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## between Earthquakes and Quarries Blasts Using Committee Machine

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In this work, a committee machine was used to combine supervised and unsupervised artificial neural networks to discriminate between Earthquakes and quarries blasts. The unsupervised network is used as a measure of accuracy for the results of the supervised neural network. The unsupervised Self-Organized Map (SOM) and the k-means clustering algorithms are used to estimate support and confidence measures for the results. Meanwhile, the supervised neural network is used to discriminate between Earthquakes and explosions. Using data from the Egyptian National Seismological Network (ENSN).

The artificial neural networks are trained using different input parameters which are the P wave spectrum corner frequency (PcF), S wave corner frequency (ScF), and the ratio (Rcf) of PcF to Scf.

The combined approach succeeds to discriminate between Earthquakes and quarry blasts in Northern Egypt. The method provides the results with a measure of confidence which eliminates false discrimination.

### Promotional text

The current paper represents an idea to implement the artificial intelligent to assist experts in decision-making situations. Committee machine could Identify the nature of a particular event using the aid of several discrimination methods.

**Primary author:** Mr LETHY, Ahmed (National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt)

**Co-authors:** Mr HUSSEIN, Hesham (National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt); Mr GABRY, Mohamed (National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt); Mr OTHMAN, Adel (National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt)

**Presenter:** Mr LETHY, Ahmed (National Research Institute of Astronomy and Geophysics (NRIAG), Helwan, Egypt)

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