Mounica Patnana

Email: mounica.patnana@gmail.com

Mobile:+91-9560939398

WORK EXPERIENCE

- **Data Engineer at Varahe Analytics Pvt Ltd**: June 2022 -Present
- **Karnataka Assembly Elections 2023**: Conducted exhaustive electoral analysis for the Karnataka Aseembly election,identifying **swing seats** and providing valuable insights from the survey to the political party
- **Machine Learning Statistical Method:**: Predicted constituency-wise seat winners with **85 percent** accuracy for the Karnataka-2023 Assembly election.
  2.Designed and developed statistical method to predict election winners at the booth level, utilizing normalized survey data.
  3.Designed statistical model for categorization of booths and swing seats for focussed campaigning efforts.
  4.Utilized various ML Models to optimize exhaustive list of regression parameters such as age, gender, occupation, caste,past voting preference etc and to predict election outcome basis survey data.
  5.Used **Chi Square Automatic Interaction Detection** to uncover significant variable interactions between parameters like age ,caste, gender and occupation.This is used to unravel critical patterns and trends within data thereby helping in backing the seat call prediction.
- **Survey Central Project**: Engineered a robust data handling module capable of efficiently managing and processing large datasets for cleaning and validation.
  2. Developed Python modules to generate maps for tracking the location of survey agents leveraging**Geo-Pandas**
  3. Devised and implemented a collection of scientifically rigorous methodologies for grading booths and villages within a constituency. These methodologies serve as the foundation for conducting survey sampling, ensuring a robust and accurate representation of data. By leveraging these methods, the survey process is enriched with credibility and precision, yielding valuable insights for informed analysis
  4. Developed **Linear Regression model** to observe a correlation between the vote share of a political party and caste demographic in the Constituency
  5. Developed Python module for **vanilla normalization** using **iterative proportional fitting** to estimate the winner in election utilizing survey data conducted and achieved an accuracy of **85 percent** for **Karnataka,2023 AE**.
- **Print Electronic Media**: I spearheaded the design and implementation of a comprehensive **BigQuery** database architecture, tailored for the storage and management of daily print and electronic media data. This strategic initiative ensures the availability of up-to-date information, facilitating seamless report generation and timely delivery to clients for well-informed decision-making.
- **Leader Profiles**: Created and deployed a dynamic code base that fetches data from in-house databases and generates a pre-designed pdf of Union, State Ministers leveraging **ReportLab** library on an AWS server. Designed a user-friendly button functionality that triggers the PDF generation process alienating dependency.
- **Kamkhaya Survey Web Application**: Currently working on the development of **React** web application with a strong focus on presenting a diverse range of insightful survey reports to clients.
  1. Implementing robust session management and stringent user authentication and authorization mechanisms..
  2. Designed and implemented a robust **ETL** pipeline to seamlessly integrate and deliver reports within the web application
  3. Currently working on deployment of scripts on **AWS Lambda**
- **Chi Square Automatic Interaction Detection**: Currently, I am engaged in applying CHAID analysis to extract meaningful insights from survey data. By uncovering significant variable interactions, this analytical endeavor aims to reveal critical patterns and trends within the data. These insights will empower clients to make well-informed decisions based on a deeper understanding of the survey data

Education

- **Indian Institute of Technology Delhi** — New Delhi, India
  Dual Degree in Biochemical and Biotechnology; GPA: 7.01 — *July 2015 - Dec 2020*

Skills Summary

- **Skills**: Python, SQL, Git, AWS,React
- **Databases**: Postgresql,Mongodb,BigQuery
- **Frameworks**: Scikit Learn, Pandas, Matplotlib, Seaborn, Numpy, Tensorflow, Keras, Folium, Geo Pandas, Flask, React
- **Algorithms**: Linear and Logistic Regression,Random Forests, Support Vector Machines,KMeans Clustering KNN, Bagging and Boosting, Neural Networks,CNN

M'tech Thesis

- **Surface Complexation of Selenium Nanoparticles.**: Instructor (Prof Rohan Jain) Aug 2019 - Mar 2020
  - : Synthesized and Characterized selenium nanoparticles in the lab to conduct absorption experiments and to optimize Selenium Nano Particles for maximum absorption of heavy metals from synthesized wastewater.