

# Alaap Dhall

Position: Sr. AI Engineer

Senior AI Engineer with over 5 years of experience specializing in deep learning algorithms and AI frameworks like PyTorch. I excel at optimizing end-to-end AI pipelines and have deep expertise in advanced architectures such as ResNets, DeTR, YOLOs, and ViTs. I'm dedicated to leveraging AI technologies to drive innovation.



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## WORK EXPERIENCE

### Senior AI Engineer KoiReader Technologies

11/2020 - Present

Enabling Warehouse and Logistics Automation through Advanced AI

Led a team of 40 people as a Senior AI Engineer

- Led **end-to-end** development of AI models, training advanced CV (**YOLO, DeTR, DINO**) and LLMs using **QLora**. Optimized models using **QAT/PTQ** for real-time deployment on edge devices such as **NX, AGX, and ORIN**.
- Designed a Multi-Agent **Agno based GPT** system integrated with a **Postgresql DB** to enable human-like conversation with the database. Implemented **custom fine-tuned Qwen model, custom chunking, DeepSeek, and Agentic RAG techniques** to improve the accuracy of data retrieval with GuardRail integration.
- Integrated a **multi-camera object tracking** system, enhanced with an in-house **ReID** model for robust cross-camera tracking and a **multi-label Swinv2** classifier to optimize runtime, boosting system efficiency by **over 40%**.
- Developed **Agentic RAG** application using open-source Vision LLMs such as CogVLM2, Gemma3 27B, Qwen 2.5VL to analyze and label documents. Leveraging techniques such as **re-ranking, Agentic chunking, and Parseq OCR**, achieving over **98%** accuracy in PDF document analysis.
- Created Custom **SAM2-based** Image Augmentations Pipeline for all Object Detection, Segmentation, and Classification tasks utilizing the latest generative libraries like **Text2Live, Real-ESRGan, SAM2, Grounding DINO, and Qwen2.5 VL** to aid AI model with much better convergence
- Developed and internally deployed a custom-tuned **Chat application** and company-wide **MR Reviewer**, enhancing employee productivity and ensuring **data privacy**.

### Data Scientist Vidooly Media Tech.

09/2019 - 07/2020

AI based video analytics

Achievements/Tasks

- Enhanced the efficiency of the **Oriented Object Detection** tracking system, increasing performance from **10 FPS to 30 FPS**, enabling precise and reliable vehicle tracking.
- Optimized the workflow of the **Brand Safety Multi-label Classification model**, effectively comprehending client requirements and delivering Deep Learning-powered Brand Safety services.
- Conceived and implemented statistical and machine learning models, along with feature extraction systems, for forecasting YouTube subscribers utilizing **Time-Series techniques** and **XGBoost**.

## DL TECHNICAL SKILLS

PyTorch

TensorRT

Python

AutoGen

Deep Learning

LLM

YOLO

YoloNAS

PhiData

Object tracking

Nvidia Tao

Git

Fast API

AWS/EC2

Graph RAG

QAT/PTQ

OpenCV

Open AI

Computer Vision

RAG

LangChain

Transformers

AI Agents

OCR

Postgresql

Chroma db

Deepseek

Docker

CUDA

PG Vector

Redis

## PERSONAL PROJECTS

### HakiSense (AI Quantitative analysis) (12/2024 - Present)

- Developing a very comprehensive **AI Agentic ecosystem** with **20+** Data Analysts and Financial Experts to perform holistic company analysis.
- Multiple Agents will communicate with each other using custom tools and RAG to assess company growth, future prospects, and sector-specific risks for informed stock evaluation.

### Creator of Data Science & ML Community

- Built a thriving community of 7,000+ followers by curating 100 state-of-the-art Deep Learning projects, fostering skill development and innovation within the community

## ACHIEVEMENTS

### POC to scalable production systems

Took Multiple projects from a POC stage to Production Stage with a team of CV experts. Achieved high accuracy, and edge device efficiency on custom AI models, leading to a Fortne50 account.

### Complex AI model development

Successfully leading the development of AI models that significantly improved operational efficiency in logistics.