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 Filtering to 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