Application of neural network technique for identifying fluids in rocks reservoir of the Amazonas and Solimoes Basins

Lívia Auzier (Universidade Federal do Amazonas)
Joemes de LIma Simas (Universidade Federal do Amazonas)

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Introduction

The current focus is to improve existing models, applying them specifically to the Amazonas and Solimoes basins. The initiative is relevant to the oil industry, as it allows the analysis of large volumes of data and the detection of complex patterns that are difficult to identify using traditional methods. The use of machine learning and artificial neural networks, which simulate the functioning of the human brain, allows the creation of systems that learn from data and improve their performance over time. The goal of the project is to develop robust and efficient computational tools that assist in both teaching and the exploration of natural resources, especially hydrocarbon.

Method and Theory

The research was based on bibliographic research to better understand the numerical methods. Then, data collection began in wells in the Solimoes Basin and the Amazonas Basin at the National Agency of Petroleum, Natural Gas and Biofuels (ANP) onshore https://reate.cprm.gov.br/anp/TERRESTRE. After analyzing the data, 2 wells were chosen: One in the Solimoes Basin: Well 3-RUC-8-AM, with a study area at a depth of 2,350m to 2,600m, and another in the Amazonas Basin: Well 1-ITP-1-AM. The data were entered into the LogView++ software. Another interface also used for the development of the algorithm is GitHub (https://github.com/), with the objective of creating or executing algorithms on its platform.

Results and Conclusions

The data from the two wells were plotted in the LogView++ software, where the analyses are being performed. The partial results demonstrate the potential of the proposed methodology for identifying rock layers with fluids. Thus, for the completion of the project, machine training will be essential to allow validation of the algorithm, which will be fundamental to assess the effectiveness of the tool.

Acknowledgments

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