



What is SMART FRAC?

SMART FRAC is a tool to improve geological operations by better understanding of subsurface stress states through analyzing micro-seismic data. It is an innovative deep learning tool to turn 'noisy' sensor signals into actionable information during processes such as horizontal drilling and hydraulic fracturing for unconventional oil and gas extraction, geothermal drilling, or sequestering captured carbon emissions underground.



Through our machine learning algorithms, SMART FRAC can automatically and determine the focal mechanism and stress states of micro-seismic events. Knowing these stress states enables operators to better understand what is happening below the surface, and can help increase production, avoid damage to drill sites, and prevent the inducing of larger unwanted seismic events, such as small and moderate sized earthquakes, which can cause equipment damage and environmental harm.

Capabilities:

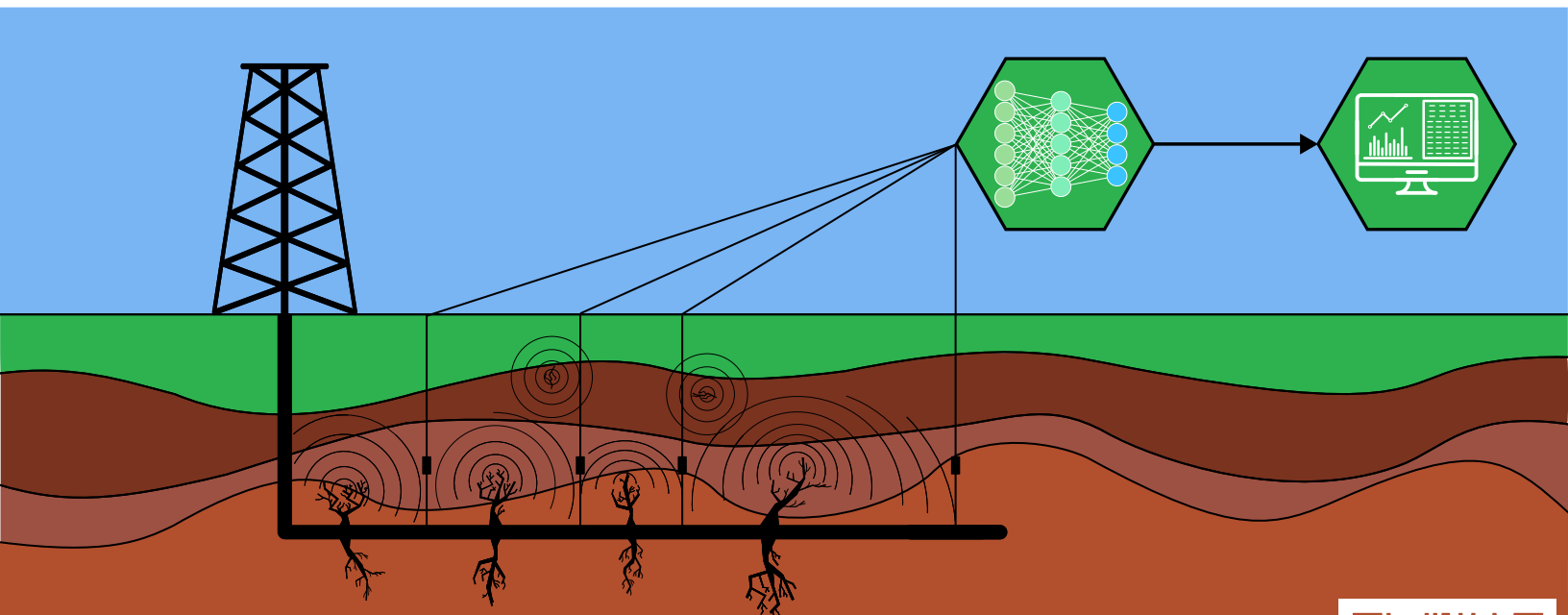
- Determination of associated focal mechanisms in real-time
- Characterize the orientation and dimensions of hydraulic fractures

Benefits:

- Real-time analysis
- Early warning
- Avoid equipment and environmental damage

Enabling Technologies:


- Deep autoencoder
- Bayesian neural network
- Data fusion
- Signal processing
- Dynamic, sparse, convolutional neural network




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