Faiyaz Ahmad

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EDUCATION

Masters in Data Science University of Michigan-Dearborn
Grade: 4.0/4.0 August 2022 - Expected May 2024
Courses: Database Systems, Cloud Computing, Deep Learning, Natural Language Processing, Big Data, Multivariate Statistics

Bachelors in Mechanical Engineering Motilal Nehru National Institute of Technology, Allahabad
Grade: 7.8/10.0 July 2014 - May 2018

SKILLS

Technical Skills	Hypothesis Testing, AWS, GCP, CI/CD Pipelines, Docker, Git, Kubernetes
Programming/Compute Tools:	Python, R, Matlab, SQL, Linux, Lambda, EC2, ECS, Compute Engine, GKE
ML/DL Frameworks:	Scikit-Learn, TensorFlow, Keras, Pytorch, OpenCV, NLTK, Pandas, Numpy
Machine Learning	SVM, Regression,Random Forest, Naïve Bayes, XGBoost, MLE, HMM
Deep Learning	CNN, Faster R-CNN, YOLO, RNN, GRU, LSTM, Attention Models, Transformers
Machine Learning/Big Data Tools:	Vertex AI, SageMaker, Spark, Kinesis, Kafka, Glue, DataFlow
Visualization Tools:	Looker, QuickSight, Tableau
Data Storage/Warehousing:	S3, Cloud Storage, RDS, MS SQL Server, DynamoDB, Athena, RedShift, BigQuery

PROFESSIONAL EXPERIENCE

Research Assistant (Machine Learning, AWS) Jan 2024 - Present
University of Michigan-Dearborn Dearborn, USA

- Developing custom object detection algorithm for processing of thermal videos to recreate the normalized 3-D visualization.
- Creating Web Application Frontend and Backend using S3, EC2, Lambda, CloudFront for interactive dashboard for 3-D printer time-series data, real-time thermal video analysis and visualization with low latency.

Data Analyst (Student Assistant) Aug 2023 - Nov 2023
iLabs University of Michigan-Dearborn Dearborn, USA

- Conducted web-scraping using python script for data collection. Performed data prepossessing, data modeling, exploratory data analysis and statistical analysis to pinpoint critical factors contributing to a hockey team's success.
- Built Interactive Tableau Dashboard to track the Players and teams performances.

Research Assistant (Deep Learning) May 2023 - Aug 2023
University of Michigan-Dearborn Dearborn, USA

- Implemented ResNet50, MobileNetV2, and U-Net architecture with modified dense layer for facial landmark detection on thermal images with custom loss function i.e wing loss to train the model. Achieved 0.04 Normalized Mean Error.
- Reviewed various research papers and replicating the models related to computer vision techniques to detect facial landmarks.

Data Analyst July 2018 - March 2022
Hero Motocorp Limited Gujarat, India

- Implemented a real-time production monitoring system using Python Script, Kinesis, DynamoDB, S3, Athena,and Glue to optimize machine shop efficiency by providing actionable insights of equipment uptime, cycle times, Cpk, and defect rates.
- Reduced 96% Rework by implementing various computer vision techniques such as CNN, or OCR for detecting the defects in the components or identifying right components for sub-assembly in Engine Assembly.
- Developed predictive models on Sagemaker using linear regression, and random forest regressor to estimate mean time between failures of machines, optimizing operational efficiency and reducing downtime.
- Designed dashboards using Amazon QuickSight, Looker and Tableau to track machine OEE, productivity metrics, MTBF, and key operational parameters by extracting data from Redshift and BigQuery through complex SQL queries.
- Performed batch data processing on EMR, staged data in S3, and transferred to Redshift for complex querying and analysis.
- Utilized Athena with the Glue Catalog for ad-hoc querying, integrating with Tableau for analysis,visualization and reporting.
- Performed statistical analysis and hypothesis testing using R on a manufacturing machine process assesses quality parameters, identifies variations, and optimizes product quality.
- Executed data modeling, normalization , and conducted data quality checkpoints to ensure data accuracy and integrity.

PROJECTS

End to End Football 950+ Leagues Analytics (GCP, AWS, Redshift, BigQuery, Glue, Lambda) [Link]
- Developed a football analytics pipeline across AWS and GCP for 950+ leagues with automated data collection and processing.
- Utilized serverless architecture using Lambda, S3, Glue services for a cost-effective solution with minimal overhead costs.
- Data warehousing using BigQuery and Redshift, robust SQL querying and integration with Tableau, Vertex AI, and SageMaker.

Twitter Streaming Sentiment Analysis (AWS, NiFi, Kafka, EC2, Spark Streaming, Jupyter) [Link]
- Built streaming Pipeline using Twitter API, NiFi, Kafka, and Spark Streaming using AWS EC2 Instance.
- Trained Word2Vec model and Decision Tree models for sentiment prediction. Achieved 78% accuracy, and 0.69 AUC-ROC.
- Built a dashboard for visualizing the sentiment on particular topic, and adhoc-queries on streaming data for 5 mins window.

Deep Implicit Movie Recommendation system (Triplet Loss, Embeddings, Tensorflow, Keras) [Link]
- Implemented a deep implicit movie recommendation system for IMDB dataset to predict the rating of user for particular movie.
- Optimized the model using triplet loss, by measuring similarity between user and item embeddings. Achieved 92% accuracy.

Bank Telemarketing Term Deposit Subscription Analysis and Prediction (R, ggplot, AIC) [Link]
- Performed the Data Cleaning, Exploratory data analysis, ANOVA, and chi-square test to check feature independence.
- Trained the logistic regression and decision tree classifier to predict the subscription probability. Achieved 0.60 AUC-ROC.

Remaining Useful Prediction for the Aircraft Gas Turbine Engine (Time-Series, CNN, Tensorflow) [Link]
- Performed the exploratory data analysis, feature engineering, and build the CNN architecture for time-series analysis.
- Trained the CNN model and fine-tune the model to overcome the overfitting issue. Achieved 21.5 MAE and 24.3 RMSE.

Semantic Image Segmentation using U-Net Architecture
- Implemented semantic image segmentation on the CARLA self-driving car dataset.
- Used Encoder block and Decoder block along with skip-connection at each level to improve the accuracy of masking prediction.
- Applied sparse categorical cross-entropy loss to train the model for pixelwise prediction

Neural Machine Translation using Attention Model [Link]
- Developed an attention-based model for Neural Machine Translation (NMT) specifically designed to translate human-readable dates into machine-readable dates.
- Model incorporates pre-attention Bi-LSTM and post-attention Long Short-Term Memory layer to enhance translation accuracy.

Named-Entity Recognition to Process Resume using Transformer Model [Link]
- Developed a Transformer-based model to process resumes and extract information such as name, skills, designation etc.
- Performed transfer learning using the DistilBERT fast tokenizer and a pre-trained transformer model for parsing resumes.

CERTIFICATIONS

AWS Certified Solutions Architect-Associate (SAA-C03) [Link]
Machine Learning by Coursera (Andrew Ng) [Link]
Deep Learning Specialization by Coursera (Andrew Ng) [Link]

LEADERSHIP AND VOLUNTEERING

Treasurer   Aug 2023 - Presnent
Student Activities Board (University of Michigan-Dearborn)   Dearborn, USA

- Adeptly managing budget of $65,000, while implementing sound financial practices and innovative strategies to maximize the impact of every dollar spent on creating memorable and engaging experiences for students.
- Created an automated budget estimation and expenditure tracking system that optimized proper utilization of funds, enabling more effective financial decision-making.

Active Member   Sep 2022 - Apr 2023
Buildon Club (University of Michigan-Dearborn)   Dearborn, USA

- Spearheading successful fundraising activities that generated $2000 in support of building a school in Senegal. This effort will help to provide education opportunities for underprivileged students.
- Volunteered my time and effort in Antie Na's Village to help sort and distribute donated winter clothing, making a tangible contribution to the betterment of the local community.