Special Issue

Applications of Intelligent Models in the Petroleum Industry

Message from the Guest Editors

Topics of interest include, but are not limited to, the following:

- Machine learning applications in reservoir characterization, such as permeability and porosity prediction, facies classification, and digital rock reconstruction;
- Al-driven production forecasting models for conventional and unconventional reservoirs, incorporating time-series analysis, deep learning architectures, and hybrid modeling approaches;
- Multimodal techniques that integrate tabular data, time-series, and images to enhance subsurface understanding and improve reservoir simulation models;
- Physics-informed machine learning approaches that couple domain knowledge with data-driven methodologies to enhance model interpretability and generalization;
- Al-powered real-time monitoring and predictive maintenance systems for drilling, wellbore stability, enhanced oil recovery (EOR), and equipment failure prediction;
- Addressing challenges such as data scarcity, quality assurance, and uncertainty quantification in intelligent model applications within the petroleum sector.

Guest Editors

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