

عنوان مقاله:

Artificial Intelligence Applications in Oil & Gas Industries

محل انتشار:

هشتمین کنفرانس بین المللی دانش و فناوری مهندسی برق مکانیک و کامپیوتر ایران (سال: 1401)

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خلاصه مقاله:

Artificial intelligence (AI) is a diverse scientific field, but within the oil and gas industry there are two primary applications of the technology: machine learning and data science. Machine learning enables computer systems to learn from and interpret data without human input, refining the process through iterations to produce programs tailored to specific purposes. Within the offshore oil and gas industry, this allows companies to monitor complex internal operations and respond quickly to concerns that human operators may not have been able to detect. Machine learning can also be used to run simulations, using predictive data models to discover patterns based on a variety of inputs. The oil and gas industry can use AI in this way to test potential impacts of new developments or to gauge the environmental risk of a new project before any plans are made. Data science uses AI to extract information and insights from data, using neural networks to link related pieces of data together and form more comprehensive pictures from existing information. The offshore oil and gas industry can use AI in data science to make the complex data used for oil and gas exploration and production more accessible, which allows companies to discover new exploration opportunities or make more use out of existing infrastructures. AI technology is also doubtlessly a new shining star that draws attention from researchers devoted themselves into it. In order to dig up more about the applications of artificial intelligence in oilfield development for a hint of the future trend of this exciting technology in oil and gas industry, literature investigation of a large amount of AI-based work reported has been conducted in this work. Based on the investigation, the application of AI in important issues in oilfield development including oilfield production dynamic prediction, developing plan optimization, residual oil identification, fracture identification, and enhanced oil recovery are specifically investigated and summarized, the backs and cons of existing AI algorithms has been compared. Based on the analysis and discussion, current situation of the application of AI in oilfield development is concluded, and suggestions and potential directions of future work AI application in oil and gas developing are provided. On the other hand, Oil is one of the most precious commodities in the energy sector. With the rise in the oil prices and depleting crude oil levels globally, organizations involved in the oil and gas industry are now turning ... towards modern technologies, specifically Artificial Intelligence, to max

کلمات کلیدی:

AI, Oil & Gas, Machine learning

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