

ARTIFICIAL INTELLIGENCE FOR RENEWABLE ENERGIES

COURSE DESCRIPTION

With growing interest from governments, consumers, and industry participants around the world in increasing energy production from renewable energy sources, our challenge is to improve the quality of understanding and knowledge for those interested in green and environmentally friendly energies.

The Artificial Intelligence for Renewable Energies course is designed for participants to acquire the theoretical and practical knowledge to apply concepts of Artificial Intelligence in the field of Renewable Energies such as solar, wind, geothermal, and hydro.

Starting with an introduction to the main concepts of programming in Python, the participant will learn the basic concepts of Machine Learning and Deep Learning algorithms for the analysis of time series related to patterns of consumption of water and energy resources, as well as in the estimation of energy resources associated with solar, wind, and geothermal energy, and the use of satellite images through neural networks for the classification of the earth's surface.

Participants won't need previous programming experience in Python, and no software is required. We will use Google CoLab platform to program the exercises.

OBJECTIVES

- Learn to use the main features of Python 3, as well as the packages selected most important of this language (Numpy / SciPy / Pandas / Matplotlib), through a project in Jupyter Notebook and Google Colab.
- Know and apply the basic concepts of Artificial Intelligence, as well as the main Machine Learning and Deep Learning algorithms, applied to data on water resources and green energy.
- Apply techniques of analysis and visualization of geoscientific data using the libraries from Python.
- Interpret the output obtained by the prediction models.
- Learn to use the main Machine Learning libraries today (Scikit - Learn), and Deep Learning (Keras, TensorFlow and PyTorch).

COURSE CONTENT (15 HOURS)

- Day 1 | Nov 7th: Introduction to Python and Artificial Intelligence algorithms
- Day 2 | Nov 8th: Time Series and Forecasting Energy consumption
- Day 3 | Nov 9th: Solar Energy
- Day 4 | Nov 10th: Wind Energy
- Day 5 | Nov 11th: Geothermal Energy

ABOUT THE INSTRUCTOR



Roderick Perez, Ph.D.

Dr. Perez is a Geophysical Engineer from Simón Bolívar University in Venezuela, with a Master's degree in Geology and a Ph.D. in Geophysics from the University of Oklahoma, an MBA from the Universidad de Los Andes, and is currently pursuing a Master's degree in Data Science at the University of Vienna. He is a seismic interpreter, with more than 15 years of experience in the Oil & Gas industry, where he has developed techniques for characterizing the fragility of these reservoirs. Dr. Perez specialized in the characterization of YNC in the USA (Barnett Shale, Eagle Ford, Marcellus Shale, Permian Basin, among others), as well as the characterization and economic evaluation of conventional reservoirs in Colombia, Ecuador, Argentina, among others. He is an expert in pre and post-stack seismic inversion, as well as in the application of Machine Learning and Neural Networks in the analysis of geoscientific data.

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COST: US\$ 995

Online Course

November 7 - 11 (5 day course)

5 to 8 p.m. (3 hrs per day)