**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 Filteringto 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