HARMANDEEP SINGH

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TECHNICAL SKILLS

- **Programming Languages**: Python, SQL, HTML, CSS, JavaScript, C, C++, Java
- **Frameworks and Tools**: Spring boot, React, Redux, TensorFlow, Flask, Docker, Kubernetes, Jenkins, CI/CD Pipelines
- **Software Development**: Git, VS Code IDE, RESTful API, Agile Development
- **Database**: PostgreSQL, MySQL
- **Others**: Machine Learning, Deep Learning, Object Oriented Programming (OOPs), Data Structures and Algorithms, Computer Vision (Object Detection and Image Segmentation)

EXPERIENCE

Deep Learning Intern

Resolute AI - Labs   **November 2022 – February 2023**

- **Engineered and deployed** a mask compliance detection pipeline using **YOLO** models on CCTV footage, increasing detection accuracy by **15%** with custom-annotated datasets.
- Optimized and enhanced computer vision programs, modifying object detection models and optimizing text extraction tools with EasyOCR for tabular data processing.
- Collaborated with cross-functional teams, communicated technical processes, and prepared detailed project documentation for software functionality and maintenance.

PROJECTS

Manufacturing Data Synthesis & Wear Prediction   **May 2025**

- Processed and transformed **165+** time-series sensor files into frequency-domain features using FFT, extracting **2,000+ features** across 6 Sensors.
- Designed and trained a **Conditional GAN** to generate synthetic sensor data, expanding the dataset by **100%** and achieving **90%+ statistical** similarity to real data.
- Integrated synthetic data into newly created flank wear prediction model, improving F1-score by **12–15%** and enhancing robustness against class imbalance.

Training and Placement Web Application   **January 2024**

- Created and built a custom web application in **VS Code IDE** using **HTML**, **CSS**, and **JavaScript** for managing student information, job postings, and applications at NIT Jalandhar, resulting in significant reduction of manual effort for job search and improved efficiency through scalable architecture.
- **Architected** and **optimized** back-end infrastructure with Spring Boot and PostgreSQL, supporting secure data storage and authentication for **1,000+ users**.

Rest Api Web   **November 2023**

- **Automated** a full-stack application: a **RESTful API** web server using **Flask (Python)** for file uploads which streamlines file management and data access, improving user experience.
- Implemented a CI/CD pipeline using **GitHub Actions** for automated **Docker** containerization and deployment with **Kubernetes** manifests, ensuring consistent and reliable application updates.

Asymptotic Genius   **April 2023**

- Led **Enabled** users to dynamically compare runtime complexities across various growth functions, improving user engagement by **30%**.

Handwriting Recognition Tool   **September 2022**

- Deployed a handwriting recognition system using **TensorFlow** and **Transfer Learning** on the **MNIST** dataset with **97% accuracy.**

EDUCATION

University of Guelph   **September 2024 – August 2025**
Master of engineering in computer engineering

Dr. B.R. Ambedkar National institute of Technology   **September 2020 – May 2024**
Bachelor of Technology in Computer Science

CERTIFICATIONS

Udemy - DevOps Beginner to Advance with Projects   **August 2023**

- Gained knowledge of DevOps principles and tools like **Git**, **Docker**, **Kubernetes**, **Jenkins,** and **CI/CD pipelines**.
- Enhanced my understanding of AWS services like EC2, ELB, RDS, S3, Route53.