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## **TraML: separation of seismically-induced ground-motion signals with Autoencoder architecture**

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Any time series can be represented as a sum of sine waves with the help of the Fourier transform. But such a transformation doesn't answer whether the signal is coming from one source or several; neither it allows separation of such sources. In this work, we present a technique from the Machine Learning domain, called Auto-encoders that utilizes the ability of the neural network to generate signals from the latent space, which in turn allows us to identify signals from an arbitrary number of sources and can generate them as separate waveforms without any loss. We took ground motion records of passing trains and trams in the vicinity of the University of Vienna and trained the network to produce "clean" individual signals from "mixed" waveforms. This work proves the concept and steers the direction for further research of earthquake-induced source separation. It also benefits interference seismometry, since "noise" used for such research can be separated from the signal, thus reducing manual processing (cutting and clipping signals) of seismic records.