Animesh Goyal

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Education

The University of Texas at Austin, Austin, TX, USA Aug. 2018 – May 2020
Master of Science in Operation Research and Industrial Engineering ***GPA: 3.59/4.00***

Birla Institute of Technology and Science, Pilani, India Aug. 2013 – May 2017
Bachelor of Engineering (Hons.) in Manufacturing Engineering ***GPA: 8.18/10.00***

Technical Skills

Languages	Python, R, Java, MySQL, MATLAB, HTML
Packages	Numpy, Pandas, Matplotlib, Keras, TensorFlow, Plotly, Scikit-learn, SciPy, Seaborn
Technologies	Spark, Hadoop, Linux, Version control, Shell Scripting
Statistical Skills	Regression, Classification, Clustering, Time Series Forecasting, Reinforcement Learning, Anomaly Detection, Deep Learning, A/B testing, Hypothesis Testing
Software	Jupyter Notebook, PyCharm, RStudio, Processing, Eclipse

Experience

SparkCognition June 2020 – Present (1 yr)
Data Scientist II *Austin, TX*

- **Predictive Maintenance using AutoEncoder:**
  - Improved production efficiency by 2.5% for a Fortune 50 global beverage manufacture by predicting faults with significant lead time
  - Deployed model using Vanilla AutoEncoder to detect anomalies and calculated rolling mean of RMSE values to denoise any false predictions
  - Rolling mean of RMSE values were further used to perform Wald's Sequential Ratio Probability Test (SPRT) to generate final alerts
- **Unsupervised dimensionality reduction and clustering:**
  - Engineered information out of 1.2GB, complex and unstructured dataset for a large oil gas company to build a predictive maintenance tool that would raise alarm 2.5 hrs before component failure
  - Trained model using the clustering pipeline that involves Isolation forest, PCA, HDBSCAN, Random Forest algorithms to generate a risk score that alerts for an anomaly
- **Time series analysis for Demand Forecasting:**
  - Built a Time Series Forecasting model for a wind energy company using Dual Attention based RNN model to predict the energy demand for next 24 hrs
  - Model achieved a MAPE of 1.98% beating the previous best MAPE of 2.1%

Artificial Intelligence Lab May 2019 – May 2020 (1 yr)
Graduate Research Assistant, The University of Texas at Austin *Austin, TX*

- Worked under the supervision of Dr. Peter Stone to develop an environment for implementing multi-agent deep reinforcement learning policies on RoboCup Rescue Simulator
- Built a model using Proximal Policy Optimization (PPO) and Deep Q-networks (DQN) using OpenAI's Gym on different sized maps that accomplished tasks in 18% lesser time compared to previous best model (Link)

Weir Minerals Jan 2017 – June 2018 (1.5 yr)
Graduate Engineer Trainee *Bangalore, India*

- Developed and validated component scenario to reduce part tooling estimate by 20% resulting in annual savings of $4.2M
- Wrote SQL queries to extract CAD models and identify cost drivers in machine component design
- Developed weekly report for the executives which helped discover actionable insights and KPI's in Tableau

Projects

Predicting Click Through Rate for an Ad Agency website (Link) Aug 2018 – Dec 2018

- Built a ML model using Stacked Ensemble of XGBoost, Random Forest and LightGBM to accurately predict the number of customers visiting an Ad Agency website
- Analyzed and processed data using various data visualization tools like Matplotlib and Seaborn, and performed hyperparameter tuning using Bayesian Optimizer
- Ranked 6th among a class of 400 students in the In-class Kaggle Competition achieving an AUC score of 0.5848

Movie Recommendation System (Link) Aug 2019 – Dec 2019

- Built a model to recommend movies to a new user using Multi-Armed Bandit algorithms like Epsilon Greedy, UCB
- Implemented Collaborative Filtering to fill sparse user rating matrix and clustered them using K-means clustering to get a final Normalized Discounted Cumulative Gain (NDCG) score of 0.94 using Thompson Sampling

Achievements

- Winner of UT Austin's Data Hack 2019 jointly organized by Microsoft Azure, Oracle and ML DS group at UT Austin (Link)
- Published Machine Learning articles on Medium.com which garnered 50k+ views