ANUSHA UMASHANKAR

Applied AI Engineer | LLM Agents · Retrieval · Evaluation

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SUMMARY

Applied AI engineer who builds LLM agents and retrieval systems, and the evaluations that keep them honest. Shipped production NLP and RAG APIs at a market-intelligence startup (40% higher extraction accuracy, 60% faster processing). At George Washington University, productionized an LLM skill-extraction API and now build agentic retrieval assistants; separately hardened benchmark decontamination for LLM evaluation at ERA V5 Lab.

SKILLS

Agents & LLMs: LangGraph, multi-agent orchestration, tool calling, LangChain, LlamaIndex, OpenAI and Anthropic APIs, Ollama, prompt and context design

Retrieval & Search: Hybrid retrieval (BM25 + dense), embeddings, reranking, vector search, Pinecone, ChromaDB, Elasticsearch, Neo4j

Evaluation & Experiments: LLM evaluation, RAGAS, benchmark decontamination, Pytest, A/B testing, causal inference (IPTW)

ML & NLP: PyTorch, TensorFlow, Hugging Face Transformers, fine-tuning, NER, spaCy, scikit-learn, XGBoost

Languages & Infra: Python, TypeScript, SQL, FastAPI, Next.js, React, Docker, AWS (EC2, Lambda, SQS, S3, SageMaker), PostgreSQL, Git

EXPERIENCE

Instructional Technologist | *George Washington University*, M.S. Data Science Program — Aug 2026 – Present

- Building a LangGraph advising assistant with hybrid retrieval grounded in program documentation for degree-requirement questions.
- Administer AWS ML environments (EC2, S3, IAM) that graduate capstone teams across the program build and train on.

Research Assistant | LAiSER Project, *George Washington University* — Feb 2025 – May 2026

- Productionized LLM-powered skill extraction across 10,000+ job descriptions, using embedding-based clustering and a Neo4j knowledge graph to align skills across inconsistent taxonomies (ESCO, O*NET).
- Built asynchronous orchestration on FastAPI, AWS Lambda and SQS behind a multi-tenant API with agentic tool-calling workflows, serving live workforce data; presented the architecture at Badge Summit 2025.

Machine Learning Engineer | Data Science team, *Ideapoke Technologies* (now Chesz.ai), Bengaluru — May 2022 – Nov 2023

- Raised entity-extraction accuracy 40% on the Signalz market-intelligence platform by replacing a generic NER model with a transformer fine-tuned on domain entities (companies, technologies, materials, funding events) from news, patents and papers.
- Reduced document-to-signal processing time 60% by rebuilding preprocessing and moving to batched, optimized transformer inference, so signals surfaced from same-day news instead of days later.
- Delivered research answers across 30 industry verticals as deployed, monitored production APIs by building RAG pipelines (LangChain, GPT) over the extracted signal corpus.

SELECTED PROJECTS

ERA V5 Lab: LLM Benchmark Decontamination | The School of AI, Evaluation Team | Github — Oct 2026

- Hardened integrity checks for a decontamination pipeline covering 126K+ eval items and 7.8M n-gram fingerprints across 13 LLM benchmarks, adding a manifest-to-SHA-256 consistency check and a Pytest regression test.
- Completed a 29-benchmark contamination registry by adding 6 missing benchmarks (LiveCodeBench, Codeforces, AIME 2024/2025 and others), and fixed cross-platform failures in the 27-test suite.

BRIDGE: Multi-Agent Clinical Training Platform | LangGraph, Python, React, Postgres, RAG | App — 2026

- Modeled each clinical role (physician, physical therapist, occupational therapist, caregiver) as its own LangGraph agent with a dedicated retriever that calls case-search and web-search tools on demand instead of front-loading context.
- Designed a scope-aware referral schema and server-side per-case permissions so agents route out-of-scope questions to the right role instead of answering confidently and wrongly.

EDUCATION & RECOGNITION

M.S. Data Science | George Washington University | GPA 3.91, Global Leaders Scholar — 2024 – 2026

B.E. Computer Science | Visvesvaraya Technological University, Bengaluru — 2016 – 2020

Recognition: Badge Summit 2025 speaker · DevNetwork AI+ML Hackathon (graph RAG chatbot on Neo4j, 48 h) · HoyaHacks 2025 Microsoft track · UN Open-Source Hackathon · World Bank DataDive