AI and the future of oil

July 6 2018, by Ulisses Mello

IBM and Galp, a Portuguese energy group with a global footprint, have developed an AI-based advisor to enhance seismic interpretation in the oil and gas exploration area. This tool can facilitate creation of enhanced geological models, risk assessment of new prospects, and optimization of the placement of new oil wells.

As global energy consumption increases and much of the globe still relies on fossil fuels to supply its energy needs, the oil and gas industry is facing the challenge of finding new resources. More advanced analysis and computing are required to find and evaluate hidden sources of fuel.

IBM and Galp are helping to solve that. Petrogal Brasil and IBM Research-Brazil undertook a three-year research project under the Brazilian National Petroleum Agency (ANP) R&D incentive regulatory framework. We developed a prototype tool that acts as an advisor to geoscientists in the identification and evaluation of exploration prospects and in the interpretation of seismic images. The tool uses AI and other state-of-the-art technologies to interact with scientists and help them to create enhanced geological models, perform faster and more efficient risk assessment of new prospects, and optimize the placement of new oil wells.

The tool has been trained on acquired knowledge generated from previous seismic interpretations and experiences and captured on a practice-driven knowledge representation system. It continuously improves its capabilities, learning from interaction with users or from ingestion of more data. AI-based visual comprehension is used to assist

geoscientists in sifting through large 3-D seismic data sets and quickly identifying geological structures that could bear oil and gas.

The research prototype automates the analysis of technical documents (including notes made by research scientists), provides advice and suggestions on how to interpret subsurface images, and aids in risk assessments. The prototype integrates relevant information from multiple sources, including seismic images, academic papers, notes, and reports. Using AI techniques, it presents suggestions to geoscientists with supporting evidence. This information is built on over time, enabling transfer and retention of knowledge.

This information, easily and instantly accessible, can speed development of young professionals' skills. It also enables a transversal and comparable risk analysis, avoiding individual professional bias and making the information comparable across the board, from one project to another, one geography to another, one decade to another.

The prototype is currently being tested by geoscientists, and additional capabilities are under joint development. It has significantly contributed to the growth of the technical and scientific competencies of both IBM and Galp. We're excited about how this prototype could push the industry's technological boundaries further and enable a better understanding of the impact and potential application of AI in the oil and gas industry.

Provided by IBM

Citation: AI and the future of oil (2018, July 6) retrieved 25 June 2024 from https://phys.org/news/2018-07-ai-future-oil.html