1. python, tensorflow

Codes for neural network construction and training

Key codes:

(1) train.py: training the neural network;

(2) test.py: using the well-trained model to invert the testing surface-wave data;

(3) txt2npy.py: reading the “.txt” dataset and converting them to “.npy”;

(4) network.py: constructing the neural network;

(5) datasetloader.py: loading the dataset for training.

2. matlab

Codes for dataset generation and checking.

Key codes:

(1) Shark\_Caculate.m: generating the training/validation/testing dataset;

(2) calculate\_vs\_sensitivity.m: calculating the sensitivity of the phase velocity;

(3) cc\_browse\_simulateddata.m: checking the generated dataset;

(4) (F\_Simulate.m, F\_Vsrange\_Drilling\_obsdata.m) and (F\_Simulate\_2.m, F\_Vsrange\_Drilling\_obsdata\_2.m): the two kinds of generation way, the first is for 12-layer and the second is for 16-layer.