Special Issue

Advances in Petroleum Engineering: AI-Driven Drilling, Well-Placement and Reservoir Management Workflows

Message from the Guest Editors

As the complexity of subsurface operations continues to increase, especially in emerging geo-energy sectors such as geothermal energy and CO_2 storage, there is a growing need for smarter and more efficient decision-making under uncertainty. Artificial Intelligence (AI) is playing a key role in this shift by transforming traditional, resource-intensive workflows into fast, data-driven, and real-time tools for drilling automation, geosteering, and intelligent reservoir management. We invite you to contribute your latest findings to this Special Issue focused on AI-enhanced workflows and decision support systems in petroleum engineering. Topics of interest include machine learning for drilling and geosteering, AI-driven predictive reservoir modelling, uncertainty quantification, Digital Twins, and human–AI interaction. Submissions addressing cross-disciplinary insights from geothermal and CO2 storage are also welcome. We aim to showcase innovative AI solutions that improve efficiency, reliability, and adaptability in complex energy projects.

Guest Editors

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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