

AKASHDEEP GANGATKAR

+1 206 661 8873 | akashgangatkaroo@gmail.com | <https://github.com/muonorb>

www.linkedin.com/in/akashdeep-gangatkar-m

EDUCATION

Master of Science in Artificial Intelligence Seattle, USA
Northeastern University [Jan 2026 - Present]

Bachelor of Engineering in Artificial Intelligence & Machine Learning karnataka, India
Don Bosco Institute of Technology [2020 - 2024]

Coursework: Deep Learning, Reinforcement Learning, NLP, Information Retrieval, RAG, Statistical Learning.

EXPERIENCE

CSIR-National Aerospace Laboratories Sept. 2023 – Oct. 2023
Research Intern Bengaluru, India

Architected a real-time assistive navigation system for visually impaired users in the Aerospace Electronics and Systems Design Division, focusing on edge-based computer vision deployment.

- Engineered optimized TensorFlow Lite models for Raspberry Pi/Arduino, achieving **15 FPS inference and <100ms latency**.
- Implemented quantization and pruning, reducing model size by **65%** while maintaining **89% accuracy on 2GB RAM** devices.
- Investigated and synthesized findings from 40+ research papers to architect an indoor navigation system validated via prototype testing.
- Iterated on system architecture over 8+ iterations to meet strict constraints: **<512MB memory and <2W power consumption**.

PROJECTS

Agentic RAG Framework

- Architected a privacy-first AI agent using **LangChain, Ollama, and ChromaDB**, implementing a **ReAct loop** for iterative reasoning over academic PDF datasets.
- Engineered a page-aware ingestion pipeline using PyMuPDF, optimizing chunking strategies to achieve high-precision retrieval and context retention.
- Eliminated hallucinations by parsing intermediate steps for metadata, ensuring 100% accurate source-grounding (File + Page) for all generated responses.

Information Retrieval & Recommendation Systems

- Achieved **0.72 MAP@10** and **0.78 NDCG@10** using a **BM25**-based ranking system for 1,400 research abstracts.
- Improved **Precision@10** by **18%** (0.34 vs 0.29) using neural embeddings and collaborative filtering on MovieLens-100K.
- Validated performance trade-offs across diversity/accuracy metrics using 5-fold cross-validation.

AI-Assisted Exam Evaluation System

- Orchestrated an automated grading pipeline using **BERT**-based semantic scoring with reference answers, achieving **85–90%** agreement with teacher evaluation on descriptive responses.
- Deployed hybrid evaluation for **descriptive + coding** questions with automated mark-splitting and a code execution module to validate outputs and capture runtime errors.
- Synthesized 6+ answer-quality analytics (**similarity %, word/line count, model vs teacher deviation**) and built a $\pm 20%$ grading deviation alert to improve evaluation consistency and reduce grading time by 60%.

SAMRAKSHAN: Distributed Disaster Rescue Directory

State-funded by the Karnataka State Council for Science & Technology (KSCST)

- Developed a Flutter/Firebase platform with real-time geolocation and weather **APIs for 1,000+ users**.
- Decreased emergency response coordination time by 40% through pilot testing with local authorities.
- Ranked in top **15 of 200+** submissions at the 2024 Student Project Program, **received state-level funding**.

SKILLS

Programming & Backend: Python(NumPy, Pandas, Scikit-learn), SQL(PostgreSQL), C, C++, FastAPI, Flask, RESTful APIs.

Generative AI & Agents: LLM Agents (LangChain, ReAct), RAG Pipelines, Ollama, Prompt Engineering, Fine-tuning.

AI Infrastructure: Vector Databases (ChromaDB, Pinecone), Model Optimization (Quantization, Pruning), ETL Pipelines.

Frameworks & Libraries: PyTorch, TensorFlow Lite, Hugging Face Transformers, OpenCV.

Data Visualization: Matplotlib, Seaborn, Plotly, Tableau, Power BI.

Tools & Cloud: AWS (EC2, S3, VPC), Docker, Git, Firebase, Linux/Bash Scripting.