**NAVEEN**

**Professional Summary:**

* Over 11+ years of Industry experience in Machine Learning, Signal Processing and NLP and data handling.
* Hands-on experience in developing, training & testing Machine learning and Deep learning algorithms.
* Extensive experience in the development and deployment of machine learning models using frameworks such as TensorFlow and Keras.
* Expertise in natural language processing (NLP), Computer vision (CV), and other advanced data science techniques.
* Leveraged Generative AI to develop tailored solutions that addressed specific business needs and requirements, contributing to increased efficiency and productivity across various departments.
* Proficient with Python, Javascript including PyTorch deep learning framework, Scikit-learn, Pandas, SciPy, NumPy, Seaborn, NLTK, and highly skilled in using visualization tools like Matplotlib, Plotly, and Tableau for creating dashboards.
* Knowledge of databases, SQL, data movement (ETL), machine learning pipelines, Information Extraction, NLP, and Computer Vision algorithms coupled with Deep Learning.
* Proficient in Machine Learning techniques (Decision Trees, Linear, Logistics, Random Forest, SVM, Bayesian, K-Nearest Neighbours) and Deep Learning techniques (CNNs, RNNs, LSTMs), and Segmentation methodologies, Regression-based models, Hypothesis testing, PCA.
* Solid experience in data pre-processing techniques such as Data Extraction and Data Cleaning with large sets of structured and unstructured data, Exploratory Data Analysis (EDA), Feature Engineering, etc.
* Solid quantitative background, excellent analytical and troubleshooting skills, very quick learner.
* Integration of chatGPT for internal utilization, optimizing its functionality to cater to specific organizational needs and enhance internal processes.
* Expert in creating ETL packages, migrating data, cleaning data and backing up data files.
* Excellent experience in onsite-offshore model interacting with clients and Onsite managers.
* Proficient at working independently and collaborating with teams across multiple functions to take information from a wide variety of sources and effectively break down concepts to diverse audiences.
* Experienced in developing end-to-end machine learning pipelines using MLflow, scikit-learn and other related tools.
* Experience with containerization technologies such as Docker and container orchestration tools like Kubeflow.
* Strong knowledge of version control systems particularly Git for tracking changes in ML models.
* Familiar with cloud platforms such as Google Cloud for deploying and scaling ML applications.

**Technical Skills:**

**Programming Languages:** Python

**Algorithms:** Linear Regression, Lasso & Ridge, Logistic regression, KNN, Naïve Bayes, Decision Tree, Random Forest, K means, K Means++, DBSCAN, PCA, XGBOOST, Gradient Descent, SVM, Deep Neural Networks, Transfer Learning, CNN, RNN, R-CNN, LSTM, BLSTM

**Natural Language packages:** NLTK, Gensim, Hugging face, Spacy

**Data Science Packages:** Pandas, NumPy, PySpark, SciPy, Scikit-learn, xgboost, Keras, TensorFlow, PyTorch, SHAP, MLFlow, lightgbm, catboost, pycaret.

**Visualization:** Matplotlib, Seaborn, PowerBI, plotly, Grafana

**Misc:** Fast API, Flask, Apache Airflow, Docker, Kubernetes, Kubeflow, Grafana.

**Cloud:** GCP (VertexAI, Big query, Colab, Workbench, Composer, Dataproc)

**Version Control:** Git

**Operating System:** Windows, Linux, Mac OS

**Databases:** MySQL, MongoDB

**Professional Experience:**

**Verizon, Dallas, TX June 2024 – Present**

**Role: Senior AI/ Machine Learning Engineer**

**Responsibilities**:

* Developed and deployed end-to-end data pipelines using Airflow on GCP Composer for data preprocessing, model prediction, and calculating SHAP values for feature importance on batch processing systems.
* Built Grafana dashboards to monitor pipelines, track critical datapoints, and implemented word clouds to monitor text-based data in NLP models for better insights and performance tracking.
* Leveraged PySpark and BigQuery to optimize and accelerate data preprocessing workflows for large datasets.
* Configured the entire project using TOML files for streamlined project management and configuration.
* Implemented serverless deployment of AI models using GCP Cloud Functions for real-time inference, enhancing customer call and chat analytics by automating sentiment analysis and conversational insights.

**Cisco Systems Inc., San Jose, CA Oct 2018 – April 2024**

**Role: Machine Learning Engineer**

**Responsibilities**:

* Spearheaded cross-functional collaboration between multiple teams, accelerating development and debug cycles.
* Mentored individual engineers and teams on new tool implementation, improving their technical skills and workflow efficiency.
* Developed and maintained comprehensive machine learning pipelines on GCP for various predictive tasks and optimizations, streamlining the design process and saving more than 7 months of effort per ASIC.
* Developed and refined automation frameworks and processes to accelerate validation for SI engineers, leveraging MLOps best practices.
* Facilitated data generation for machine learning, resulting in a tenfold increase in efficiency and productivity levels.
* Collaborated closely with cross-functional teams to customize and deploy ChatGPT within Cisco's internal ecosystem, ensuring seamless integration with existing platforms and workflows.
* Conducted training sessions and workshops to educate internal stakeholders on the capabilities and potential use cases of chatGPT, fostering a culture of innovation and Generative AI adoption within the organization.
* Utilized embedding techniques tailored to hardware-specific aspects for fine-tuning Large Language Model (LLM) architectures for AI assistants, aiding hardware engineering teams in analyzing reports and design documentation.
* Developed methods for storing confidential and intellectual property hardware design data using vector DB, enhancing Language Model capabilities.
* Integrated multiple NLP models and fine-tuned them for improved accuracy in understanding complex database schemas and query intentions.
* Developed a custom entity recognition system to identify table names, column names, and SQL functions within natural language queries.(Text2SQL)
* Developed and implemented deep learning models using Keras and PyTorch, including data preprocessing, model training, and model deployment(AI/ML)
* Tuned hyperparameters such as learning rate, regularization strength, and batch size through cross-validation and grid search to improve model performance and generalization.
* Leveraged Kubeflow for orchestration and management of machine learning workflows, ensuring scalable and reproducible model training and deployment on GCP.
* Used experiment tracking platforms like MLflow and Tensor Board to log hyperparameter configurations, metrics, and model artifacts for reproducibility and collaboration.
* Optimized data processing pipelines using PySpark on GCP (data proc) for maximum efficiency and reduced latency.
* Conducted A/B testing to evaluate the effectiveness of model performance based on Online and offline performance evaluation metrics.
* Continuously monitored model performance and updated the models as new data and insights became available.
* Executed thorough data cleaning and formatting techniques, utilizing JSON and log files to uphold dataset integrity and uniformity, resulting in enhanced model performance and precision.
* Optimized complex FEC analysis using regression and generated user-friendly, shareable HTML reports for informed decision-making.
* Spearheaded BOM cost optimization initiatives by reducing 3% in component costs per unit through the identification of cost-effective alternatives.
* Engineered Python scripts to facilitate smooth data extraction and API integration, leveraging REST APIs to access supply chain databases.

**Simple Emotion Inc., San Carlos, CA Feb 2017 – Sep 2018**

**Role: Machine Learning Engineer**

**Responsibilities:**

* Analyzing technical requirements with manager for new features mathematically and business context.
* Research & Develop Machine Learning and Deep Learning prototypes and validate the results.
* Implemented transfer learning techniques Baidu’s Deep Speech2 speech recognition model on call recording data to decrease errors by 70%, using Pytorch.
* Developed an unsupervised learning pipeline to automatically tag call data with relevant keywords, enabling a 50% reduction in search time.
* Implemented a deep learning pipeline for music genre classification on a massive 5TB dataset, encompassing data pre-processing, feature engineering, model training, and evaluation.
* Optimize and Parallelize code to work on multiple GPUs for better efficiency.
* Tackled highly imbalanced dataset using sampling techniques like under-sampling and oversampling with SMOTE (Synthetic Minority Over-Sampling Technique) using Python Scikit-learn.
* Conducted large-scale exploratory data analysis to identify patterns, data, correlations, and anomalies.
* Used correlation analysis and graphical techniques in Matplotlib, Seaborn, and GG plots to get some insights about agents patterns and behaviours.
* Extensively involved in all phases of data acquisition, data collection, data cleaning, model development, model validation, and visualization to deliver machine learning solutions.
* Performed sentiment analysis using sophisticated statistical techniques such as LDA, tf-idf, word2vec, a bag of words, and vectorization and contributed to behavioural marketing features using new and existing model improvement.
* Code end-to-end rule-based, automation, statistical, or machine learning pipelines for turning raw data into protection value for customers.
* Generated the reports and visualizations based on the insights and developed dashboards for the company insight teams.
* Generated clean and efficient code to train ML models, focusing on throughput, stability, and ML metrics

**Transcend-CS, San Francisco, CA Oct 2016 - Jan 2017**

**Application System Analyst**

**Responsibilities:**

* Primarily responsible for analyzing technical requirements and implementing new features using JAVA/J2EE.
* Design and implement improvements to existing Solr deployment and usage.
* Build defined features to contribute value to the software codebase for a high-volume system
* Identify and implement improvements in existing services, including optimizations
* Maintain documentation to share knowledge
* Track work in ticketing system (JIRA).

**Indu Tech Inc, San Francisco, CA Jun 2016 - Oct 2017**

**System Engineer**

**Responsibilities:**

* Refactor existing code and redesigning structures to improve performance of the entire app and them reuse the code for development of new code by flavoring methodology.
* Responsible for designing and implementation of custom Uts, animation and graphic rich interfaces Used Expandable
* List Views to create drop-down lists using cuinam objects.
* Designed the login activity with dynamic layouts and custom buttons, while working extensively with Android Studio, Java and Android SDK frameworks
* Used services, Async tasks and Alert Notification API to implement event reminder festart into the mobile app Utilized
* Shared Preferences to store and maintain user information
* Responsible for consuming the REST services, getting JSON response and parse them in order to get the required information
* Worked on performance enhancements and fixed the bugs by closely working with testing team

**Missouri University of Science and Technology, Rolla MO Feb 2014 - Dec 2015**

**Graduate Research Assistant**

**Responsibilities:**

* Real time implementation of blind source separation in frequency domain using Fast ICA.
* Implemented Blind source separation in time domain using Fast ICA.
* Implemented the recognition of hand written digits and alphabets using neural networks and deep learning.
* Developed the beam forming using an optimal method of generalized side lobe canceller.
* Established blending of two images using Poisson gradient method.
* Applied the design of Adaptive filter using NLMS, PNLMS, and APA methods using Texas DSP processor.
* Executed the design of Active noise cancellation using NLMS method on Texas DSP Processor.
* Fulfilled feedback based cooling system using an ARM CORTEX processor.
* Programmed real time scheduling algorithm on Missouri S&T mote and Raspberry pi.
* Implemented facial expression recognition using Probabilistic Neural Networks
* Established Kalman filter for acoustic echo or noise cancellation

**Biztegy Analytics, Hyderabad India Jun 2012 - Jul 2013**

**Python Developer**

**Responsibilities:**

* Worked cross functionally to identify the opportunities to implement various Use Cases and for improving the business.
* Performed features scaling, engineering, and data cleaning, using Pandas and NumPy packages in Python 2.x/3. x.
* Supplanted lost data and completed EDA, Univariate and bi-variate analysis to understand the inherent and collective effects.
* Worked on large datasets (acquired data and cleaned the data), analysed trends by making visualizations using Python.
* Worked on miss value imputation, outliers identification with statistical methodologies using Pandas, NumPy
* Developed system models, prediction algorithms, solutions to prescriptive analytics problems, data mining techniques, and/ or econometric model.
* Communicated the results with operations team for taking best decisions and collected data needs and requirements by interacting with the other departments.
* Conducted studies, rapid plots and using advance data mining and statistical modelling techniques to build solution that optimize the quality and performance of data.
* Developed and automated the data manipulation process for above using stored procedures/views in SQL Server.
* Collected data from reliable sources and cleansed and applied it for predictions.
* Worked on different python libraries like xlrd, openpyxl, urllib, numpy, pandas etc.
* Formatted the script for production by scheduling based on the requirement.
* Improved code for reuse and better performance by making effective use of various design patterns and refactoring code base.
* Manage, collaborate and coordinate the work of an offshore development team.
* Experienced in command line utilities.
* Implemented responsive vector maps and charts on web pages using the data from MySQL.
* Worked on JIRA as bug tracking tool and experienced in Agile Methodologies and SCRUM Process.

**Education:**

* Masters in Electrical Engineering from Missouri University of Science and Technology - 2015