Tejas Rajratna Adsul

950 Colgate Dr, College Station, TX-77840

tejas.adsul2110@gmail.com | tejasadsul | TejasAdsul | (979)324-5947

EDUCATION

Texas A&M University — **College Station, TX**
MS in Mechanical Engineering | GPA: 3.88/4.0 — *Graduation: August 2021*

Indian Institute of Technology Bombay — **Mumbai, India**
BTech in Mechanical Engineering | GPA: 7.46/10 — *Graduation: August 2019*

SKILLS

- Skills: Data Science, Machine Learning, Deep Learning, Optimization, Statistics
- Languages/Software: Python, MATLAB, Anaconda, Scikit-Learn, Keras, Pytorch, Tensorflow, SQL
- Certifications: **IBM Machine Learning Professional**, **Stanford Online Machine Learning**

PROJECTS

Ant Foraging Model

- Conceived **multi-agent reinforcement learning** algorithms for efficient strategies in an ant foraging model
- Achieved optimal performance within 3 and 20 epochs for **Joint** and **Decentralized Q-Learning** resp.
- Implemented **Deep Q-Learning** with neural networks for robustness, albeit with inconsistent performance

MIT Indoor Scenes Classification

- Classified indoor scenes into one of 67 classes with an accuracy of **65%** by implementing a **Deep Learning** model using **Convolutional Neural Networks (CNNs)** with albumentations for image augmentation

Concrete Strength Regression

- Achieved an r^2 score of **0.77** in predicting concrete strength based on component composition, using feature scaling, feature selection, **Principal Component Analysis** and ensemble methods **(SVM, XGBoost)**

Pneumonia Detection

- Detected viral or bacterial infection in lung x-rays with an f1 score of **0.83** using **ResNet18 CNNs**

Credit Card Approval

- Attained an accuracy of **85.07%** in predicting credit card approval based on 15 features, using scaling, label encoding, missing value imputation and hyperparameter tuning through grid search

EXPERIENCE

Texas A&M University — **College Station, TX**
Graduate Research Assistant — *June 2020 - May 2021*

- Developed novel bio-inspired model for finding efficient innovation discovery strategies in a scientific field
- Analyzed 26000 articles in Robotics from 1991-2020, performed **NLP** on keywords, constructed a keyword co-occurrence network with 1600 nodes and 85000 links, and built an ant-foraging simulation model on it
- Extracted novelty-boosting research strategies such as effective innovation dissemination, publishing failures, balance between conservative and risky research, and individuality in the choice of a project to pursue

Johns Hopkins University — **Baltimore, MD**
Math Modeling Intern — *May 2018 - July 2018*

- Designed mathematical framework of actin network architecture complete with active cell forces in MATLAB
- Scrutinized understudied movement of actin filaments from such forces, with transition of cell membrane
- Introduced **stochasticity** in attached filaments, frictional forces and torques, making the model

Texas A&M University — **College Station, TX**
Graduate Teaching Assistant — *February 2020 - May 2020*

- Handled coursework of 50 UG students for Materials Lab, supervised experiments, engaged in questions
- Facilitated a swift transfer to an online forum during the first lockdown due to COVID-19 in March 2020
- Acclimatized the syllabus by creating experiment presentations, availing technical help and utilizing other references, and garnered a satisfaction rate of 85% from students