

## SHIVAM | 17CH30026

### CHEMICAL ENGINEERING(M.Tech Dual 5Y)

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### **EDUCATION**

Year	Degree/Exam	Institute	CGPA/Marks
2022	M.TECH Dual Degree 5Y	IIT Kharagpur	8.56 / 10
2017	CBSE Class XII (AISSCE)	D.A.V Public School, Patna	92.8%
2015	CBSE Class X (AISSE)	D.A.V Public School, Patna	10 / 10

**INTERNSHIPS** 

MTX Group, Hyderabad May'21 - August'21

Machine Learning Intern

Player Similarity: Created a model capturing characteristics of players' overall style & skill from a database of 10 seasons (5mn+ actions)

- Formulated data pipelines to extract & pre-process the data from Wyscout and ingested it into our Data Lake (Cloud Storage, BigQuery)
- Fabricated a NMF(Non-negative matrix Factorization) model along with feature engineering to capture, quantify the player attributes
- Constructed several baseline similarity models with **RestFull APIs** (Flask) to support user interested outputs, & containerised using Docker

**Roster Analysis**: Developed the architecture to recommended and rank players for various positions within any selected formation in soccer
• Reckoned the similarity score between player & formation-position vector, followed by combinatorial optimization with **Hungarian** algo

- Assembled new variables using **Feature Engineering** and filtered the primary attributes using statistical methods including multicollinearity
- Built XGBoost models to accurately predict the probability of scoring & conceding opportunity using **5-fold** cross-validation on **1mn** points

## Coneio Exim Private Limited, Hyderabad

Software Development Intern

- Delivered code for extraction of HSN Code and Description data from pdf and a tool for Description to its HSN Code searching with RegEx
- Obtained n-grams from the various description of traded goods in different HSN categories using Fuzzy and TFIDF algorithms
- Created a program to automatically detect SCOMET items using NER and developed a dynamic drop down for species selection
- Used RegexpParser and NLP to segregate object specifications and quantity from the provided description of the imported items
- Built a cloud-hosted dynamic web application for product to HSN code mapping using BERT and achieved 87% accuracy on test set

Bhugol Analytics, Mumbai May'19 - June'19

### Data Extraction and Processing Intern

- Achieved an accuracy of 76% with RegEx and indic transliteration in extraction of data from unstructured Marathi records
- Collated information from the Real Estate Regulatory Authority website and stored information in MySQL database tables
- Classified **3100** companies across the country into various sectors based on the Global Industry Classification Standard

#### **PROJECTS**

## **Contact Graph for COVID-19 modelling**

Guide: Professor Adway Mitra, Centre for Excellence in AI, IIT Kharagpur

- Built a web application to fetch the Contact Graph of a corona infected person based on his geopositional coordinates
- Connected the application to the real-time geopositional data stored in MySQL database along with bluetooth based location data
- Added Trajectory imputation using the Kalman Filters for missing geo-coordinates in small interval for obtaining probable contacts
- Created code to obtain complete contact graph in a selected timeframe and subsequent cluster analysis using K-means and Louvain algo

# An Ensemble Approach to Link Prediction

August'20 - November'20

December'20 - February'21

- Guide: Professor Sujoy Bhattacharya, VGSOM, IIT Kharagpur
- Applied top-(e,k) predictions and threshold techniques in **Latent Factor** method to speedup the link prediction in graphs
- Researched on ensemble approach using node, edge and biased edge bagging methods to further improve the efficiency
- Extended the bagging+ methods to other prediction methods like AA, RA, Jaccard Coefficient and Preferential Attachment
- Carried out efficiency and effectiveness comparisons of Bagging and Bagging+ methods with their conventional methods

## POSITIONS OF RESPONSIBILITY

# Sponsorship Head and Workshop Coordinator, Kshitij 2020

April'19 - April'20

- Responsible for garnering sponsorship for Asia's largest Techno-Management Fest with a total budget of INR 1.2 Crores
- Coordinated **nine** different workshops which provided hands-on skills to the participants and revamped Anadigix event in 17<sup>th</sup> edition

Core Team Member, Kshitij 2019

July'18 - April'19

• Garnered {INR 3.82 Lakhs} through alumni contribution and corporate sponsorship, publicized fest and conducted Sand-Rover Event

#### AWARDS AND ACHIEVEMENTS

- Won a **Silver** medal in Inter-Hall Chem Quest competition 2019 by designing Diethylene Glycol(**DEG**) transportation system
- Awarded Kishore Vaigyanik Protsahan Yojna 2016 fellowship by Department of Science and Technology, Government of India
- Secured State Rank 2 in National Standard Examination in Physics and Ranked in top 1% out of 2 lakhs students nationally

### SKILLS AND EXPERTISE

- Programming Languages: C | Python (Libraries:NLTK, Scikit-learn, Spacy, Tkinter, Selenium, Tensorflow, RegEx) | Java | C++ | Prolog
- Softwares and Tools: MySQL | GCP | MS Office | Git | AWS(EC2, S3, RDS, DynamoDB) | PuTTY | XAMPP | MATLAB

## **COURSEWORK INFORMATION**

- Programming Courses: Algorithms and Data Structures | Machine Learning | Deep Learning | Artificial Intelligence
- Mathematics Courses: Probability and Statistics | Transform Calculus | Numerical Solution of Partial Differential Equations