

Mudit Tiwari

Data Scientist

MSc in Mathematics & Computing

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EDUCATION

- **Indian Institute of Technology, Guwahati**

Master of Science in Mathematics & Computing; CGPA: 6.9

Guwahati, India

July 2016 – May 2018

- **Sri Venkateswara College, University of Delhi**

Bachelor of Science in Mathematics; CGPA: 8.7

Delhi, India

July 2013 – June 2016

EXPERIENCE

- **CyborgIntell**

Data Scientist

Bangalore, KA

March 2019 - Present

- **Explainable AI:** Explainable AI is a explainability module of fully automated machine learning product. I worked on implementation and research of local as well as global Importance criteria. Implemented algorithms like null-importance, LIME, SHAP, PDP etc for PySpark, SKlearn & H2O based models.
- **Decisioning Engine:** Developed an advance decisioning & optimization engine to take and recommend important decisions on Customer level. It is most use full for BFSI, Health and Retail sectors. This algorithm used a blended idea of Bayesian optimization and partial dependence plot.
- **Pyspark Automated Pipeline Development:** Implemented end to end pipeline for fully automated Pyspark modeling. This pipeline included(not limited to) data treatment, feature selection, model selction, hyper parameter tuning etc.
- **Plot API:** Created set of APIs to visualize the model performance for regression/ forecasting AutoML. Some examples of the APIs are: Original Vs Predicted, distribution of residuals etc. These APIs populated the points to be plotted and then were sent to frontend for plotting exercise.
- **Auto Documentation:** Developed an Auto Documentation module for AutoML product, this document is automatically made using Python and L^AT_EX after creation of every project. This document contains results and details of each step taken by AutoML.
- **Customer Analytics:** Worked on real industry use cases from BFSI, HR analytics, Web analytics, retail & hospitality etc. I mainly lead the path on data understanding, problem formalization, data preperation, model development, feature engineering & post model analysis.

- **Teknuance**

Research Analyst - Machine Learning and Mathematics

Chennai, TN

July 2018 - March 2019

- **Algorithm Design:** Designed the set of core algorithms for a file based database. Main elements of this set algorithms were: Data dumping into file based architecture, SQL Queries backend, caching layer development. These algorithms were later implemented in C++ by other team.
- **Graph Based Caching Layer:** Designed the algorithm and architecture of a caching layer in a file based DB. This caching layer was based on graphs and the whole idea was to use the semanticity of queries to save on computational time.
- **Knowledge Graph:** Researched and designed the architecture of core knowledge graph's algorithm. It is based on entity-relation-entity theory, and was used onto top of a chatbot. Later, implemented in python to go in production.
- **Chatbot:** Trained a sequence to sequence model for training bunch of dataset for english & tamil language chatbot. The deeplearning framework used was keras & pytorch.
- **Character Recognition:** Developed a Image classification algorithm for tamil character recognition, the algorithm was trained using pytorch and architecture used was RESNET50.
- **Text to SQL:** Researched and used NLP fundamentals, and sequence to sequence modeling for training a model which turned the normal english to SQL query.

- **Teknuance**

Research Intern - Mathematics

Chennai, TN

Summer 2018

- **Distribution Differentiator:** Developed the distribution differentiator, which used several statistical tools & regular expressions to hypothesise if two sets are from same distributions or not.
- **Meeting Scheduler:** Created a python based application to schedule internal meetings. This was used by maintaining a global meeting portal, and every employees calender. It handled the slot collision and provided the recommendation to user of favourable time for employees.

PROJECTS

- **Flocking Algorithm: A Simulation Study:** GUI based simulation of Flocking Algorithm using Python. Also came up with a new flocking algorithm using KD Tree to reduce the overall time complexity of the old algorithm. This project was done under guidance of Prof. Partha Sarthi Mandal.
- **Restricted Boltzman Machine:** Implamentation of geoffrey hinton's famous paper on Dimensionality Reduction using RBM. I used python and tensorflow to build and train model from scratch.

TECHNICAL SKILLS

- **Languages:** Python, C, MATLAB
- **ML Technologies:** Numpy, Pandas, SKLearn, XGboost, CatBoost, LightGBM
- **Frameworks:** Pytorch, H2O, PySpark
- **Miscellaneous:** Linux, Vim, GCP, Excel

ACHIEVEMENTS

- **Academics**
 - **Joint Admission for Masters - 2016:** Secured AIR 249 among 10000+ candidates in JAM 2016 taken in Mathematics.
 - **GATE - 2018:** Qualified GATE MA with 902 rank.
 - **Inspire Scholarship:** Received Inspire Scholarship (2013 batch) from MHRD, Govt of India.
 - **Other:** JEE Main-40234/1.2M, Qualified SAU entrance with rank 61, Qualified NSTSE.
- **Competitive Data Science [Only Showing Few]**
 - **Analytics Vdihya - Bain & Company Forecasting Challenge:** Secured rank 2 among 2500+ participants.
 - **Analytics Vidhya - AmExpert by American Express:** Secured rank 5 among 3000+ participants, won the prize money, and top5 medal.
 - **Kaggle - Ashrae Great Energy Predictor:** Got rank 53 among 3600+ submissions, won a silver medal.
 - **Kaggle - Catch Me if You can [Intruder Prediction]:** Got 84 rank among 3800+ submissions.
 - **HackerEarth - HDFC ML Hackathon:** Got rank 12 among 3000+ registered candidates.
 - **HackerEarth - LMG ML Hackathon:** Got rank 20 among 2000+ registered candidates.