Special Issue

AI-Enabled Fluid Dynamics: The Future Revolution of Intelligent Fluid Technology

Message from the Guest Editors

This Special Issue aims to explore the innovative applications of AI in hydraulic technology, combining advanced CFD and intelligent control algorithms to enhance the performance and intelligence of hydraulic systems. We are particularly interested in the applications of AI in hydraulic system optimization, sealing and lubrication design, and fluid dynamics simulations—including, but not limited to, machine learning-based hydraulic system performance prediction, AI-driven real-time fluid control and optimization, hydraulic system fault diagnosis, and predictive maintenance. In addition, as the importance of sealing and lubrication technology in hydraulic systems continues to grow, the integration of AI and CFD provides new approaches for optimizing sealing designs and lubrication processes. This Special Issue welcomes innovative research in these directions, especially in areas such as simulation technologies that combine AI and fluid dynamics, intelligent diagnostics, and fluid dynamics modeling.

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