Ajaz Ahmad

AI/ML Leader | Generative AI, LLMs, and Computer Vision

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Executive Summary

Innovative AI/ML Leader with over 5 years of applied research and engineering experience in building AI systems that intersect computer vision, natural language processing, and generative AI. Proven expertise in designing and deploying foundational and domain-specific deep learning models, fine-tuning LLMs, and leading interdisciplinary teams across digital pathology, manufacturing, and recommendation systems. Recent work includes integrating GPT-based agents with clinical data pipelines, automating metadata validation, and scaling model performance using advanced MLOps. Driven by a passion for real-world impact and research-backed innovation across multimodal domains.

Core Technical Competencies

- Multimodal AI: Integrated solutions combining visual, textual, and structured metadata inputs
- Generative AI: OpenAI GPT-4, LLaMA 2/3, LangChain, RAG pipelines, fine-tuning, prompt engineering
- Computer Vision: Slide segmentation (MIL, attention), classification, feature extraction (ResNet, ViTs)
- NLP & LLMs: Metadata correction, structured prompt workflows, domain-specific reasoning
- Scientific R&D: Peer-reviewed publications, rapid prototyping, PoC delivery for enterprise clients
- MLOps & Engineering: Docker, Kubernetes, CI/CD, FastAPI, MLFlow, Grafana, AWS, Azure OpenAI
- Team Leadership: Project scoping, stakeholder alignment, mentoring, sprint execution

Professional Experience

AI Engineer – Digital Pathology & LLM Applications

Deciphex, Dublin, Ireland | Nov 2019 – Present

- Led foundational AI research integrating self-attention and multi-scale models for high-resolution histopathology images.

- Designed and deployed GPT-based agents for slide metadata validation, using LLMs with structured output and rule-based QA.
- Delivered PoCs for clinical QA tools combining image model predictions with language-based annotations and user interaction flows.
- Collaborated with product and R&D to align ML output with compliance protocols and end-user feedback loops.
- Published research in peer-reviewed journals (SAGE) and contributed to AI IP creation for colorectal and prostate diagnostics.

- Key Contributions:
    - Increased diagnostic model precision by 20% using custom attention-based loss and clinical feedback loops.
    - Implemented LLM-driven agent that corrected more than 90% of metadata errors in pre-deployment slide datasets.
    - Winner: Irish Life Science Innovation Award 2024 for applied AI in colorectal screening.
    - Mentored 5+ junior AI engineers and led technical roadmap for LLM-powered automation.

Software Engineer – AI & Automation

Volkswagen IT Services, Pune, India | Feb 2017 – Aug 2018

- Designed real-time chatbot using AWS Lex + Lambda to provide operational analytics to manufacturing teams.
- Applied statistical modeling and predictive maintenance for production fault detection.
- Streamlined data pipelines across BI dashboards and backend APIs.

Highlighted Projects

LLM Metadata Validator – Clinical RAG Assistant

- Built internal assistant combining GPT-4 with LangChain and FAISS to validate pathology slide metadata.
- Designed structured prompt templates and fallback strategies for missing or ambiguous fields.
- Integrated pathology reports attached to slides, enabling AI agents to extract clinical context and support metadata correction.

Education

M.Eng. in Electronics and Computer Engineering – Specialization in Artificial Intelligence

Publications & Certifications

"Automated Histopathology Using Deep Learning" – https://journals.sagepub.com/doi/10.1177/0192623320986423

"AI-Assisted Cancer Detection in Colorectal Screening" – https://pubmed.ncbi.nlm.nih.gov/39360579/