**Lakshmi Venkatesh**

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**Professional Summary:**

Generative AI Engineer with 10+ years of experience in managing machine learning lifecycles and installing, configuring, and maintaining various Cloud technologies like Azure, AWS Cloud and Middleware Services end-to-end in Production. Apt at developing, building, and maintaining both LLM and ML pipelines to increase data accuracy and predictability. Perfectionist, always open to collaborate with data science and industry professionals to look outside current frameworks and discover more working solutions for each individual problem.

**Summary**

* Develop, and deploy machine learning models and algorithms.
* Analyzing the Machine Learning algorithms and Predictive Modelling that could be used to solve a given problem and ranking them by their success probability.
* For Description variable, extracting numerical features used NLP Techniques (Tokenize, Lemmatization i.e... Text Preprocessing)
* Selecting features, building, and optimizing classifiers using machine learning techniques. Verifying data quality, and/or ensuring it via data cleaning.
* Develop, and implement AI/ML in deep learning frameworks (TensorFlow, PyTorch, Keras) and data science tools (scikit-learn, NLP libraries like NLTK, spacy).
* Technical authoring, including infrastructure design and architecture (Server, Virtualization, Storage, Network, Database, Security and Governance.
* Having experience on container services (Docker).
* Having Good knowledge on Kubernets.
* Experience in using various activities present in ADF pipeline like Copy Data, execute pipeline, Execute Stored Procedure, Spark, Get Meta data, Lookup, wait, For Each Iterates.
* Experience in creating the linked service for different relational and non-relational databases
* Involved in creating and scheduling integration service workflows/Pipelines by using Azure Data Factory
* Creating the lookup tables, stored procedures in azure sql database.
* Developed the Scala spark code to cleanse the data in Azure Data Bricks.
* Interested in learning new technologies
* Involved in Application support and maintenance activities.

**Technical Skills:**

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| --- | --- |
| Cloud Technologies | Azure, AWS, GCP |
| Operating Systems | Ubuntu, CentOS, RedHat, Linux, Windows. |
| CI/CD Tools | Jenkins/Hudson, Azure DevOps, DBT. |
| IaC & Configuration Management Tools | Ansible |
| Version Control & Build Tools | GitLab, GitHub, Bitbucket, Maven, Ant, Gradle |
| Scripting & Programming Languages | Python, JSON, YAML, Bash shell, Power shell, SQL, PySpark |
| Network Protocols | DNS, DHCP, Routers/Switches, NIS, NFS, WAN, LAN, FTP/TFTP, TCP/IP |
| Containerization & Orchestration | Docker, Kubernetes, AKS |
| Databases | MySQL, PostgreSQL, NoSQL (MongoDB, DynamoDB), Maria DB, Cosmos DB, FAISS, Pinecone, Weaviate, Chroma. |
| Web Servers | Web Logic, JBoss, WebSphere, Apache Tomcat, Nginx |
| Monitoring Tools | Azure App Insights |
| Bug Tracking Tools | JIRA, Service Now |
| AI Tools and libraries | TensorFlow, PyTorch, Keras, (scikit-learn, NLTK, spacy |
| Data Science platform / Notebook Environments | Anaconda Distribution, PyCharm, Google Collab, Jupiter, VS Code. |
| Data science Libraries | Pandas, NumPy, SciPy, Scikit-learn and Tensor flow, Kera’s-OCR, Selenium for web scraping, BeautifulSoup, Regular Expressions, Lynx API, NLP, Deep Learning, Time series Analysis |
| Data Visualization Tools | Matplotlib, Seaborn, Tableau, PowerBI |
| Machine Learning | Scikit-learn, TensorFlow, NLP techniques |

**Education**

B.Tech (EEE) from Jntu Kakinada, India from 2008 to 2012.

M.S Data science from Teesside University, UK from Jan 2021 to Feb 2023.

**Work Experience**

**Role: Generative AI/ Agentic AI Engineer**

**Client: DPS- Georgia Nov 2023 – Till Date.**

**Responsibilities:**

* Developed an advanced conversational assistant powered by Prompt, LLMs, optimizing user intention understanding and task completion.
* Fine-tuned RAG, Langchain, GPT-4o-mini, and other GPT models for prompt engineering and enhancing their natural language understanding and text completion capabilities for improved results.
* Integrated RAG-based chat solutions with document FAQs and Built a document summarization engine using OpenAI’s GPT models, Prompt, vector db like FAISS, Pinecone, Weaviate, Chroma and LangChain.
* Built RAG-based solutions using Azure Services like Azure OpenAI, Azure Search, Azure Cognitive Search, WebApp and vector databases.
* Used Azure Monitor to collect and analyze telemetry data from GenAI applications.
* Design end-to-end AI architecture leveraging AWS Bedrock and other AWS services (e.g., S3, Lambda, SageMaker, IAM).
* Integrated Amazon Bedrock foundation models for generative AI use cases, Prompt including RAG-based assistants and document understanding systems.
* Google ADK leverages Vertex AI and Gemini models to enable text, code, image, and multimodal generation.
* Integration with Google Cloud’s vector search, AlloyDB, and BigQuery allows grounding LLM outputs with enterprise data.Ensures accuracy, compliance, and reduced hallucinations in Gen AI apps.
* Built a data pipeline and training loop for a text-to-image model using Stable Diffusion and Flux.
* Build intuitive user interfaces using Streamlit components.
* Building task-specific agent teams for complex workflows like data retrieval, summarization.
* Development of an agentic AI orchestration pipeline using AutoGen and LangGraph, Semantic Kernel enabling multi-agent coordination for document summarization and knowledge extraction.
* Developed RESTful APIs to expose LLM services and multi-agent orchestration agentic AI workflows.
* Prompt design, embeddings, and fine-tuning for LLMs.
* Google’s ecosystem (PaLM API, Gemini, Vertex AI Extensions) enables agents to act beyond just conversation.
* Built agentic AI prototype using LangGraph, AutoGen and Crew AI to coordinate multiple specialized agents in a team-based architecture for document summarization and data extraction tasks.
* Developed and debugged agentic AI workflows using Cursor AI for rapid prototyping and deployment.
* Using Cursor AI,Integrating external APIs, datasets, and models from the development environment.
* Using Cursor AI-assisted code generation, inline suggestions, and multi-file refactoring to accelerate agentic AI development.
* Transformer architecture, training models from scratch, attention mechanisms, sequence-to-sequence models, encoder-decoder, BERT.
* Develop, and implement AI/ML in deep learning frameworks (TensorFlow, PyTorch, Keras) and data science tools (scikit-learn, NLP libraries like NLTK, spacy).

**Environment:** Python, Machine Learning, agentic AI, NLP, Statistics, PyTorch, Google Colab, Azure services, Azure Data Factory, Azure Databricks, Azure Data Lake Storage, Azure OpenAI, Azure search, Azure Web App, Azure Monitor, AWS Bedrock, S3, Docker, Kubernetes, NumPy, pandas, matplotlib, SciPy, scikit-learn, TensorFlow, Git, JIRA, FAISS, Pinecone, Weaviate, Chroma, Langchian, LangGraph, Autogen, CrewAI.

**Role: ML Engineer**

**Client: FIS, UK. Feb 2023 – Nov 2023.**

**Responsibilities:**

* Analyzing the Machine Learning algorithms, Statistical methods and Predictive Modeling that could be used to solve a given problem and ranking them by their success probability
* Using python libraries (pandas, NumPy, matplotlib) to extract the data into the working environment
* Done Exploratory Statistical methods, Data Analysis to extract insights from the data.
* Selecting features, building and optimizing classifiers using machine learning techniques. Verifying data quality, and/or ensuring it via data cleaning.
* Implemented supervised and unsupervised learning models including classification, clustering, and regression.
* Finding available datasets online that could be used for training by using scikit-learn package. For building the model to predict the customers used Logistic Regression and Random Forest Classifier, SVC Algorithms. Defining validation strategies.

**Environment: :** Python, Machine Learning, NLP, Statistics, PyTorch, Google Colab, Apache Spark, NumPy, pandas, matplotlib, SciPy, scikit-learn, powerBI, TensorFlow.

**Role: Data Engineer**

**Client: Dow Chemicals Co. Feb 2020 – Dec 2020.**

**Responsibilities:**

* Implemented the pipelines to copy data from on premises SQL to cloud SQL and Azure Datalake.
* Developing data pipelines to transform and process data using Azure Databricks.
* Involved in creating and scheduling integration service workflows/Pipelines by using Azure Data Factory or Azure Synapse Analytics.
* Designing data architecture for various data solutions, including data pipelines, data warehouses, and data lakes. This involves understanding the data sources, defining data models, and establishing data integration and transformation processes.
* Designing data models and schema for structured, semi-structured, and unstructured data.
* Building data integration pipelines to extract, transform, and load (ETL) data from various sources into Azure data storage services such as Azure Data Lake Storage, Azure SQL Database, or Azure Synapse Analytics. Work with technologies like Azure Data Factory, Azure Databricks for data movement and transformation.
* Developed data models using the Scala spark code for data movement and transformation in Azure Data Bricks.
* Experience in Azure Fabric and Azure functions to integrate workloads like Data Factory, Data Science, Data Warehouse, Databases, and Power BI.
* Perform statistical analysis and leverage data visualization tools to make value out of data.
* Selecting appropriate data storage solutions in Azure based on the requirements, such as Azure SQL Database, Azure Cosmos DB, Azure Data Lake Storage, or Azure Blob Storage. Design data storage schemas, define partitioning strategies, and optimize storage for performance and cost efficiency.
* Ensuring data security, privacy, and compliance by implementing appropriate access controls, encryption, and data masking techniques using Azure key vault.

**Environment: :** Python, Apache Spark, HDFS, Azure services, Azure Data Factory, Azure Databricks, Azure Synapse Analytics, Azure Data Lake Storage, Azure Fabric, Azure Functions, Decker, Kubernetes, SQL, Maven, Jenkins, DBT, Apache Spark, Service Now, UNIX / LINUX.

**Role: Cloud Platform Engineer**

**Client: Transportation Group June 2018 – Dec 2019**

**Responsibilities:**

* Experienced with deployments, maintenance and troubleshooting applications on Microsoft Azure and AWS Cloud infrastructure.
* Created users and groups using IAM and assigned individual policies to each group.
* Prepared the Document on Backup Strategy.
* Creating and managing Azure Web-Apps and providing the access permission to Azure AD users.
* Deployed Azure IaaS virtual machines (VMs) and Cloud services (PaaS role instances) into secure VNets and subnets.
* Deployed AWS EC2 instances, storage bucket, EMR, DB Servers across hybrid environment.
* Implemented high availability in Azure Resource Manager deployment models.
* Designed and configured Azure Virtual Networks (VNETs), subnets, Azure network settings, DNS settings, Security policies and routing.
* Networking: Virtual Network, VNet-Vnet, Load Balancer, Traffic manager, Autoscaling, Azure Monitor, VPN/Express Route, DNS, VPN Gateway, Application Gateway.
* Experience using Azure Monitor and create Log analytics work space fixing the alerts generated.
* Synchronize on premises Active Directory users to azure using AD-CONNECT.
* Deploying Web applications with custom domains in Azure Platform services.

**Environment:** Azure services, ADF, Storages, Azure VMs, VPN, EC2, S3 Bucket, VPC, Docker, Azure AD, Kubernetes, SQL, Ansible, Maven, Jenkins, Python Scripts, JIRA, UNIX / LINUX, Windows.

**Role: Middleware Engineer /Cloud Engineer**

**Client: Star Union Dai-ichi – India. Feb 2013 – June 2018**

**Responsibilities:**

* Created users and groups using IAM and assigned individual policies to each group.
* Creating Azure Recovery service vault and protecting required VMs to take the VM level backups.
* Creating and managing Azure Web-Apps and providing the access permission to Azure AD users.
* Implemented high availability in Azure Resource Manager deployment models.
* Designed Network Security Groups (NSGs) to control inbound and outbound access to network interfaces (NICs), VMs and subnets.
* Installed, configured and administered Bea WebLogic Server and on various environments.
* Configure and administered Connection pools, multi connection pools and Data Source for JDBC connections.
* Periodically monitored logs for optimal performance.
* Coordinated with the application support team to identify and correct issues related to WebLogic.

**Environment:** Azure services, Azure web Applications, NSG, Azure AD, Storages, Azure VMs, VPN, EC2, S3 Bucket, VPC, Docker, SQL, Maven, Jenkins, Python Scripts, JIRA, UNIX / LINUX, Windows, Oracle WebLogic Server 11g.

(**Lakshmi Venkatesh**)