



## EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2021	M.TECH Dual Degree 5Y	IIT Kharagpur	6.78 / 10
2016	CBSE	Kalyani Central Model School	87.8%
2014	CBSE	Kendriya Vidyalaya Bamangachi	9.6 / 10

## COURSEWORK INFORMATION

**Academic :** Programming and data structures | Probability and statistics | Simulation | Linear algebra | Product development  
Logistics & supply chain management | Financial engineering | Data analytics | Optimization heuristic methods

**MOOCs :** •Machine Learning A-Z: Hands-On Python In Data Science | Udemy •Deep Learning Specialization | Coursera

## INTERNSHIPS AND PROJECTS

**Optimal paired facility location project | Internship | VGSOM, IIT Kharagpur** June 2020 - July 2020

- Built a multi-objective mixed integer programming model of cost minimization and quality maximization of plant and warehouse
- The plant model is optimized primarily to get optimal plant site then warehouse model is created in the vicinity of plant site
- The plant and warehouse model are optimized using **CPLEX** optimization software to get the optimal site

**Sentiment analysis | Kaggle | Online** May 2020-June 2020

- Processed **1.6** million tweets dataset, applied **stemming** and **lemmatization** along with removal of hyperlinks, mentions, and stopwords
- Implemented **tokenization** to training and test datasets and used **GloVe** word embedding as transfer learning in the model
- Applied **LSTM** model to build a **Recurrent Neural Network** followed by optimization and predicted tweet sentiment between 0 and 4

**Classification of risk levels in the driving simulation of EOT crane | Bachelor Thesis | IIT Kharagpur** April 2020 - May 2020

- Overview:** Classified imbalanced dataset of **eye-tracking** metrics and **NASA-TLX** questionnaire into different risk levels
- Extracted 10 EOT crane workers imbalanced dataset which includes NASA-TLX & eye-tracking features with multiple hazard-activity levels
  - Implemented Random forest, Decision Tree & SVM algorithms on multiclass imbalanced dataset and achieved **94%** accuracy
  - Validated and improved the model accuracy using bagging, boosting & stacking and visualized **ROC** and **Precision Recall** curves.

**Improving efficiency of HSM yard logistics | Internship | Tata Steel Ltd., Jamshedpur** May 2019 - June 2019

- Gained hands on experience on **Hot Strip Mill Logistics** including **Coil Yard Management** and **Vehicle Tracking System**
- Suggested improvements in the logistics network of coil paths along with coil assignments to various conveyor points

**Queuing Simulation of Cafe Coffee Day | Term Project | IIT Kharagpur** Feb 2019 - April 2019

- Developed simulation model on **ARENA**; Collected data of customer's average waiting time in the queue, interarrival time and service time
- Fedded the raw data into input analyzer to create histograms and judged the distribution based on squared error, chi-square and K-S test
- Validated the distribution followed by the **average waiting time** and **inter-arrival time** of collected data and simulation generated data
- Suggested adding new counters and decision modules with 0.5 probability in the simulation model minimizes waiting time of customers

**Work Time Study - Soldier weight analysis | Term Project | IIT Kharagpur** Jan 2018 - April 2018

- Achieved the best path for 5 soldiers to complete a journey in rugged terrain environment carrying some weights using **linear regression**
- Generated soldier's fitness data along with some weight carried by them using Work-Time study and feed it to different path weights
- Created a virtual environment using **Sketch-up** and simulation model using **Vizard5**; Executed commands for movement on python
- Conceptualized an optimal weight to be carried by soldier based on different fatigue levels to complete the journey in good health

## COMPETITION/CONFERENCE

**Natural Language Processing | Joke Rating Prediction** September 2020

- Applied **BeautifulSoup**, **RegEx** & **NLTK-stopwords** to preprocess jokes; merged it with train and test dataset separately
- Visualized the word cloud of jokes dataset and further vectorized the words using sklearn-**CountVectorizer**
- Implemented **LightGBM** model with defined set of hyperparameters; validated and predicted test set ratings using RMSE metric
- Secured a rank under top 50 in the final leaderboard of Analytics Vidhya Hackathon with **RMSE** score of **4.42**

**Computer Vision | Age Detection of Actors** August 2020

- Implemented resizing, squeezing and normalizing techniques using **scipy**, **numpy** and **opencv** to preprocess image dataset of size 25k
- Applied sequential **CNN** model using **keras** followed by multiple **convolution**, **pooling**, and dense layers; used **adam** optimizer
- Implemented dropout and batch normalization to minimize overfitting; Achieved higher accuracy using hyperparameter tuning
- Secured a rank under top 25 in the final leaderboard of Analytics Vidhya with an accuracy of **91%**

**Analysis of mobile network congestions in Telecom Industry | General Championship Data Analytics | IIT Kharagpur** Jan 2019

- Analyzed the issue of network congestion in Telecommunication industry using cell tower statistical data of 80k train and 25k test set
- Used **PCA** to reduce dimensions; Applied logarithmic transformation to handle skewed data and preprocessed data for model building
- Applied **Hard Voting** ensemble technique on Gradient Boosting & SVM **model** and predicted congestion types with **0.71 MCC** score

## SKILLS AND EXPERTISE

**Programming Languages:** C/C++ , Python , R

**Libraries & Frameworks:** BeautifulSoup , Pandas , Numpy , Scipy , Scikit-learn , Matplotlib , PyMySQL , Tensorflow , Keras , NLTK , OpenCV

**Softwares:** Anaconda-Jupyter/Spyder , Excel , MySQL , CPLEX , SAS , MATLAB , Arena , Solidworks

## EXTRA CURRICULAR ACTIVITIES

- Part of Silver winning **Rangoli** Illumination team of **Acharya Jagadish Chandra Bose** Hall of Residence
- Supervised and managed the tasks and responsibilities of around 500 hall members in the **Illumination** 2019-20
- Part of Interhall cricket team 2018, 2019 and 2020 of **Acharya Jagadish Chandra Bose** hall of residence
- Created awareness and information related to Health in a team of thirty people for National Service Scheme in Soladaha village