**Dehit T**

**San Jose, CA**

**Summary\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Machine Learning Engineer and Data Scientist with over 6+ years in the industry, specializing in advanced AI/ML solutions across GCP, Azure, and AWS platforms. Demonstrates over 6 years of expertise in leveraging cloud technologies and over one year of focused experience with Generative AI. Proven ability to deploy, fine-tune, and optimize NLP models and large language models (LLMs) including Azure OpenAI, Llama 2/3, and Hugging Face.

Expert in designing and implementing scalable AI solutions with a strong technical foundation in Python, TensorFlow, PyTorch, and Scikit-learn. Adept at deploying complex AI models on cloud platforms and experienced in developing data pipelines and managing data workflows.

Core Competencies:

* Machine Learning & AI Solutions: Expertise in deploying machine learning algorithms such as Linear Regression, Logistic Regression, Decision Trees, Random Forest, and advanced neural networks (CNNs and RNNs). Skilled in fine-tuning NLP models and utilizing Generative AI for innovative applications.
* Data Preparation & Engineering: Proficient in data cleaning, feature engineering, and normalization using Python libraries such as Pandas and NumPy. Extensive experience in preparing datasets for predictive modeling and analysis.
* Cloud Platforms & ETL Processes: In-depth experience with AWS, Azure, and GCP for cloud-based data storage, management, and ETL processes. Adept at creating and maintaining data pipelines, automating workflows, and managing large-scale data operations.
* Data Storage & Management: Proven ability to manage data storage solutions on AWS, including designing and maintaining data warehouses and handling data extraction, transformation, and loading (ETL) processes.
* ETL & Data Testing: Extensive experience with ETL tools, including Informatica (Power Centre/Power Mart), for comprehensive ETL testing and validation.
* Business Intelligence & Visualization: Advanced skills in using BI tools like Microsoft Power BI and Tableau for creating insightful and interactive dashboards and reports. Proficient in data visualization and analytics to drive informed business decisions.
* Web Applications & Database Development: Experience in developing web applications on Azure, utilizing MVC frameworks, and working with Azure SQL Data Warehouse. Skilled in developing PL/SQL procedures, functions, and triggers, and utilizing Oracle 11g for database development.
* Data Pipelines & Integration: Expertise in utilizing Vertex AI with TensorFlow Extended (TFX) for building robust and scalable machine learning pipelines. Experienced in integrating data pipelines and ensuring seamless data flow across systems.
* Technical Communication & Leadership: Exceptional communication and leadership skills, with a history of successful collaboration with cross-functional teams to deliver complex projects and solutions.

**Core Expertise\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

|  |  |
| --- | --- |
| ***AI/ML Solutions*** | Azure Open AI, Llama 2/3, Mixtral |
| ***Cloud Platforms*** | AWS, GCP, Azure AI services (Azure AI Search, Azure Open AI) |
| ***Cloud Resources*** | Azure Databricks, AWS Glue, GCP BigQuery, Dataflow |
| ***Programming Languages*** | Python, PySpark, C++, SQL, JavaScript, HTML, CSS |
| ***ML Framework*** | TensorFlow, Keras, DistilBert, PyTorch, Langchain & Llama Index, sci-kit-learn, NLTK, Spacy, Pandas, NumPy, Hugging Face Transformers, NLTK, OpenCV, CUDA |
| ***ML Algorithms*** | Regression (Linear, Polynomial, Ridge, Lasso, Decision Tree Regressor, MLP, ANN), Classification (Logistic Regression, SVM, Decision Tree, Random Forest, Naïve Bayes, KNN, ANN, Ensembling techniques), Clustering (K-means, K-median, K-mode, Agglomerative Clustering. |
| ***Frameworks*** | Flask, Django, Express, EJS |
| ***Data Management*** | Vector Databases, embeddings, SQL, NoSQL |
| ***AI/ML Ops Practices*** | Model Monitoring, optimization & deployment, fine-tuning |
| ***Software Version Control & Documentation*** | Git, JIRA, Confluence |
| ***Containerization & Orchestration Tools*** | Docker, Kubernetes, AirFlow & MLFlow |
| ***Monitoring Tools*** | Power BI & Tableau |
| ***Soft Skills*** | Excellent communication, leadership, collaboration, and Project management |

**Experience\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Intuit, Mountain View, CA Aug 2024 – Present**

**Machine Learning Engineer**

**Key Responsibilities:**

* Collaborated with data scientists and engineers to prototype and develop machine learning models using Python, TensorFlow, and PyTorch, delivering advanced solutions for customer segmentation and targeted marketing.
* Architected and optimized scalable data pipelines using Apache Spark, Kafka, and SQL, streamlining real-time data processing and feature extraction for high-performance financial forecasting models.
* Spearheaded the migration of machine learning infrastructure to AWS, utilizing SageMaker for model training and deployment, S3 for data management, CloudFormation for infrastructure automation, and Lambda for serverless inference, achieving enhanced scalability and cost efficiency.
* Implemented GPU acceleration with CUDA and cuDNN, significantly reducing model training times and improving computational efficiency.
* Designed and deployed enterprise-level document management applications incorporating OCR and deep learning techniques, leading to substantial improvements in document processing capabilities.
* Leveraged Pinecone for high-performance similarity search and nearest-neighbor retrieval in machine-learning applications.
* Established and maintained end-to-end MLOps pipelines using tools such as MLflow, Kubeflow, and TFX, ensuring smooth model deployment, monitoring, and retraining in production environments.
* Optimized machine learning algorithms using Bayesian optimization for hyperparameter tuning, enhancing model accuracy and performance based on real-time feedback and evaluation metrics.
* Developed a financial analytics dashboard in Tableau, providing real-time data visualization and actionable insights for strategic decision-making.
* Developed testing frameworks with Pytest, ensuring thorough validation and reliable deployment of machine learning models.
* Performed regular A/B testing and statistical analysis to evaluate the impact of machine learning models on key business metrics, driving data-driven optimization and decision-making.

**Technical Tools and Environment: Python, scikit-learn, TensorFlow, Keras, Apache Spark, Kafka, SQL, AWS (EC2, S3, Lambda, SageMaker, CloudFormation, CodePipeline), Tableau, Git, PyTorch, BERT, GPT, Apache Airflow, Kubernetes, MLflow, Kubeflow, TFX, CUDA, cuDNN**

**Intuit, Bangalore, India Feb 2022 – July 2024**

**Machine Learning Engineer**

**Project Objective:** Led the development of a high-accuracy HS tax code classification system, achieving over 90% accuracy. This significantly enhanced product classification for customs and taxation in cross-border contexts, utilizing advanced deep learning techniques and overseeing end-to-end model training and deployment on AWS.

**Key Responsibilities:**

* Spearheaded the creation of an advanced HS tax code classification system for Cross Border Sales using deep learning methodologies.
* Developed a cutting-edge classification system for approximately 100,000 HS codes, integral for global customs and taxation.
* Achieved over 90% accuracy for 60% of HS codes, a substantial improvement from the previous benchmark of 70% accuracy for 20% of codes.
* Employed Pandas for data manipulation, cleaning, and preprocessing, NumPy for numerical computations, and Scikit-learn for machine learning tasks, including data splitting and performance evaluation.
* Leveraged NLP libraries, including DistilBert, Transformers, and Hugging Face, for processing and analyzing textual product descriptions.
* Fine-tuned DistilBert to enhance model performance and implemented hierarchical tree-based models to compute 6/10-digit tax codes, using ensemble models (Decision Trees and Logistic Regression) for improved accuracy.
* Utilized PyTorch to develop and fine-tune custom deep neural network architectures, optimizing flexibility and performance.
* Played a pivotal role in training models on extensive datasets, ensuring continuous learning and smooth deployment.
* Innovatively integrated diverse data inputs, optimizing accuracy through fine-tuning and retraining on larger datasets.
* Experimented with learning rates, batch sizes, and activation functions to optimize model accuracy and convergence.
* Created informative visualizations of model training progress, loss curves, and performance metrics using Matplotlib.
* Utilized Git and GitHub for effective version control and collaborative development.
* Efficiently developed and experimented with Jupyter Notebook, managing project dependencies and creating reproducible environments using Anaconda.
* Leveraged AWS for comprehensive model training, deployment, and management, including cloud environment setup for deep learning models.
* Employed Pyspark to create data pipelines, facilitating seamless data ingestion, transformation, and preparation for model training.
* Streamlined model deployment using CI/CD pipelines with Docker and Kubernetes.
* Collaborated with cross-functional teams to improve system accuracy and relevance.
* Tackled long-tail data distribution challenges through strategic experimentation with loss functions.
* Automated model training, evaluation, and deployment pipelines, enhancing operational efficiency.
* Conducted technical workshops on cutting-edge topics, including Generative AI and Computer Vision, fostering knowledge sharing and team development.

**Technical Tools and Environment:** Python, PyTorch, Pandas, NumPy, Scikit-learn, Matplotlib, DistilBert, Transformers, Hugging Face, Git, GitHub, Jupyter Notebook, Anaconda, Amazon Web Services (AWS), Pyspark, CI/CD (Docker, Kubernetes)

**JP Morgan Chase , Bangalore, India Dec 2020 – Jan 2022**

**Machine Learning Engineer**

**Responsibilities:**

* Developed a machine learning model to automate the identification of root causes for failed events on self-checkout machines (POS systems).
* Reduced enterprise service tickets by 15% by implementing "Backup as a Service" using AWS Backup, allowing customers to initiate server backups and restores.
* Led a data migration project, transitioning ETL processes from SAS to Python on Azure Databricks.
* Constructed a machine learning model for capacity planning by analyzing historical CPU and disk usage data.
* Implemented automated data ingestion pipelines using AWS Glue and Azure Data Factory, streamlining ETL processes for dashboarding.
* Built data pipelines with Apache Airflow to process data from store checkout devices into BigQuery on Google Cloud.
* Developed a classification model using Random Forest and Logistic Regression to predict the likelihood of customer referrals.
* Productionized machine learning pipelines on GCP using Cloud Composer, BigQuery, and GCP storage buckets.
* Designed an automation process using Docker to manage common configurations and detect drifts across virtual infrastructure.
* Applied mean-variance optimization algorithms, including Markowitz portfolio theory, using Python’s scipy.optimize library to construct efficient investment portfolios.
* Implemented anomaly detection algorithms, such as isolation forests and autoencoders in Python, to detect fraudulent financial transactions.
* Developed credit risk models using XGBoost and LightGBM to predict default probabilities for loan applicants.
* Created interactive visualizations using Tableau, matplotlib, ggplot2, and Seaborn to present data analysis results effectively.
* Optimized model serving infrastructure on Databricks for low-latency inference through techniques like model caching, distributed serving, and parallel processing.
* Built data pipelines using Python and Kafka to aggregate data from multiple sources (vCenters, databases, store devices) into Google BigQuery.
* Designed and deployed end-to-end machine learning pipelines on GCP Vertex AI, emphasizing security and compliance.
* Conducted quality analysis testing and validation using Django, ensuring model accuracy and thorough API testing before product launch.
* Leveraged machine learning algorithms, including logistic regression, K-means, and recommendation systems, to extract actionable insights from data.
* Developed machine learning models using Python libraries (Pandas, NumPy, Scikit-learn) and algorithms such as Linear Regression, Logistic Regression, Gradient Boosting, SVM, and KNN.
* Created REST APIs to serve data from BigQuery and Cloud SQL, facilitating seamless data access and integration.
* Provided Agile coaching and training to teams, fostering a shared understanding of Agile principles, practices, and ceremonies for efficient project delivery.

**Technical Tools and Environment:** Python, R, SQL, NoSQL (BigQuery, Cloud SQL), Pandas, NumPy, Scikit-learn, TensorFlow, XGBoost, LightGBM, Docker, Apache Airflow, Kafka, AWS (Glue, Backup, SageMaker), Azure (Databricks, Data Factory), Google Cloud Platform (GCP) (BigQuery, Vertex AI, Cloud Composer, GCP Storage), Tableau, matplotlib, ggplot2, Seaborn, Django, Flask, REST APIs, Agile Methodologies, SCRUM Process.

**Risk Span Tech** , **Bangalore, India**  **May 2018 – Nov 2020**

**Data Scientist**

**Responsibilities:**

* Performed data profiling to analyze traffic patterns, locations, dates, and times using advanced analytics platforms.
* Extracted data from distributed storage systems by writing optimized queries in Apache Spark SQL.
* Conducted preliminary data analysis using Python with Pandas and NumPy for descriptive statistics, data cleaning, and missing value imputation.
* Prepared datasets for predictive models in Google Cloud ML Engine, enabling robust predictive modeling in cloud environments.
* Managed and monitored data pipelines using Apache Airflow to automate workflows and ensure data processing reliability.
* Cleaned data and selected relevant features using Databricks’ MLlib in a PySpark environment.
* Modeled complex data structures with deep learning frameworks like TensorFlow and Keras.
* Conducted customer segmentation using hierarchical and K-means clustering in Python to enhance targeted strategies.
* Developed data processing scripts using Python, Scala, and R in cloud-based Hadoop environments such as Amazon EMR.
* Evaluated model performance using metrics like Cross-Validation, Log Loss, ROC Curves, and AUC in Jupyter Notebooks.
* Analyzed traffic data patterns through time-series analysis in R, calculating autocorrelations with various time lags.
* Applied Principal Component Analysis (PCA) for feature reduction, enhancing the efficiency of high-dimensional data analysis.
* Designed business intelligence reports using Power BI and Tableau to predict future trends and inform decision-making.
* Retrieved and transformed data from SQL Server and Oracle databases using ETL tools like Apache NiFi.
* Ensured data integrity and quality after migrations and integrations by creating SQL scripts.
* Collaborated with cross-functional teams to communicate analytical results and support data-driven decision-making.

**Technical Tools and Environment**: Apache Spark SQL, Python (Pandas, NumPy, NLTK, spaCy), TensorFlow, PyTorch, Apache Airflow, Databricks, MLlib, Google Cloud ML Engine, Keras, Apache Hive, Pig, Apache NiFi, R, Power BI, Tableau, SQL Server, Oracle, Jupyter Notebooks, Scala, Amazon EMR, Principal Component Analysis (PCA).

**Education**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Nirma University Gujarat, India

B. Tech, Electronic & Communication Engineering