# Engineering Applications of Artificial Intelligence

## DIGITAL ROCK CHARACTERIZATION USING ARTIFICIAL INTELLIGENCE - APPLICATION TO IMAGE SEGMENTATION
### --Manuscript Draft--

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| **Corresponding Author:** | João Marcelo Cardoso Carvalho<br>State University of Norte Fluminense<br>Macaé, RJ BRAZIL |
| **First Author:** | João Marcelo Cardoso Carvalho |
| **Order of Authors:** | João Marcelo Cardoso Carvalho |
| | André Duarte Bueno, Dr. |
| **Abstract:** | Abstract In the field of digital rock segmentation, the use of neural networks allows the classification or determination of solid and porous phases. The purpose of this work was to show how the use of such methods makes the binarization of images of reservoir rocks in solids and pores practical. For this, the color information of an image, collected through an annotation software developed in C++. The construction and training of neural networks were made with the PyTorch library through python scripts. Each training sequence (loading the dataset, separating it into training and test sets, and then into mini-batches, performing batch training and testing the result in each epoch) lasted about 12 milliseconds. The results were obtained with an error varying between 6% and 80% in comparison with laboratory measurements. It is believed that this occurs due to the points obtained from the regions of interest in the image, so a more careful collection could guarantee better results. |
| **Suggested Reviewers:** | Fernando Diogo de Siqueira<br>siqueira@lenep.uenf.br |
| | Carlos Enrique Pico Ortiz<br>capico@lenep.uenf.br |