

WORK ASSIGNMENT

Parul Bansal

Master of Science - AI Applicant

I am currently working as data scientist at **Accenture**, where my work varies from developing frameworks for data migration to **AWS** and developing the **AutoML** tool. I am currently collaborating with UK based Bank for developing ETL pipelines for file ingestion using **PySpark**. My responsibilities also involve developing an automated machine learning tool for various business problems ranging from classification to time series analysis. This Automated tool will be used across various teams to find best ML model based on user's performance metrics.

Prior to working at Accenture, I worked at Fractal Analytics as a Data Scientist in supply chain and healthcare domain. I got a chance to work on building models for multi-echelon inventory optimization using **reinforcement learning**. I also worked on building end-to-end pipelines for predicting the demand decline period of the product. My responsibilities involved building **LSTM** based models for multi-step forecasting to achieve a **MAPE of 15%** for products for a window of 2.5 years. Using the forecasted sales, I further determined the products whose demand would decline in the next 2.5 years using product history and state space models. The solution enabled the client to save more than **USD100M** each month on inventory excess. My time in Fractal also gave me an exposure to implement **bayesian networks** for risk predictions to maximise the risk prediction model for timely delivery of loads

Apart from these 2 experiences, my internship at **Citi Bank** gave an exposure of **Natural Language Processing**. I worked on building automated text generation models to publish financial summary reports, using Natural Language Generation and statistical text generation models. I was also able to reduce the report generation time by 40 mins per report and further optimised the solution using named entity recognition and support vector machines.

To further elaborate on my skill sets and work experience, I have included my CV below. Hopefully my work experience and skills make a strong case for my candidature for Master of Science in Artificial Intelligence at NTU.

Best Regards,
Parul Bansal
parulbansal52@gmail.com

APPENDIX
Curriculum Vitae

PARUL BANSAL

+91-9954349714

✉ parulbansal52@gmail@gmail.com

in [linkedin.com/in/parulbansal52](https://www.linkedin.com/in/parulbansal52)

Education

Indian Institute of Technology, Guwahati

July 2016 - June 2020

Bachelor of Technology in Chemical Engineering

CGPA: 8.48/10

Experience

Accenture

January 2022 - Present

Applied Intelligence : Data Science Analyst

Mumbai, India

- Collaborating with UK team to develop ETL frameworks in pyspark for migrating data to AWS for a Fintech Client.
- Executed testing for in-house interactive notebook tool "Low Code No Code", an application to build internal capability for automated machine learning.

Fractal Analytics

September 2020 - December 2021

Supply Chain : Data Scientist

Mumbai, India

- Designed and deployed framework for inventory and production optimisation using reinforcement learning, for New York Client to save USD100M+/month using tree-based ensemble models and LSTM models to forecast 3 year sales.
- Forecasted 30 months regional and global sales using Amazon's LSTM based DeepAr Model for 10k+ products for a cosmetic major on Microsoft Azure.
- Coordinated with a Fortune-100 client to develop On-Time-In-Full risk prediction model for estimating delivery of loads using bayesian neural networks. Further, used PowerBI to track the process and suggest actions to avoid delay. The solution was also awarded as the best project for the year.
- Collaborated with Fractal, New York for predicting unplanned hospital admits for upcoming 6 months. Focused on big data feature engineering and LGBM model tuning to increase precision by 6%.

Fractal Analytics

May 2020 - August 2020

Data Science: Pre-Onboarding Training

Mumbai, India

- Successfully completed the pre-on boarding training, working on certification courses, hackathons and brain storming sessions to build novel solutions for the ongoing projects.

Citi Bank

May 2019 - July 2019

Cross Product Technology : Summer Analyst

Pune, India

- Implemented scalable automated text generation model to publish financial summary reports, using Natural Language Generation and statistical text generation models.
- Reduced report generation time by 40 mins per report and further optimised the solution using named entity recognition and Support Vector Machines.

Zomato

May 2018 - July 2018

Logistics Team : Business Development Intern

Delhi, India

- Built dashboards to understand and analyse the impact of policy changes on various metrics such as shutdown percentage, Driver touch points, commission-able amount.
- Decreased delivery frauds by 10% by deploying SQL system alerts for metrics such as shutdown and drop in login hours.

Major Projects

Price Optimisation Scheduler | Tractor Supply AI/ML Hackathon

September 2021

- Designed and implemented price optimisation framework for maximising gross profits using sequential least squares programming. Achieved MAE of 5% for sales forecasted for 3 months using Temporal Fusion Transformer, and found empirical relationship between sales/price using numerical methods.

Mento: Mental Health ChatBot | MIT Covid-19 Hackathon

September 2020

- Collaborated with people from 3 countries to create a chatbot for initial analysis of severity of depression in a person. Further added features such as community support groups and personalised scheduling sessions

Bachelor Thesis Project | Indian Institute of Technology, Guwahati

July 2019 - May 2020

- Used ANOVA- statistical technique to split observed aggregate variability found inside a data set, central composite design, and response surface methodology, to optimise UV extraction of polyphenols using experimental data.

Quora Question Pairs Meaning | Kaggle

September 2019 - October 2019

- Applied NLP techniques such as cosine similarity, Word2Vec, and t-Distributed Stochastic Neighbor Embedding for dimensionality reduction to classify whether Questions have same meanings or not.

Technical Skills

Languages: Python, C/C++, PySpark, SQL, PostgreSQL, MongoDB

Machine Learning Tools: Pytorch, Tensorflow, Sci-kit learn, Sklearn, Bnlearn, Scipy, plotly

Web Technologies: HTML, CSS, XML

Miscellaneous: MS Azure, AWS, MS Excel, Power BI, Tableau

Courses and Certifications

Online Courses - Coursera

- MLoPs Specialisation (DeepLearning.AI)
- NLP Specialisation (DeepLearning.AI)
- Data Structures and Algorithms Specialisation
- Deep Learning Specialisation (DeepLearning.AI)

Post Graduate Certification in Foundations of DataScience by IIIT Hyderabad

- Introduction to Data Management
- Statistics and Exploratory Data Analytics
- Predictive Analytics I

Indian Institute of Technology Guwahati

- Pattern Recognition and Machine Learning
- Mathematics - MA101, MA102
- Advanced Mathematics MA201
- Process Control and Instrumentation
- Numerical Methods in Chemical Engineering

Achievements

- **Tractor Supply (US) AI/ML Hackathon** - Lead a 3 member team and won hackathon for pricing optimisation theme among 2500+ participants across the world.
- **MIT Covid-19 Hackathon** - Winning project among 3000+ participants across the world.
- **Elected with highest majority** as girls senator to represent voices of female students in gymkhana elections 2018.
- Ranked among **top 0.4% of 1.5 million** students who appeared in JEE Advanced 2016, a national level exam for undergraduate engineering admissions.

Extra Curricular

- **Girls Senator** | *Students Gymkhana Council, Indian Institute of Technology, Guwahati*
 - Represented concerns and perspective of **900+ female students** in the students council.
 - **Led various initiatives** to bring about reforms as a part of various committees of the Senate.
 - Active member of 4 committees in the senate which acts as central policy making body for student concerns.
- Organised a **national level competition** for students to display their projects and ideas with a participation 200+ teams.
- **Silver medalist** in girls sports competition, lawn tennis(2018).
- **Mentor at PAL** program by student gymkhana council to help first year students pass physics102.
- **Mentor at DISHA**: DISHA is a nonprofit, non-government student organization run by students wherein we help underprivileged students with studies.