Training - Introduction to Data Analytics and Machine Learning Techniques for Geosciences and Reservoir Engineering

MLRES-EN-P | **Face-to-face only** | **3 days**

This course provides an extensive and practical knowledge for applying data analytics in reservoir modeling and predicting the well performance; the data driven approach is used to understand the main factors affecting the reservoir performance, using the fuzzy logic to rank these parameters and build a predictive model to optimize the reservoir response. Emphasis will be put on the use of supervised and unsupervised neural networks algorithms

Level

Awareness

Public

Reservoir engineers and geoscientist interested in data analytics, data driven reservoir modeling and machine learning methods for predicting reservoir performance

Objectives

Attendees will be able to implement the following skills:

- Apply the basic statistical methods for better data analysis
- Apply clustering methods for data classification (facies logs modeling)
- Build a predictive model using available machine learning methods and use it as a proxy model for predictions, uncertainty analysis and quantification

Pedagogical & technical resources

Interactive lectures and exercises

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO DATA ANALYTICS — 0.5 day

Principles of data analytics.
Data statistics (univariate, bivariate, distributions).

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Data ranking (correlation matrix, principal component analysis, fuzzy logic).

MACHINE LEARNING TECHNIQUES — 1 day

Fundamentals of machine learning (supervised and unsupervised).
Evaluating machine learning models.
Machine learning workflow.

PREDICTIVE MODEL & UNCERTAINTY QUANTIFICATION — 1.5 days

Build a predictive model using machine learning techniques.
Predictive model, quantify errors, testing and validation.
Examples for predictive model in reservoir engineering.

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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