**Dilip Vummaneni**

A close-up of a circular sign

Description automatically generated

**Senior AI/ML Engineer**

**Email:** vummanenidilip@gmail.com

**Mobile:** 940-843-0998

[LinkedIn](http://www.linkedin.com/in/vummaneni-dilip-047894186)

**Professional Summary**

* 5 Years of Experience in **Data Analytics, Machine Learning (ML)**, **Predictive Modeling, Natural Language Processing (NLP), Deep Learning, and Generative AI,** delivering innovative AI-driven solutions.
* Expert in Data Preprocessing and Analysis, including **Data Cleaning, Exploratory Data Analysis (EDA)**, and **Initial Data Analysis (IDA)**, ensuring high data quality and actionable insights.
* Comprehensive Knowledge of the **Data Science Lifecycle**, from **Data Acquisition and Engineering to Preprocessing**, **Feature Engineering, Statistical Modeling, A/B Testing**, and **Data Visualization.**
* Proficient in Machine Learning Techniques, including **Ensemble Methods (Random Forests), Regression (Linear/Logistic), SVMs, XGBoost, Decision Trees, Neural Networks, K-Means, KNN**, and **Naive Bayes.**
* Extensive **Deep Learning Expertise**, focusing on **Recurrent Neural Networks (RNNs)** and deploying diverse machine learning models for impactful business outcomes.
* Strong **Analytical Skills**, with experience in **Regression, Clustering, PCA, Classification**, and **Data Visualization** to support data-driven decision-making.
* Database Optimization Expertise in **SQL, Azure Synapse Analytics, Azure Blob Storage**, **and MySQL,** enhancing database performance and query efficiency.
* Technical Proficiency in Tools such as **Python, SQL, Tableau, Scikit-Learn, Spark, and Hive**, delivering robust and scalable AI/ML solutions.
* **Cloud** **Data** **Engineering** Skills, including **Azure** Data Factory, **ETL** pipelines, and handling semi-structured/unstructured data using modern tools.
* AWS Expertise, including **Amazon SageMaker, Redshif**t, and **S3**, supporting end-to-end machine learning workflows.
* Advanced NLP Techniques, with expertise **in tokenization, lemmatization, stemming, POS tagging**, and **sentiment analysis** using Python to extract insights from text.
* Data Visualization Mastery using **Power BI, Tableau**, and **Spotfire** to craft intuitive dashboards and drive actionable **business intelligence**.
* Strong Statistical Foundation, including **Hypothesis Testing, ANOVA, Multivariate Statistics, Time-Series Analysis**, and **Classification** for in-depth data analysis.
* Experience with Databases such as **Azure Cosmos DB, MongoDB, PostgreSQL, MySQL, Amazon Aurora, RDS,** and **DynamoDB** for diverse application needs.
* Familiarity with Project Management Methodologies such as **Agile, Scrum**, and **Waterfall**, ensuring smooth project execution and delivery.
* **Cloud Infrastructure Proficiency**, using **Terraform, Ansible,** and **Boto3** to manage **Infrastructure as Code (IaC**) effectively.
* **Microservices Architecture Expertise, leveraging Docker** and **Kubernetes** to build scalable, reliable applications.
* **Web Development Skills** with frameworks like **Flask** and **Django** to create functional and user-friendly web applications.
* **CI/CD Automation** Knowledge with **Jenkins**, **streamlining** **integration** and deployment processes for fast and reliable delivery.
* Specialization in **Generative AI technologies**, including **GPT, BERT, LLM**, and **DALL-E,** delivering state-of-the-art solutions across industries.
* System Design Expertise, with skills in **conceptual data models, process/data flow diagrams**, use case diagrams, and **class/state diagrams**.
* **Machine Learning Pipeline Management** on **AWS** and **Azure**, ensuring **seamless automation** and **scalability** from data ingestion to deployment.
* Leadership and Mentorship Skills, fostering team development, guiding junior data scientists, and driving high-quality AI/ML deliverables.

**Certifications:**

* Microsoft Certified: Power BI Data Analyst Associate
* Oracle Database Foundations Certified Junior Associate
* Oracle Cloud Infrastructure 2024 Generative AI Certified Professional
* Generative AI Fundamentals - Databricks

**Professional Experience:**

**Elysium Analytics 01/2023 - Current**

**Senior AI/ML Engineer**

**Project: Financial Document Analysis Using Gen AI**

**Description:** As an AI/NLP Engineer at Elysium, I led the development of an advanced AI-driven platform to automate and enhance the analysis of financial documents, real-time market data, and sentiment insights. The platform streamlined investment decision-making processes by integrating state-of-the-art Large Language Models with NLP technologies, delivering faster insights and enabling more informed financial strategies. This innovation significantly improved performance for both analysts and clients.

**Functional role details:**

* Designed and deployed an event-driven financial analytics platform using Kubernetes, Docker, and AWS Lambda, optimizing customer spending analysis and scalability.
* Achieved a 30% improvement in model and query efficiency by integrating Vector DB and Pinecone: secured API management via AWS API Gateway for real-time monitoring.
* Led the integration of GPT and Llama models, boosting sentiment analysis accuracy by 25%; implemented robust monitoring with Amazon CloudWatch and AWS CloudTrail.
* Utilized Generative Adversarial Networks (GANs) and LangChain to enhance market trend forecasting accuracy; enabled scalable resource allocation using AWS Lambda Auto Scaling.
* Streamlined pipelines with Jenkins, Bitbucket, and MLFlow, reducing deployment times by 40% and integration issues by 50%.
* Implemented a Retrieval-Augmented Generation (RAG) model to improve team collaboration, and integrated AWS Glue and Amazon Redshift for high-performance data workflows.
* Designed dynamic, cost-efficient cloud architectures leveraging serverless technologies and auto-scaling mechanisms.
* Deployed monitoring frameworks using AWS services, ensuring reliability and tracking model health in production environments.
* Automated resource allocation, reducing operational latency and optimizing infrastructure costs.
* Developed analytical dashboards delivering actionable insights to stakeholders, enabling data-driven decision-making.
* Enhanced financial operations by analyzing customer spending patterns and generating precise market trend forecasts.

**Hudl Pvt Ltd 06/2020 - 07/2022**

**AI/ML Engineer**

**Project: Financial Intelligence Platform**

**Description:** As an AI/NLP Engineer at HUDL, I spearheaded the development of an AI-powered financial intelligence platform aimed at automating and optimizing the analysis of financial documents, real-time market data, and sentiment from unstructured data sources. Leveraging NLP and advanced AI techniques, this platform drove innovation in investment strategies, streamlined client reporting, and enhanced data-driven decision-making processes.

**Functional role details:**

* Spearheaded the integration of LLMs with NLP technologies to automate financial document analysis, achieving a 50% reduction in analysis time and enhanced precision for investment strategies.
* Contributed to the development of an NLP-powered tool for real-time analysis of financial news, market trends, and regulatory updates, resulting in a 20% boost in client investment performance.
* Collaborated in designing a sentiment analysis model leveraging LLMs and NLP, enabling precise insights from unstructured data and contributing to a 25% increase in portfolio returns for high-value clients.
* Supported the implementation of LLM-driven automation for personalized financial reports, increasing accuracy and client satisfaction scores by 30%.
* Developed tools to transform raw financial data into actionable insights, tailored to individual client portfolios and investment goals.
* Contributed to integrating LLM and NLP advancements into investment banking workflows, fostering a culture of innovation and improving operational efficiency.
* Actively researched and proposed emerging AI solutions to enhance financial analysis, trend forecasting, and strategic decision-making.
* Assisted in implementing AI-driven models to optimize portfolio performance, resulting in improved ROI for clients.
* Contributed to tools that streamlined monitoring of regulatory changes, ensuring timely compliance and reducing associated risks.
* Supported the deployment of scalable NLP models for high-volume data processing, enabling real-time insights for investment teams.
* Assisted in automating deployment pipelines for AI models, reducing time to production and improving team productivity.
* Worked closely with data scientists, engineers, and financial analysts to ensure seamless integration of AI solutions with existing business processes.
* Communicated complex AI solutions to non-technical stakeholders, enabling data-driven decision-making and strategic alignment.

**Pelican IT 07/2019 - 04/2020**

**Data Analyst**

**Project: Insurance Claims Data Analytics and Visualization**

**Description:** As a Data Analyst at Pelican IT, I contributed to designing and building an analytics and visualization platform tailored for the insurance domain. This platform streamlined the cleaning, extraction, and analysis of historical claims data, enabling the identification of critical key performance indicators (KPIs).

**Functional role details:**

* Contributed to data cleanup, extraction, and updates using Python and R, performing analysis and research to identify KPIs that optimized insurance claims processing.
* Assisted in extracting data and developing interactive dashboards using Tableau and Power BI, providing actionable insights through various charts, graphs, and logical filters.
* Supported the maintenance of Tableau dashboards to track KPIs and identify growth areas, ensuring continuous visibility and data relevance for stakeholders.
* Collaborated with cross-functional teams in Agile methodology by participating in sprint meetings, planning, and retrospectives, identifying and mitigating risks in projects.
* Assisted in creating database objects such as tables, views, procedures, and triggers using SQL queries in MS SQL Server to support and maintain Tableau/Power BI dashboards.
* Utilized SQL and data visualization tools to analyze data, convert insights into predictive outcomes, and enhance decision-making processes within the insurance domain.
* Applied statistical techniques for hypothesis testing to validate data accuracy and ensure reliable insights in dashboards and reports.
* Optimized query performance using indexing, aggregation, and materialized views to enhance data retrieval efficiency for analysis.

**Education:**

**Bachelor of Technology in Computer Science**

K.S.S.E.M, Bengaluru.

**Master of Science in Data Science**

University of North Texas, Dallas.