Anu Lekshmikutty Sasidharan

AI Knowledge Engineer/SME

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SUMMARY

Results-driven AI and Data Engineering professional with over 13 years of experience designing, implementing, and optimizing large-scale data infrastructure and AI systems across cloud and on-prem environments. Demonstrated strengths in Generative AI, Agentic AI frameworks, and LLM integration, with proven success in developing end-to-end AI solutions encompassing data ingestion, preprocessing, feature engineering, and model deployment using LangChain, OpenAI APIs, Streamlit, MLflow, and vector databases such as FAISS, Pinecone, and Chroma. Experienced in architecting scalable AI and data pipelines and integrations on GCP, AWS, and Azure while leveraging Kubernetes for efficient model lifecycle management and robust data architecture. Recognized for combining deep technical expertise with a strategic mindset and strong soft skills to build secure, reliable, and production-grade AI platforms that enable real-world autonomous reasoning and intelligent interaction through strong communication skills, business understanding, and proven ability in decision-making, data strategy, and optimization of structured and unstructured data processing within scalable database systems and knowledge base implementations. Adept in applying advanced programming and coding practices to ensure scalability and maintainability across AI solutions. Strong language skills and implementation experience as a knowledge engineer supporting enterprise-level structured data frameworks and intelligent knowledge systems.

EXPERIENCE

Tech Mahindra — Dec '22 — Nov '25
Toronto, Canada (Remote)

Responsible for leading end-to-end big data platform modernization initiatives, including on-premises Hadoop (HDP) to Cloudera CDP7 migrations and GCP Dataproc upgrades. Focused on designing secure, scalable, and high-availability data ecosystems through automation, performance tuning, and integration with cloud-native and AI/ML services. Collaborated across engineering, data science, and infrastructure teams to deliver production-ready, enterprise-grade solutions.

Tavant Technologies — Sep '21 — Sep '22
India

Responsible for administering and optimizing large-scale, multi-tenant Apache Hadoop clusters supporting critical enterprise workloads. Focused on enhancing system reliability and performance through load balancing, resource pool optimization, and in-depth cluster load analysis. Ensured business continuity by supporting disaster recovery operations and maintaining RPO/RTO objectives. Collaborated with cross-functional teams to troubleshoot and fine-tune components across the Hadoop ecosystem, including Kafka, Spark, HBase, and Hive, to deliver high availability and efficient data processing for analytics and ML workloads.

Allianz Technology SE — Apr '16 — Sep '21

Managed and optimized multiple secure CDH5 clusters across TEST, DEV, ANALYTICS, and PROD environments, maintaining 99.9% uptime and high availability. Strengthened platform security by implementing Kerberos authentication, Sentry-based authorization, and end-to-end data encryption (at rest and in motion). Developed Python-based automation scripts and REST APIs to monitor cluster health, analyze job metrics, and streamline administrative workflows. Designed custom tools for anomaly detection, log analysis, and proactive alerting to reduce downtime. Oversaw Cloudera Manager upgrades, Solr Search integration, and BDR pipelines for seamless inter-cluster data replication and backup. Tuned resource pools, managed HDFS quotas and ACLs, and optimized system performance to support large-scale analytics and data processing workloads.

AON Hewitt — May '15 — Apr '16

Deployed and managed CDH4/CDH5 clusters supporting large-scale production and analytics workloads with high availability and reliability. Led disaster recovery planning and implemented automated data backup and cross-data-center replication using Cloudera BDR. Built Python-based monitoring tools to analyze cluster logs, detect anomalies, and generate real-time alerts for proactive issue resolution. Designed and maintained resource management frameworks with static and dynamic resource pools to ensure fair scheduling and optimal resource utilization. Strengthened platform security through Kerberos authentication and SSL encryption, enabling a fully secured Hadoop environment. Collaborated with global teams to provide 24/7 operational support, streamline troubleshooting, and enhance system performance through automation and log-driven insights.

SKILLS

Relevant Skills Knowledge Base, Data Pipelines, Data Strategy, Integration, Data Architecture, Programming, Coding Practices, Language Skills, Scalability, Implementation Experience, Structured Data, Knowledge Engineer, Soft Skills

Generative AI & LLM Engineering: OpenAI, Anthropic Claude, Google Gemini, Mistral, Hugging Face Transformers, Retrieval-Augmented Generation (RAG), Knowledge Graphs, Vector Databases, Prompt Engineering, Model Fine-tuning, GraphRAG
LLM Frameworks: LangChain, LlamaIndex, Haystack, DSPy
Vector Databases: FAISS, Pinecone, Chroma, Weaviate, Milvus
Agentic AI / LLM Orchestration Frameworks MCP, n8n
MLOPS/AIOPS: MLflow, DVC, DagsHub
ML / DL Frameworks: Scikit-Learn, TensorFlow, XGBoost, Keras, NLP
DEVOPS: Git, Docker, Kubernetes, Jenkins, AgroCD
Databases: Mysql Cluster, Neo4j
AWS Cloud: AWS SageMaker, Bedrock
Prompt Engineering Tools: LangSmith, Ollama
Model Serving / Deployment: FastAPI, FastMCP, Streamlit
Observability / AIOps: Prometheus, Grafana, Elastic Stack (ELK)
ETL Apache AirFlow
programming Languages Python, SQL, Cypher Query Language
Big Data: Hadoop, Spark, Hive, HBase, HDFS, MapReduce, HA Clustering, Hadoop Security, Ranger, Kafka

PROJECTS

RAG-Document-Search Link
- Built a LangChain + Hugging Face + FAISS RAG pipeline for multi-format documents, improving retrieval accuracy and reducing query latency through optimized embeddings and vector search. Applied structured data handling, strong programming principles, and soft skills to enhance scalability and coding practices aligned with knowledge engineer standards.

NeoGraphAI Link
- Developed NeoGraphAI, a Python-based framework integrating knowledge graphs with generative AI workflows to enable seamless ingestion of structured and unstructured data, graph-centric knowledge representation, and context-aware retrieval for intelligent query interactions. Demonstrated strong soft skills in collaboration and communication throughout development.
- Engineered NeoGraphAI to unify knowledge graph architectures with generative AI systems, leveraging embeddings and graph traversal for context-driven prompt optimization and accurate information extraction across complex data relationships, supported by effective soft skills in problem-solving and coordination.
- Designed and implemented NeoGraphAI, a scalable Python framework that bridges structured and unstructured data via graph-based context modeling and embedding-driven retrieval, enabling dynamic 'ask your data' capabilities within graph-rich enterprise domains while demonstrating strong soft skills in cross-functional collaboration.

MCP-InsightEngine – LLM-Based File Analyzer & Insight Generator Link
- Engineered an LLM-driven file analysis platform leveraging Python, FastAPI, and Streamlit to process CSV, JSON, PDF, and text files, delivering real-time insights such as summaries, key trends, and anomaly detection. Built end-to-end data pipelines and implemented robust integration workflows to support business understanding and data strategy. Applied domain knowledge and proven ability to design scalable data pipeline architecture, ensuring efficient data processing and optimization. Demonstrated strong communication skills, language skills, and soft skills to explain technical implementation to diverse stakeholders, showcasing implementation experience and adherence to best coding practices.

Nutri-GPT Link
- Developed Nutri-GPT, an AI-powered web application integrating OpenAI's Vision and Chat APIs to process food images and automatically generate structured nutrition summaries and calorie insights using Python and Streamlit, while applying soft skills for effective collaboration and user-focused design.
- Engineered a modular AI-driven nutrition analysis platform with Python and Streamlit, leveraging Vision-based image recognition and LLM capabilities to deliver accurate food identification, calorie estimation, and health insights through a scalable architecture, supported by strong soft skills for stakeholder communication.
- Architected and deployed Nutri-GPT, a computer-vision and LLM-based food analytics tool that transforms images into actionable nutrition insights, demonstrating effective use of OpenAI Vision models, structured data handling, and interactive web app development, complemented by strong soft skills in collaboration and presentation.

EDLR Migration, Scotiabank — Dec '22 — Mar '25, Toronto, Canada
- Spearheaded the complete migration of on-premises HDP clusters to Cloudera CDP7 across DEV, UAT, PROD, and DR tiers, achieving seamless modernization and zero data loss during transition through effective leadership and soft skills in team coordination.

- Engineered secure, enterprise-grade CDP7 environments by implementing Kerberos authentication, Auto-TLS encryption, and Ranger-based access policies, enhancing cluster security posture and compliance readiness with strong soft skills in cross-team collaboration.
- Optimized high-availability and performance of migrated clusters through load balancer design for Hadoop core services, capacity planning, and SLA-driven tuning, enabling reliable analytics and ML workloads post-migration, supported by effective soft skills in problem-solving.

GCP DataProc Cluster Upgrade & Modernization, Scotiabank — May '25 — Sep '25, Toronto, Canada

- Led the modernization of GCP Dataproc clusters, boosting performance for large-scale batch and streaming data workloads and enabling seamless integration with Cloud Storage, BigQuery, Pub/Sub, and Cloud Composer to deliver secure, end-to-end data pipelines, while leveraging soft skills for cross-functional collaboration.
- Engineered automated GCP Dataproc infrastructure using Terraform, standardizing cluster provisioning and scaling processes across environments while strengthening IAM-based access control for compliance and operational consistency, supported by strong soft skills in coordination and communication.
- Integrated Dataproc clusters with Vertex AI and GCP-native ML pipelines to enable efficient data preprocessing, feature engineering, and model training workflows, driving improved utilization of AI infrastructure for enterprise analytics, supported by effective soft skills in collaboration and adaptability.

EDUCATION

Bachelor of Technology in Electronics and Telecommunications in Engineering, Kerala University (GPA: 6.9) — Jun '05 — Aug '09, India

CERTIFICATIONS

Microsoft Certified: Azure Data Fundamentals, Microsoft — Oct '20

Microsoft Certified: Azure Fundamentals, Microsoft — Jun '20