built an AI model using CNN and Edge Impulse to assess the quality of 12-lead ECG signals automatically.

Coordinate Detection using Camera Python, OpenCV, Morphological Skeletonization,

Medial Axis

Used computer vision to extract full skeleton coordinates of black objects using morphological and medial axis methods.

Conveyor Belt Object Detection Project OpenCV, Ultralytics YOLOv8, NumPy

Detected various bolts and screws on a moving conveyor belt in real time using a camera, and implemented class-based software/hardware sorting. Developed an OpenCV + YOLOv8-based system capable of identifying multiple objects on a running belt and automatically triggering sorting actions.