

Connectionist Models for Seismic Horizon Linking

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Abstract

Seismic horizon linking is an important task in geophysical data processing. A seismic horizon is composed to a set of peaks joined together. In this paper, two connectionist models are applied for seismic peaks linking and the horizons can be found in every linked pattern. The models take the strength and corresponding direction of every processing element as the input. The state of each processing element is update by its neighboring processing elements. In first one model, each processing element interacts with its eight neighbors. In another model, each processing element interacts over a large neighborhood. After convergence, the output of network is the linked result. These models can link the broken seismic horizon and delete noise in seismogram. We apply these two models on simulated and real seismogram. Results show that the connectionist model with large neighborhood outperforms the connectionist model with 1-neighborhood on seismic horizon linking problem.