Jaiyesh Chahar

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Github - https://github.com/jaiyesh
Youtube Channel - https://www.youtube.com/c/PetroleumFromScratch

Professional Summary

Innovative and result-orientated data scientist with strong mathematics and statistics background and more than 2 years of experience in AI, Machine Learning, Statistical Modelling, Time Series Analysis, Deep Learning, Computer Vision, Python. Also, a community mentor for Python and Data Science in the Oil and Gas Industry. Have an experience of working with clients from different industries like Oil and gas, Energy, Automotive, Manufacturing and Smart City Automation.

Education

- **Master of Technology: Petroleum Engineering minor in Machine Learning, IIT (Indian School of Mines)** – Dhanbad
  2019 - 2021
- **Bachelor of Technology: Petroleum Engineering, University of Petroleum and Energy Studies** – Dehradun
  2015 - 2019

Experience

Siemens – Data Scientist **Oct 2021 - Present**

- **Automotive Parts Anomaly Detection**
  - Developed an object detection pipeline for damage detection and hole counting.
  - Developed a MLOps pipeline for model version handling.
  - Developing end to end software pipeline (final product) for deep learning frameworks of multiple use cases in production involving multiple services leveraging RabbitMQ.

  Skillsets: Computer Vision, Object Detection, RabbitMQ, MLOps, Pytorch, Tensorflow
- **Future Mega Smart City Automation**
  - Developed solution of multiple use cases(confidential) for Next Generation – Environment Compliance Assurance for construction location in smart city using drone images
  - Developed inference pipeline services of computer vision use cases using object detection and image classification methods.
  - Implemented tiny object detection and image classification.

  Skillsets: Computer Vision, Object Detection, RabbitMQ, Docker, Pytorch, Tensorflow, OpenCV
- **Dielectric Fluid Leakage Detection**
  - Developed a data driven solution for detection of leakage of dielectric fluid in high pressure fluid–filled pipe of underground electricity transmission line.
  - Developed a sequential neural network for leak prediction using historical data.
  - Developed a streamlit app for performing analysis on sensors data.

  Skillsets: Time Series analysis, LSTM (Long short term memory), ANN, Random Forest, Streamlit
- **Electric Vehicle smart battery solution**
  - Contributed to development of an Electric Vehicle smart battery solution having various applications that are forecasting useful life of EV battery, remaining range and energy demand for charging stations using data driven approaches.

  Skillsets: Time Series analysis, LSTM (Long short term memory), Flask, Regression

- **Automotive Defect Analysis**
  - Developed a deep learning inference pipeline for detection of defective part in automotive part.

Dicelytics Pvt. Ltd. (Dice Technologies LLC) – Reservoir Engineer (Data Scientist) **Jan 2021 – Sept 2021**

- **Physics assisted machine learning tools for Oil and Gas Industry**
  - Developed a reservoir physics assisted artificial intelligence and machine learning reinforced model to simulate, analyze and support field implementation of reservoir recovery management technologies.
  - Developed Machine Learning Based Classification technique using Global Database for Enhanced Oil Recovery Screening for selecting best possible enhanced oil recovery candidate for given reservoir and crude properties.
  - Developed tool for History Matching and Hydrocarbon Production Forecasting using sequential Deep Learning architecture.

Skillsets: Time Series analysis, Machine Learning, LSTM, Physics

Indian Institute of Technology (Indian School of Mines) Dhanbad – Teaching Assistant **July 2019 – May 2021**

- Helped the Professor in organizing lecture content, setting up quiz/exam papers, evaluating answer sheets and invigilation

Research Works:

- **Patent Filed:** Data Encryption for time series data.
- **Published Research Work:** Data-driven approach for hydrocarbon production forecasting using machine learning techniques in Journal of Petroleum Science and Engineering, DOI: https://doi.org/10.1016/j.petrol.2022.110757
- **Pre-Prints**
  - Teeth cavity classification: Classifying carious lesions based on G.V. Black Caries Classification using multiple hierarchical classification models
  - Generative Adversarial Network model for Sensor Data Generation based Remaining useful life classification of industrial equipment.

Skills

Machine Learning & Deep Learning: Statistics | Linear Algebra (Intuitive to Applied) | ML-Algorithms | Time Series Analysis |Computer Vision | Predictive Maintenance | Predictive Analysis | MLOps

Frameworks: Keras | Tensorflow | PyTorch | Scikit-Learn | OpenCV | Streamlit | Docker | RabbitMQ | Numpy | Pandas | Matplotlib | Plotly | Flask

Domain Skills: Engineering Mathematics - Univariate & Multi-Variate Calculus | Numerical Simulations | Oil and Gas Physics

Achievements, Open-Source Contributions:

1. GATE 2020(PE) – AIR 64 (02/2020) Graduate Aptitude Test for Engineers.
2. Delivered multiple workshops in many Universities across the globe on Applications of Python and Machine Learning in Oil and Gas Industry.
3. Delivered multiple workshops on platforms like Analytics Vidhya, AI Planet on multiple topics of Data Science.
4. Developing online tutorials on Youtube for Data Science, Statistics for physics based engineers.
5. Predictive Maintenance and pump failure prediction using Machine Learning.
6. Prediction of Hydrocarbon Production based on Production Parameters for Volve field data using Machine Learning.
7. Reservoir Heterogeneity Model – A statistical approach: Applying Statistics to describe Reservoir Rock Heterogeneity.

EXTRACURRICULARS

- Co-Founder of Petroleum from Scratch (an E-learning venture).
- A Community mentor for Python and Data Science.
- Petroleum Data Science Contributor for Society of Petroleum Engineers International's Wikipedia Petrowiki
- A Public Speaker, presented and talked on several Webinars & Workshops.
- Actively Maintain a Github repository for sharing projects and learnings with the community.
- Taught physics through an NGO.