Animesh Goyal

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EDUCATION

THE UNIVERSITY OF TEXAS AT AUSTIN, USA May 2020
Master of Science in Operation Research and Industrial Engineering **GPA: 3.70/4.00**

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI, INDIA May 2017
Bachelor (Hons.) of Engineering, Manufacturing Engineering **GPA: 3.85/4.00**

WORK EXPERIENCE

ARTIFICIAL INTELLIGENCE LABORATORY, UT AUSTIN **Austin, TX**
Master Thesis *June 2019 - Present*

- Working under the supervision of Dr. Peter Stone on developing an environment for implementing and testing various **Multi-Agent Deep Reinforcement Learning** policies to study their effect on achieving pre-defined objectives
- Project involves integration of functionalities to several thousand lines of code in **RoboCup Rescue Simulator** (RCRS)
- Built a new framework to incorporate Reinforcement Learning policies to RCRS using **OpenAI' s Gym** toolkit
- Compared algorithms like Proximal Policy Optimization (**PPO**) and Deep Q-networks (**DQN**) on different sized maps to find out which one works better in a particular map setting

WEIR MINERALS **Bangalore, India**
Graduate Engineer Trainee *Jan 2017 – Jun 2018*

- Developed and validated component scenario to reduce part tooling estimate by **20%** which resulted in the **annual savings of $4.2M**
- Wrote **SQL queries** to extract 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

ACHIEVEMENT

- **Winner** of UT Austin's Data Hack 2019 organized by Microsoft Azure, Oracle and ML-DS group at UT Austin
- Published Machine Learning articles on Medium.com which garnered more than **10k+ views**

PROJECTS

SOLVING COLD USER PROBLEM IN RECOMMENDATION SYSTEM USING MULTI-ARMED BANDIT (MAB)
Algorithms Applied: ***Collaborative filtering, Thompson Sampling, Epsilon Greedy, Upper Confidence Bound***

- 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
- Thompson Sampling performed best with normalized discounted cumulative gain (NDCG) score of 0.94

ANOMALY DETECTION USING A SEMI SUPERVISED HYBRID MODEL APPROACH
Algorithms applied: ***KNN, Auto Encoder, One-Class SVM***

- Built a semi supervised hybrid model in Tensorflow using Auto Encoder and KNN for optimizing marketing efforts
- Compared and evaluated results with One-Class SVM in terms of their F1 scores
- Final model improved detection accuracy and reduced computational complexity

PREDICTING APPLY RATE FOR A JOB SEARCH WEBSITE
*Algorithms Applied****: XGBoost, Random Forest, Logistic Regression, Stacking***

- Analyzed and processed data using various data visualization tools like Seaborn, feature engineering tools 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 0.944

SKILLS/ COURSES

- **Languages** Python | R | Java | SQL | MATLAB
- **Packages/ Technologies** Spark | Keras | TensorFlow | Fastai | Numpy | Pandas | Plotly | Scikit-learn | SciPy | MapReduce | Seaborn | Linux | Version Control (Git) | Tableau | Shell Scripting
- **Statistical Skills** Regression | Classification | Clustering | Dimensionality Reduction | Hypothesis Testing
- **Courses** Data Science Lab | Time Series Analysis | Linear Statistical Models | Applied Probability