

Cellular Neural Networks for Seismic Horizon Linking and Pattern Recognition

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Abstract

We apply cellular neural networks for seismic horizon linking and pattern recognition. Cellular neural networks have the characteristic of local connection. It is suited for some operations which have the characteristic of local regular connection. So it is suited for seismic horizon linking. We establish the energy function by setting several different constraints of peak distribution. And we compare this energy function and the standard energy function of a cellular neural network, and then finish the process of network training. Then we use this network which is trained to deal with seismic horizon linking. Detecting seismic horizons will help us to deal with seismic data and interpret seismic data. Another application is seismic pattern recognition. We design cellular neural networks to behave as associative memories, and then use the associative memories to recognize seismic patterns. Seismic pattern recognition will help us to analyze and interpret seismic data.