Special Issue

Physics-Informed Machine Learning for Offshore Renewable Energy

Message from the Guest Editors

The integration of machine learning techniques into offshore renewable energy systems has the potential to revolutionize the industry by enhancing the accuracy of forecasting, supporting wind turbine and wind farm modelling, optimizing the control performance of wave energy converters, enhancing farm-level energy production, and supporting the integration of renewable energy into the grid. The scope of this Special Issue includes, but is not limited to, the following:

- Development of physics-informed machine learning (PIML) models, training procedures, and algorithms, and their applications in wind, wave, and tidal energies.
- Method implementations and improvements related to physics-informed neural networks (PINNs).
- The integration of domain knowledge into ML algorithms for the design, control and monitoring of wind turbines, tidal turbines, and WECs.
- The application of PIML for wind/wave/tidal resource assessment, flow modeling, and farm-level control.
- The integration of different datasets or physical constraints for ML-based prediction.

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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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