

# TUSHIR SAHU

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Tushir Sahu

TushirSahu

## Education

### The University of Osaka

MS - Department of Computer Science

Apr 2026 - Present

Osaka, Japan

### Indian Institute of Information Technology

Bachelor of Technology - Electronics and Communication Engineering, CGPA: 8.4

Jul 2021 - Jul 2025

Jabalpur, Madhya Pradesh

## Technical Skills

**Domain of Interest:** LLMs | MLOps | Computer Vision | Deep Learning | Medical Imaging | Autonomous Vehicles

**Languages:** Python | Java | C++ | C | Matlab | MySQL

**Frameworks:** Hugging Face | LangChain | LangGraph | MLrun | Tensorflow | Keras | Pytorch | MIFlow

## Experience

### GE Vernova

Digital Technology Intern

Jan 2025 - July 2025

Hyderabad, India

- Contributed to the development and maintenance of the Model Verification Manager (MVM) platform by enhancing unit test coverage to **97%** across multiple modules.
- Designed and implemented a **pipeline-level ExitHandler** to ensure consistent failure detection of pods across the MLOps workflow, capturing and logging critical errors to reduce debugging time.
- Improved **error traceability** and **observability** through structured and semantic logging practices.

### VRain Solution, Japan

AI Advanced Researcher

Nov 2024 - Jan 2025

Remote

- Worked on creating **Fine-Tune prompt encode** for MobileSAMv2 to improve the performance of VRain product
- Developed a **training script for MobileSAMv2** incorporating the fine-tuned prompt encoder.
- Added a **Multihead Attention mechanism** along with FCN for box generation with refinement, replacing the use of YOLOv8-seg for box generation.

### KasperTech

Computer Vision Intern

Jan 2024 - May 2024

Remote

- Lead the development of a **multi-threaded video processing pipeline** aimed at real-time traffic video analysis.
- Designed a **tailored OCR model** optimized for recognizing text on low-resolution streams of 2-wheeler number plates.

## Projects

### Auto-Reingest Document Drift Pipeline | Python | MLOps | Automation

- Engineered an automated MLOps pipeline to monitor document data streams, effectively detecting statistical drift in production environments.
- Developed an auto-reingestion and evaluation framework to seamlessly trigger retraining loops, ensuring continuous model accuracy without manual intervention.

### Corrective Agentic CRAG | LangGraph | FastAPI | Docker | MLOps

- Engineered a Corrective RAG (CRAG) state-machine using LangGraph, featuring custom hybrid search (RRF) and autonomous web fallbacks.
- Fine-tuned HuggingFace embeddings via Contrastive Learning on synthetic data and evaluated retrieval precision using the Ragas framework.
- Deployed a containerized LLMops architecture with a FastAPI backend and Streamlit UI, implementing LangSmith tracing and CI/CD pipelines.

## Publications

- Tushir Sahu**, Dharendra Narad, Javvaji Nava Krishna Chaitanya, Sai Chandra Teja R, "Location based portable 5G enabled Internet of Things IoT EDGE device to measure, monitor and manage environment sensor data", (CNIOT'24, Tokyo, Japan) [Paper]
- Tushir Sahu**, Vidhi Bhatt, Sai Chandra Teja R, Sparsh Mittal, Nagesh Kumar S, "SPEEDNet: Salient Pyramidal Enhancement Encoder-Decoder Network for Colonoscopy Images" (ISES'24). [Paper]
- Snehanshu Mukherjee, **Tushir Sahu**, Sai Chandra Teja R, Sparsh Mittal, "ConstructNet: A Deep Learning Object Detector for Construction Site Surveillance", (APSCON'24). [Paper]