# Sudheerkumar Immaneni

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## PROFESSIONAL SUMMARY

Machine Learning Engineer and Data Scientist with 3 years of experience designing, developing, and deploying predictive models, deep learning solutions, and real-time analytics systems. Skilled in data preprocessing, feature engineering, and hyperparameter tuning to improve model performance. Proficient in leveraging cloud platforms like AWS and Azure for scalable ML workflows, automating ETL pipelines, and implementing CI/CD using tools like Jenkins and Azure DevOps. Experienced with LLMs and Retrieval-Augmented Generation (RAG) for building intelligent applications. Adept at collaborating with cross-functional teams to deliver impactful business insights through machine learning solutions.

## WORK EXPERIENCE

**Capgemini** **May 2021 - Dec 2023**

*Machine Learning Engineer | Client - Royal Bank of Canada (RBC)* *Bangalore, India*

- Designed, trained, and deployed machine learning models in a cloud environment using AWS SageMaker, enabling predictive analytics that led to a 25% improvement in forecast accuracy and a 40% reduction in model processing time.
- Implemented advanced ML models for predictive analytics, leveraging deep learning techniques and GPUs to improve model accuracy by 30% and reduce training time.
- Developed and Enhanced machine learning algorithms, boosting performance and accuracy by 25% through feature engineering and hyperparameter tuning.
- Built and Managed CI/CD pipelines with Azure DevOps and Jenkins, reducing manual work by 40% and increasing deployment frequency.
- Specialized in deploying and optimizing LLM-based solutions, including Retrieval-Augmented Generation (RAG) techniques for improved contextual understanding.
- Enhanced ML infrastructure by implementing monitoring tools (Prometheus, Grafana) and optimizing Kafka-based data streaming pipelines for real-time model inference.
- Led cross-functional collaborations with Product, Engineering, and Operations teams to deploy machine learning models through full lifecycle development (design, development, deployment, experimentation, and analysis).
- Conducted extensive data preprocessing and feature extraction on large datasets, leading to a 20% improvement in model training efficiency.
- Provided technical support, participated in code reviews to ensure code quality and flexibility, and applied A/B testing methodologies for evaluating model performance.

*Software Engineer | Client - Credit Agricole Group Infrastructure Platform (CA-GIP)* *Bangalore, India*

- Optimized AWS cloud infrastructure tailored for machine learning workloads, reducing costs by 15% and ensuring model uptime through ELK stack monitoring.
- Developed and deployed advanced models, reducing processing errors by 20% through the development of robust data validation techniques.
- Designed and integrated end-to-end machine learning workflows in collaboration with data scientists and engineers, boosting deployment success rates by 15%.
- Ensured robust ML infrastructure by implementing monitoring, logging, and contributing to the design and architecture of ML solutions.
- Automated CI/CD pipelines for machine learning models using Jenkins, reducing deployment time by 30%.
- Implemented advanced MLOps best practices and real-time documentation, boosting team efficiency and cutting troubleshooting time by 25%.
- Mentored and guided a team of 3 junior engineers, contributing to improved team productivity and enhanced knowledge-sharing.

**University of Memphis** **Jan 2025 - May 2025**

*Technical Assistant – Main Campus* *Memphis, TN*

- Enhanced system efficiency by providing technical support and maintaining data tools (Python, R, SQL, Jupyter, MySQL) across lab systems.
- Supported research students with dataset cleaning, basic analysis, and environment setup for data projects, enhancing their research efficiency and accuracy
- Analyzed helpdesk logs to identify patterns and optimize support workflows using data insights.

## INTERNSHIP

**Data Analytics Intern**
**Bharat Heavy Electricals Limited (BHEL) | Hyderabad, India** **May 2019 – July 2019**

During my internship at BHEL, I was involved in exploring the application of data analytics and digital technologies to optimize industrial and power generation processes. I analyzed operational data from electrical machinery and systems to identify inefficiencies and trends that could support preventive maintenance and performance improvement. I gained exposure to SCADA systems, energy consumption metrics, and equipment diagnostics, and assisted in building Excel-based dashboards for KPI reporting. I also contributed to understanding how data pipelines and automated reporting tools could enhance monitoring across plant operations. This experience strengthened my interest in industrial data applications and laid the foundation for my later work in machine learning, data engineering, and cloud-based analytics.

## EDUCATION

**University Of Memphis** **Jan 2024 - May 2025**
*Masters, Data Science*
**GPA:** 3.93

**Jawaharlal Nehru Technological University Kakinada, India** **June 2016 – Sep 2020**
*Bachelors, Electronics and communication Engineering(ECE)*
**GPA:** 7.5/10

## PROJECTS - ACADEMICS

**Analyzing Pediatric Hospitalization Data (2010-2019) and Recommendations:**
- Analyzed 3+ million pediatric patient records using EDA, dimensionality reduction techniques, statistical testing, and K-Means clustering to identify patterns and sub-populations influencing health outcomes, visualized findings for clear communication.

**Movie Recommendation system**
- Built a Movie recommender system using collaborative filtering algorithm in Octave on Movie Lens, developed 3 Dashboards and recommended movies with 94% accuracy.

**LLM Powered E-Commerce Support Assistant**
- Built a chatbot using GPT-4 and T5 to handle over 10,000 daily e-commerce queries with 92% accuracy, significantly improving customer support efficiency for order, product, and return inquiries.
- Performed Retrieval-Augmented Generation (RAG) to deliver accurate, personalized information from a catalog of 500,000+ products, increasing response precision by 30% and enhancing customer satisfaction.

**Heart Disease Prediction Web App | Link**
- Developed an interactive web application using Flask to predict heart disease risk based on user health metrics such as age, cholesterol, BP, and glucose levels. Built and deployed a machine learning classification model that processes user input and returns real-time diagnosis. Integrated a clean, responsive UI to enhance usability and patient data input experience.

## CERTIFICATION

•Microsoft Certified: Fabric Data Engineer Associate | Link

## SKILLS

- **Programming Languages:** Python, R, Bash, SQL, YAML, OOPs
- **Cloud Platforms:** AWS (SageMaker, EC2, Lambda, S3, EKS), Azure (ML Studio, DevOps, Functions, AKS)
- **CI/CD Tools:** Jenkins, Git, Azure DevOps, AWS CodePipeline, GitHub Actions
- **Data Engineering & Pipelines:** Databricks, Snowflake, ETL Design, Big Data (Apache Spark), AWS Glue, Redshift, Azure Data F actory, Apache Airflow
- **Containerization & Deployment:** Docker, Kubernetes
- **Monitoring & Observability:** Prometheus, Grafana, Azure Monitor, AWS CloudWatch
- **Databases:** MySQL, PostgreSQL, MongoDB, ElasticSearch, Azure SQL
- **MLOps Frameworks & Tools:** Scikit-learn, TensorFlow, PyTorch, Keras, MLflow
- **Machine Learning Algorithm:** Supervised & Unsupervised Learning, Deep Learning, Natural Language Processing (LLMs, RAG)
- **Data Analysis & Visualization:** Predictive Modeling, Hypothesis Testing, Data Visualization (Matplotlib, Seaborn, Power BI)
- **Development Methodologies:** Agile, Scrum, JIRA
- **Other Tools & Technologies:** Kafka, Terraform, Linux, Jupyter Notebook, REST APIs, Statistics
- **Soft Skills**: Team Collaboration, Leadership, Communication, Agile Methodologies, Cross-functional Coordination