



## **Unsupervised learning for identification of seismic signals**

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We present a framework for deep learning and identification of seismic signals. This framework is based on: ( 1 ) interpretability of the deep neural networks and physics-based architectures, ( 2 ) intervention in interior properties of deep neural networks, and ( 3 ) selective learning, that is, learning of key structures only. We connect spatially distributed sensors through belief propagation in feature space. We include a learnable deep scattering network, autoencoders, and generative adversarial networks, and illustrate performance adapting various clustering approaches. We include a learnable deep scattering network, autoencoders, and generative adversarial networks, and illustrate performance adapting various clustering approaches.