

Dr. Anubha Parashar

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Applied AI Engineer | LLM Agents | Computer Vision | GenAI

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Ph.D. AI | Production ML | RAG | YOLO/OCR | Edge AI | Predictive ML | MLOps

🌐 anubhaparashar.github.io | 🐙 GitHub | 🔗 LinkedIn

AI engineer and research scientist with 10+ years across LLM/GenAI systems, computer vision, deep learning, NLP, edge AI and applied research. Builds LLM-agent workflows, RAG/offline retrieval systems, YOLO/OCR pipelines, predictive-maintenance platforms and cloud/edge AI deployments for industrial operations and research-to-production delivery.

PROFESSIONAL EXPERIENCE

Pearce Services, Gurugram

Jan 2025–Present

Industrial AI | LLM Agents | Computer Vision

Analytics & AI Engineer

- Built **production-oriented AI systems** for telecom field operations, infrastructure validation, predictive maintenance, routing optimization, edge vision and knowledge automation.
- Engineered **Execution-Aware Agentic VRP Studio** with **8 solver backends, 18 disruption scenarios, 40K orders / 400 routes**, locked-prefix re-optimization, Gemini agent layer and callable tools; achieved **100% assignment** with zero lateness/overtime in benchmark runs.
- Delivered **LLM/RAG automation** using **DeepSeek embeddings + FAISS** for offline knowledge retrieval; reduced manual content-update effort and improved retrieval accuracy for internal field workflows.
- Developed **YOLOv11 solar-defect detection** on **10K+ RGB/thermal images** with **mAP 0.92** and NVIDIA Jetson deployment; built **YOLO key-detection API** using FastAPI, Docker, Hugging Face and Azure Container Apps.
- Built **Pole Validation AI** using YOLO26n + GIS + OCR + multi-source reconciliation for ownership checks, geo-match, confidence scoring and Auto-Approve / Review / Reject decisions; created Generator Reliability dashboard with **14/30-day failure-risk scoring** in Streamlit/Snowflake.

Apr 2024–Dec 2024

LLM | OCR | Computer Vision

Research Scientist - AI & Metaverse

- Fine-tuned LLM workflow for vehicle RC queries, reducing manual search time by **70%**; Dockerized Gemini extraction APIs for document-intelligence workflows.
- Built **VITON-based virtual try-on** system with **95% user satisfaction**; created **PaddleOCR + Tesseract** extraction pipeline with **98% accuracy**.

Manipal University Jaipur

Jul 2016–Apr 2024

AI | Deep Learning | Research

Assistant Professor, Computer Science & Engineering

- Taught **AI, ML, Deep Learning, Computer Vision and NLP** for 8 years; supervised **15+ M.Tech theses** and mentored applied AI projects.
- Conducted Ph.D. research in **covariate-invariant gait biometrics** and surveillance AI; published **50+ papers**, contributed to **6 patents**, and served as IEEE/Springer PC member and reviewer.

TECHNICAL STRENGTHS

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| LLM Agents / GenAI: GPT-4o-mini, Gemini 2.0 Flash, DeepSeek, LangChain, tool use, function calling, DAG planning, MCP-style orchestration | RAG / Retrieval: FAISS, pgvector, embeddings, semantic metadata, offline retrieval, knowledge-base automation |
| Computer Vision: YOLOv11/YOLO26n, Ultralytics, OpenCV, OCR, PaddleOCR, Tesseract, VITON, RGB/thermal imagery, Jetson edge deployment | ML / MLOps: PyTorch, TensorFlow, Scikit-learn, XGBoost, GRU/LSTM, FastAPI, Streamlit, Docker, Azure, Hugging Face, Snowflake, CI/CD |
| Data / Systems: Python, SQL, Pandas, NumPy, PySpark, PostgreSQL, Redis, NetworkX, Plotly, REST APIs | Optimization: OR-Tools, PyVRP, OSRM, Esri ArcGIS, ant colony optimization, routing, scheduling, scenario benchmarking |

RESEARCH, EDUCATION & CERTIFICATIONS

RESEARCH & PUBLICATIONS

50+ peer-reviewed papers across AI, computer vision, biometrics and intelligent systems; **6 granted/pending patents**; **600+ citations**; venues include **AI Review, Engineering Applications of AI, Neurocomputing** and **Pattern Recognition Letters**.

EDUCATION

Ph.D., CSE - Artificial Intelligence
Manipal University Jaipur 2018–2023
M.Tech., CSE - Artificial Intelligence
MD University, Rohtak 2014–2016
B.Tech., Computer Science & Engineering
MD University, Rohtak 2009–2013

CERTIFICATIONS & ROLE MATCH

NVIDIA DeepStream Video Analytics on Jetson; AI on Jetson Nano; Deep Learning Specialization; Machine Learning Specialization; Data Science with Python & SQL.
Fit: LLM agents, RAG, multimodal/CV pipelines, evaluation-oriented ML systems and production delivery.

PROFILE KEYWORDS

LLM Agents | Agentic AI | RAG | Multimodal AI | Computer Vision | YOLO | OCR | Edge AI | Predictive Maintenance | FastAPI | Streamlit | Docker | Azure | Hugging Face | MLOps, Snowflake