

Potential Applications of Deep Learning to Geosciences

Pedro Mario Cruz e Silva¹

¹Nvidia

ABSTRACT

This talk covers some of the key Artificial Intelligence (AI) applications to the oil and gas industry. Modern AI is the 4th industrial revolution. Deep Learning (DL) is the Machine Learning (ML) technique enabling breakthroughs in several industrial, business, and scientific workflows. NVIDIA's new Deep Learning platform is providing the computational power demanded by the recent advances in AI. The new Volta family of GPUs was designed specially to attend the High-Performance Computing workloads necessary to train a Deep Neural Network with a huge amount of data. The latest version of the CUDA language (version 9), and NVIDIA SDKs were improved to include specialized and highly optimized algorithm to extract GPUs full potential in DNN training and inference tasks. A large variety of data can be used efficiently for training using text, audio, images, and video. This new computing model is delivering outstanding results in computer vision, natural language processing, language translation, speech recognition, recommendation systems, logistics, and autonomous cars and other machines. This presentation shares potential oil and gas applications, including well log estimation, facies classification and seismic interpretation.