Efficient extraction of seismic horizons with Deep Learning

Supplementary Materials

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1 Training

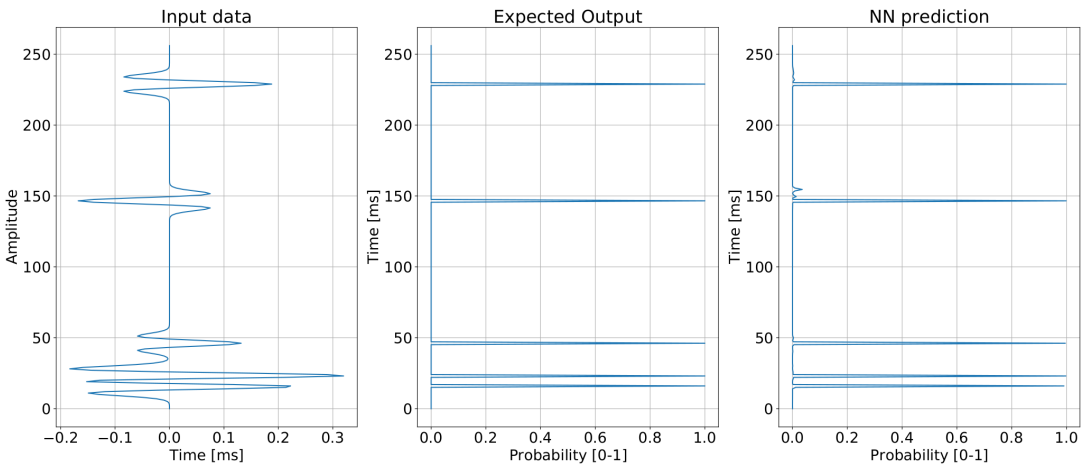

Figure 1: Input data with no noise, expected output and NN prediction.

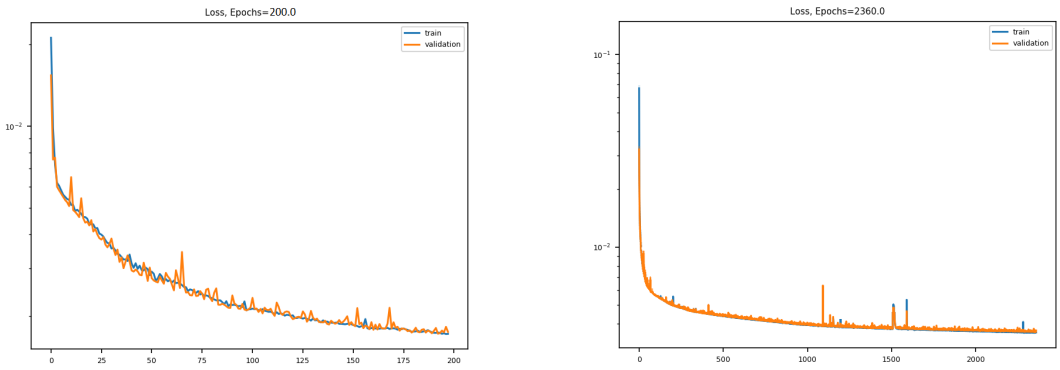

Figure 2: Training loss and validation loss. No noise training (a) and final training (b)

2 Ensemble Learning

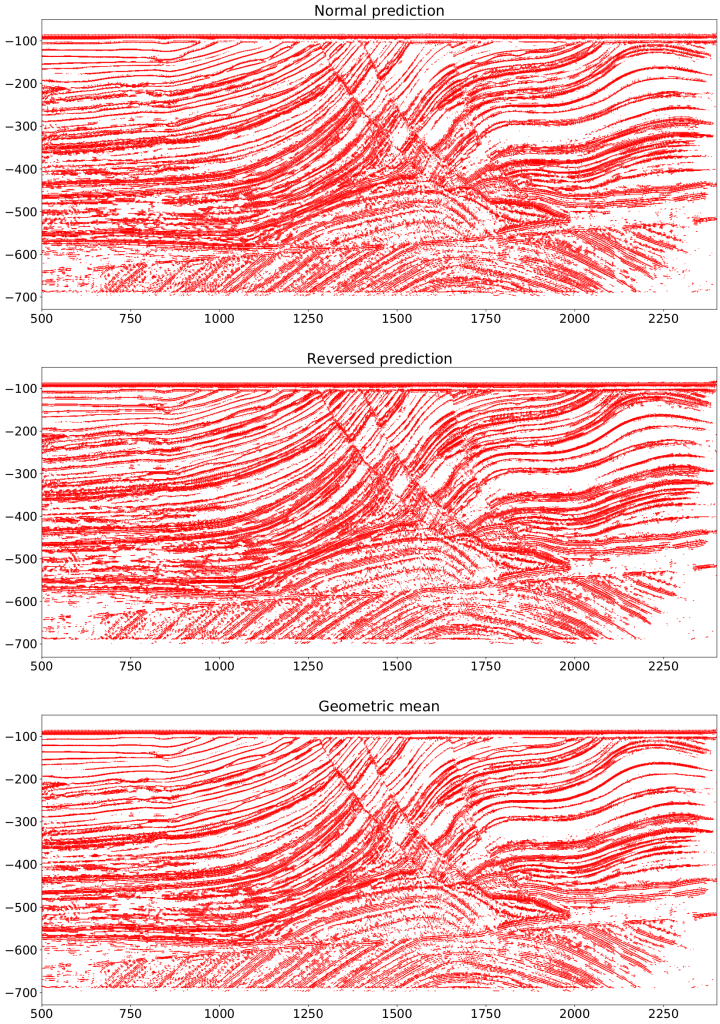

Figure 3: Comparison of the two predictions on Marmousi Dataset (a, b) and the final result (c), after the application of the geometric mean.

3 Threshold Evaluation

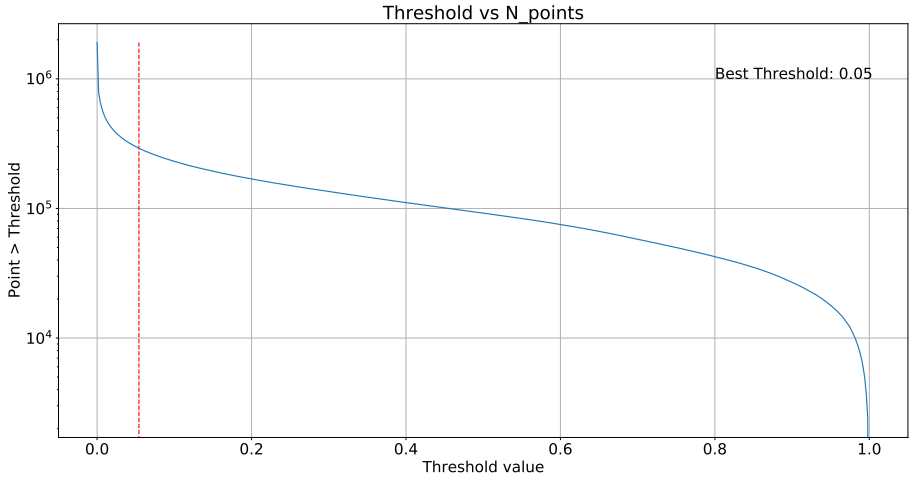

Figure 4: Threshold evaluation on the Marmousi Dataset. On x axis the threshold value, on y axis the number of points marked as Horizons.

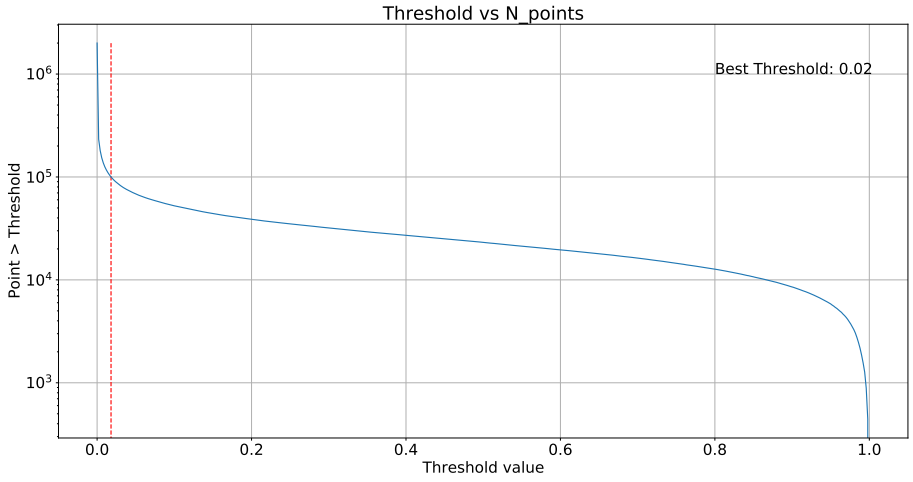

Figure 5: Threshold evaluation on the Seismic Dataset. On x axis the threshold value, on y axis the number of points marked as Horizons.

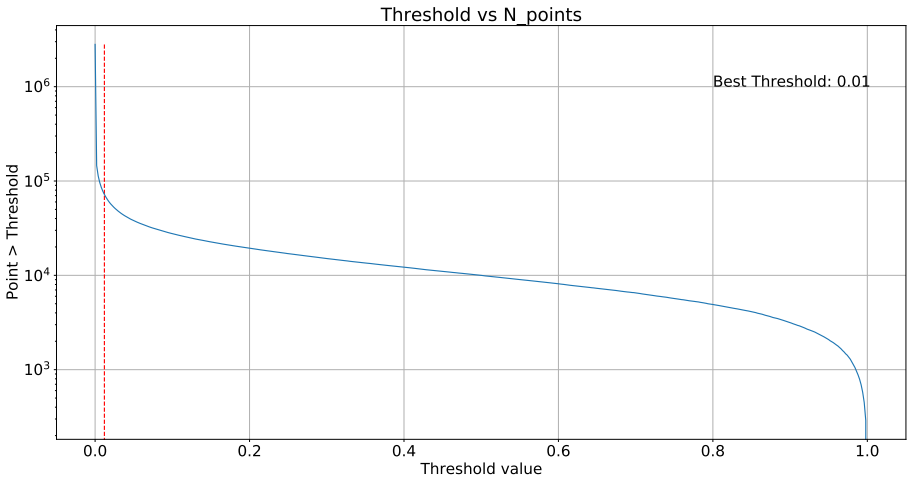

Figure 6: Threshold evaluation on the GPR Dataset. On x axis the threshold value, on y axis the number of points marked as Horizons.

4 Prediction time

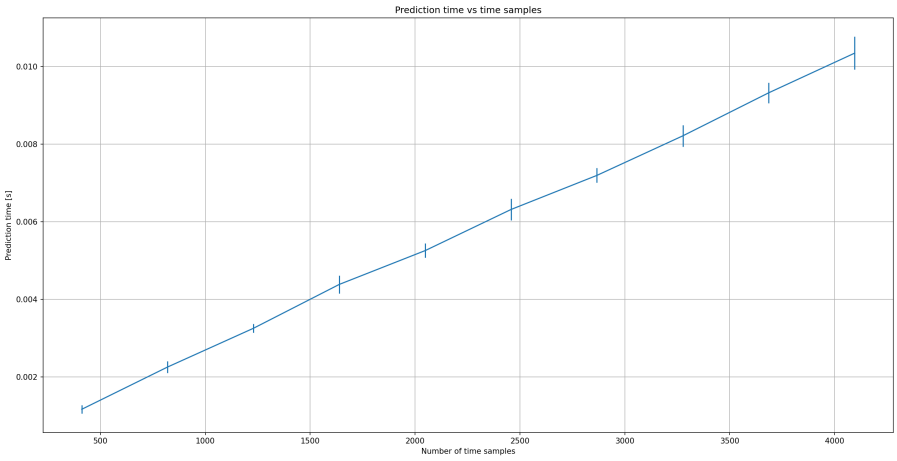

Figure 7: Lengths of the input vs prediction time. According to this, for a seismic acquisition of 2000 offsets and 2000 time steps, it would take 10s for the whole prediction.