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## Machine learning prospects for automatic SHI processing

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At the time of the opening of the Comprehensive Nuclear-Test-Ban Treaty for signature in 1996, machine learning was a relatively young but already established data analysis method in some fields. However, in seismology it had not reached a sufficient level of maturity to be considered for Treaty monitoring purposes. Furthermore, machine learning requires computational capabilities that exceeded the capabilities of most data centres at that time. Automatic processing at the International Data Centre (IDC) followed the standard, tested and established processing methods benefitting from knowledge that the seismological community had been accumulating for decades. As the years have progressed these barriers have been overcome; computational capabilities have reached unprecedented heights and numerous machine learning methods and tools have been developed in the field of seismology, including the NET-VISA software, a physics-based bayesian approach, used operationally at the IDC. We will discuss further machine learning prospects for the IDC and in particular how deep learning can help the IDC enhance its capabilities regarding phase detection, identification, association as well as event location and classification.

### Promotional text

Machine and deep learning prospects in the IDC to enhance phase detection, identification, association as well as event location and classification.

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