

# Hardik Sood

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## WORK EXPERIENCE

### Intern, C3iHub – IIT Kanpur

(Nov 2025 – Present)

- Performing **NIDS log analysis** and building models to reduce false positives using **XGBoost** and **CatBoost**-based classification techniques.
- Analyzing network traffic across industrial control protocols such as **S7comm**, **CIM**, **Modbus**, etc., and detecting anomalies using **hybrid ML-based intrusion-detection models**.
- Supporting the development of secure ML pipelines and vulnerability analysis tools for real-world applications.
- Collaborating with multidisciplinary teams to design and test scalable security solutions using AI-driven approaches.

### Apprentice, CCS Computer Private Limited

(Feb 2025 – Oct 2025)

- Supported enterprise software deployment and provided hands-on assistance with technical troubleshooting across internal systems.
- Fine-tuned a **7-billion parameter Hugging Face model** using the **LoRA PEFT** library for efficient, low-rank adaptation in resource-constrained environments.
- Developed video analytics pipelines using **OpenCV**, **GStreamer**, and **NVIDIA DeepStream SDK**, including **object detection**, **face recognition**, and **real-time tracking**.
- Trained and deployed custom **YOLO models** for object/person detection using both **Ultralytics YOLOv8** and **YOLOv5**, integrated with **DeepSORT** and **re-identification** techniques. And Implemented **OCR pipelines** using **PaddleOCR** for multilingual text recognition from scanned documents and video frames.
- Developed a fully functional **Node.js backend API** with secure endpoints, JWT authentication, MySQL integration.
- Trained a **RoBERTa-based model** for NLP tasks, converted it to **ONNX**, optimized it using **TensorRT**, and deployed it on the **NVIDIA Triton Inference Server** to enable scalable, high-performance inference.
- Worked on **Retrieval-Augmented Generation (RAG)** workflows using **NVIDIA NeMo** and **FAISS** to build knowledge-grounded QA systems.
- Successfully managed and executed a full-scale project during the apprenticeship period, showcasing end-to-end ownership and technical implementation. . And Received a formal appreciation email from the company leadership for outstanding performance and contribution to the project.

### Intern, Vodafone Idea Foundation

(Oct – Nov 2024)

- Led a project to analyze data in agriculture and technology, generating insights that contributed to a 15% increase in efficiency for client processes.
- Conducted case studies using advanced analytics, including language models insights.

### Summer Intern, Code Alpha

(June – July 2024)

- Developed and deployed predictive models, achieving a 92% accuracy rate in predictive tasks related to customer behaviors. Data Science Intern

### Data Science Intern, Cognifyz Technologies

(April– May 2024)

- Conducted restaurant data analysis, which shared to an 18% reduction in cost through optimized forecasting models and visualization.

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## PUBLICATION [Link](#)

“Effective Techniques in News Text Summarization: An Evaluation of Extractive, Abstractive, and Hybrid Approaches,” GRENZE International Journal of Engineering and Technology, Volume 11, Issue 1, pp. 4664–4689, 2025. Analyzed the performance and real-world applicability of various news summarization techniques using large-scale datasets. Assessed transformer-based models for their accuracy, linguistic coherence, and relevance in producing concise news summaries.

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## PATENTS [Link](#)

- PARKING MANAGEMENT SYSTEM (Patent, June 2025)** – Smart ANPR & RFID-based parking automation system enhancing efficiency and security.
  - AUTOMATIC AUDIO DEVICE POWER LIMITING SYSTEM (Patent, June 2025)** – MCU-based device limiting audio exposure for hearing protection.
  - BIOMETRIC SAFETY PENDANT (Patent, Feb 2025)** – Wearable with fingerprint + GPS tracking for real-time emergency response.
  - MULTI-COLOR MARKER WITH INK LEVEL DETECTION (Patent, Feb 2025)** – Multi-ink marker with LED-based low-ink alert system.
  - MULTI-LEVEL MARKER (Patent, Feb 2025)** – Enhanced marker design featuring integrated ink monitoring system.
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## PROJECTS

### Product Image Intelligence Platform [Link](#)

- Enhanced Designed and launched an AI-powered application that automatically analyzes product images to generate compelling titles, brand names, descriptions, and feature lists.
- Delivered a seamless user experience with rapid, accurate results, supporting e-commerce cataloging and inventory management.Tech used is LLM multi-model used as for recognition, text reorganization, search about the product, give brief about the product and search on the google shopping by serp-api .

### Medical Document OCR & Summarization

- Developed a solution to extract and summarize key information from medical documents and images, including support for multilingual data and numeral conversion.
- Improved efficiency and accuracy in patient record-keeping by generating concise, per-patient summaries.

### Real-Time Vehicle Monitoring System [Link](#)

- Built an end-to-end vehicle detection and speed estimation pipeline for live video streams, including automated license plate recognition and real-time data logging.
- Enabled actionable insights for transportation analytics and fleet management through annotated video output and instant reporting.

### Automated Security & Person Recognition

- Deployed a real-time system for detecting individuals in custom-defined areas, with instant image- based alerts sent to security teams.
- Enhanced safetyand response times by integrating live video analysis with automated notification workflows.
- Also includes whatsapp alert message when comes to the sensitive area in the roi using green whatsapp API Key.

### Agricultural Yield Prediction Tool

- Directed the development of a machine learning solution to predict crop yields from agricultural data, using efficient training and deployment strategies.
- Assisted data-driven decision-making for farmers and agribusinesses, improving yield forecasts and resource planning.

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## TECHNICAL SKILLS

- Programming:** Python, SQL, C++
- AI/ML Frameworks:** PyTorch, TensorFlow, Hugging Face Transformers, ONNX, Nvidia- TensorRT, PaddleOCR, Nvidia Triton, NVIDIA NIM and NeMo
- Cloud Platforms:** AWS, Azure, Google Cloud (deployment, model hosting, data pipelines)
- MLOps/DevOps:** Docker, NVIDIA-Triton Inference Server, Gradio, Flask
- Data Management:** MySQL, MongoDB, Hive.
- Visualization:** Power BI, Tableau, MS Excel.

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## EDUCATION

- **Chandigarh University** Master of Science (MSc) in Data Science | GPA:7.35 2023 – 2025
- **Maharaja Ganga Singh University** Bachelor of Computer Applications (BCA) | GPA: 7.1 2019 – 2022

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## CERTIFICATIONS

- Develop generative AI apps in Azur (**Microsoft**)
- Google** Data Analytics Professional Certificate
- Natural Language Processing on **Google Cloud**
- Tata Data** Visualization: Empowering Business with Effective Insights (June 2024)
- Accenture** North America Data Analytics and Visualization (July 2024)
- Oracle Cloud Infrastructure** Certified **Generative AI** Professional (Sep 2025)
- Develop generative AI apps in AzureDevelop **generative AI** apps in **Azure Microsoft** (Jun 2025)