

Earthquake segmentation

We can map the underground of the earth with 3D seismic imaging technologies (similar to how we map e.g. the human brain with 3D ultrasound and/or MRI). The underground is generally populated with a large number of scars (called 2D “fault planes”) as the consequence of ancient earthquakes, landslides and other structural deformations. The mapping and automatic interpretation of these 2D fault planes is very important, but also very human-intensive. The industry has hence over the last few years developed powerful Machine Learning methods for the detection of the presence of the fault planes (which we call fault likelihood volumes), using e.g. a per-pixel classification approach. Now, the challenge will be to convert these 3D fault likelihood volumes into discrete continuous, and physically plausible, fault planes (represented e.g. by triangulated surfaces). Some deterministic methods exist already, but there is still scope for more advanced methods, e.g. using Machine Learning.

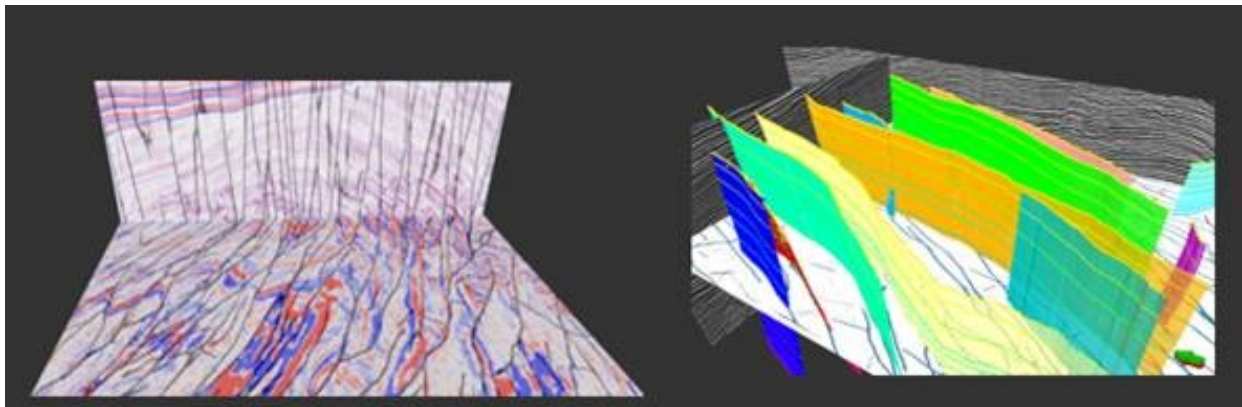


Fig: Example of 3D input images to the left, and the desired output 2D fault planes to the right.

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