

## Special Issue

# Application of Machine Learning in Geo-Energy Exploration Processes

### Message from the Guest Editor

With the continuous upgrading of energy demand and the increasingly urgent environmental problems, the optimization of exploration methodologies, exploitation techniques, and utilization strategies for these subsurface resources has become an imperative task.

The advent of machine learning (ML) has become a powerful tool for addressing multifaceted technical challenges across subsurface energy systems, from geophysical exploration, intelligent reservoir characterization, three-dimensional geological modeling, enhanced recovery, and reduced environmental impact. This Special Issue on the “Application of Machine Learning in Geo-Energy Exploration Processes” seeks high-quality work focusing on using ML as an important component of geo-energy exploration, development, and monitoring, or that presents the development of new and better ML models. Topics include, but are not limited to, the following:

- Intelligent resource exploration;
- Intelligent reservoir characterization;
- Development optimization;
- Energy transformation technology;
- Environmental monitoring;
- Interdisciplinary data fusion;
- Extraterrestrial energy system.

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### Guest Editor

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### Deadline for manuscript submissions

15 May 2026



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