Special Issue

Artificial Intelligence and Machine Learning for Membrane Process Optimization and Membrane Design

Message from the Guest Editors

In light of the growing advancements in artificial intelligence (AI) and machine learning (ML) technologies, this Special Issue seeks contributions on the state of the art in the application of these technologies to optimize membrane processes and innovate membrane design.

Topics of interest for research articles should include, but should not be limited to, the development and application of predictive models to enhance membrane performance, AI-driven process control and optimization techniques, generative design algorithms for novel membrane materials and structures, computational simulations and performance evaluations of AI-designed membranes, the integration of AI in material science for membrane innovation, AI-based predictive maintenance models for membrane systems, strategies for minimizing fouling and extending the membrane lifespan using ML, real-time monitoring and anomaly detection in membrane processes, economic benefits of AI and ML applications in membrane technology, environmental impact assessments, including energy savings and waste reduction, and the lifecycle analysis of AI-optimized membrane systems.

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Message from the Editor-in-Chief

You are cordially invited to contribute a research article or a comprehensive review for consideration and publication in *Membranes* (ISSN 2077-0375). *Membranes* is an international, peer-reviewed open accessjournal of membrane technology published monthly online by MDPI. The journal covers the broad aspects of the science and technology of both biological and non-biological membranes, including membrane dynamics and the preparation and characterization of membranes and their applications in water, environment, energy, and food industries. Articles contributing to better understanding of transport processes in all types of membranes are also welcome. The scientific community and the general public have unlimited and free access to the content as soon as it is published. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

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