**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: 3.75/4.00**

**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI, INDIA** May 2017

*Bachelor (Hons.) of Engineering, Manufacturing Engineering*  **GPA: 3.85/4.00**

**WORK EXPERIENCE**

**UT CS - ARTIFICIAL INTELLIGENCE LABORATORY Austin, TX**

*Data Science Researcher, Department of Computer Science, UT Austin. June 2019 - Present*

* Working under the supervision of Dr. Peter Stone for my thesis on developing an environment for implementing and testing various **multi-agent 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**
* Defined the possible state-space, action-space and reward function for the agents

**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**

**DETECTING THE ONSET OF MACHINE FAILURE USING ANOMALY DETECTION METHODS**

*Algorithms applied:* ***k-Means Clustering, Isolation Forest, Auto Encoder, One-Class SVM***

* Built a model in Tensorflow using a data-driven approach for early detection of faults for a condition-based maintenance system
* Compared and evaluated several semi-supervised algorithms in terms of their F1 scores
* Successfully detected failures to address key issues in maintenance like safety and cost-effectiveness

**PREDICTING CLICK-THROUGH RATE (CTR) FOR AN AD AGENCY**

*Algorithms Applied****: XGBoost, Random Forest, LightGBM, Stacking***

● Developed machine learning model to accurately predict the number of customers visiting an Ad Agency

● 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

**SOLVING COLD USER PROBLEM IN RECOMMENDATION SYSTEM USING MULTI-ARMED BANDIT**

*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

● Used Collaborative Filteringto fill sparse user rating matrix. Clustered the users using K-means clustering

● Thompson Sampling performed the best with NDCG score of 0.94 after 15 iterations

**SKILLS/ COURSES**

* **Languages** Python | R | Java | SQL | MySQL | 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