



ID: P3.6-184

Type: e-Poster

of Deep Neural Networks to seismic signal recognition

Thursday, July 1, 2021 10:45 AM (15 minutes)

Automatic recognition of seismic event source has been a primordial task since the introduction of digital seismic networks. Nowadays, this task becomes more important due to the huge quantity of data recorded continually and the need for real time results. Different approaches have been addressed in the literature. Currently, artificial intelligence techniques have attracted increasing attentions among scientists owing to their efficiency to handle complex non-linear real world problems.

The purpose of this study is to seek a Deep Neural Network (DNN) architecture for a more reliable seismic signal recognition. The main advantage of this approach is its strong ability to extract automatically complex features that express the seismogram in much more detail. Thus, it might be much more efficient than other neural network based classifiers which require manual feature extraction. To convert the seismogram to image, the time-frequency representation is exploited. Several set of experiments were conducted to analyze different DNN architectures and compare their relative performances. To do so, a large seismic database was used. The results confirmed the ability of this approach to recognize events with a good accuracy.

Promotional text

The aim of this research is to investigate the ability of deep neural network in seismic signal classification. The goal is to discuss the proposed approach with other researches and scientist, so that it can be improved and extended to help CTBT in identifying nuclear explosions

Primary author: Mr AIT LAASRI, El Hassan (Ibn Zohr University, Agadir, Morocco)

Co-authors: Mr ATMANI, Abderrahman (Ibn Zohr University, Agadir, Morocco); Mr AKHOUAYRI, Es-Said (Ibn Zohr University, Agadir, Morocco); Mr AGLIZ, Driss (Ibn Zohr University, Agadir, Morocco)

Presenter: Mr AIT LAASRI, El Hassan (Ibn Zohr University, Agadir, Morocco)

Session Classification: T3.6 e-poster session

Track Classification: Theme 3. Verification Technologies and Technique Application: T3.6 - Artificial Intelligence and Machine Learning