Dear Sir/Madam,

Thank you for sharing profiles of students.

Please have a look on Recruitment Process in detail.

Kindly be noted that below mentioned recruitment plan has been drafted for students who are interested to join as **Data Science-Intern.**

- **Selection Criteria for Technical Discussion** : Profiles will be shortlisted based on relevant technical background & evaluation results of assignment.
- **Evaluation of Assignment** : Students will be evaluated technically based on the assignment to be completed.
- **Face to Face discussion** : Students whose profiles have been shortlisted based on the evaluation of assignment need to attend the face to face discussion on at our office.

We would like to evaluate students based on the assignment mentioned below

Hence, we request you to facilitate the process by co-ordinating with interested students adhering to recruitment plan as mentioned above.

Please be noted that students are required to complete the below assignment by Thursday ,22nd September 2022 before 3 PM as this is going to be screening criteria to shortlist the candidature for further interview process.

ASSIGNMENT DESCRIPTION

As the part of initial screening, please find the attached dataset which represents the Emissions/process data from Gas Turbine (GT) system from Oil and Gas Industry. GT is one of the major source of emission and energy consumption, which increases the overall head cost for the organization. Various organizations across the globe has taken the initiative to utilize the power of DS/ML/AI to estimate the current emission rates (NOx, CO. etc) and its contributing parameters. The biggest challenge which the process / plant operators is to identify the most important parameters which is causing the emissions to increase dynamically. With this visibility, the plant team can take the corrective decisions/action in real-time, whenever the emissions crosses the threshold limit.

The description of the dataset is as given below:

Data Set Information:

The dataset contains 36733 instances of 11 sensor measures aggregated over one hour (by means of average or sum) from a gas turbine located in Turkey's north western region for the purpose of studying flue gas emissions, namely CO and NOx (NO + NO2). The data comes from the same power plant as the dataset ([Web Link]) used for predicting hourly net energy yield. By contrast, this data is collected in another data range (01.01.2011 - 31.12.2015), includes gas turbine parameters (such as Turbine Inlet Temperature and Compressor Discharge pressure) in addition to the ambient variables. Note that the dates are not given in the instances but the data are sorted in chronological order. See the attribute information and relevant paper for details. The dataset can be well used for predicting turbine energy yield (TEY) using ambient variables as features.

Attribute Information:

The explanations of sensor measurements and their brief statistics are given below.

Variable	Unit	Min	Max	Mean
Ambient Temperature	C	6.23	37.1	17.71
Ambient Pressure	mbar	985.85	1036.56	1013.07
Ambient Humidity	(%)	24.08	100.2	77.87
Air Filter Difference Pressure	mbar	2.09	7.61	3.93
Gas Turbine Exhaust Pressure (GTEP)	mbar	17.7	40.72	25.56
Turbine Inlet Temperature (TIT)	C	1000.85	1100.89	1081.43
Turbine After Temperature (TAT)	C	511.04	550.61	546.16
Compressor Discharge Pressure (CDP)	mbar	9.85	15.16	12.06
Turbine Energy Yield (TEY)	MWH	100.02	179.5	133.51
Carbon Monoxide (CO)	mg/m3	0	44.1	2.37
Nitrogen Oxides (Nox)	mg/m3	25.9	119.91	65.29

Objective:

- To develop a model or Emissions (CO, NOx) and estimate the important contributing factors
- Development of the what-if tool box to create the scenarios of the input parameters and see the corresponding values of CO, NOx)
- Dashboard using python for time-series trending of the parameters

Regards
Priyamvada Pradhan
HR Executive
Tridiagonal Solutions Pvt Ltd
Plexus Building, 3rd Floor,
Above Titan Showroom,
Aundh ITI Road, Pune-411007
Tel No: +91-7219279259
Website: https://tridiagonal.com/