

Recent Advances in Machine Learning in Tribology

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Tribology, the study of friction, wear, and lubrication, has been a subject of interest for researchers exploring the complexities of materials and surfaces. Recently, machine learning has emerged as a valuable tool in this field, offering new avenues for understanding. The second Special Issue in the journal *Lubricants* dedicated to this partnership signifies a step forward in our exploration of these concepts. Machine learning's ability to analyze large datasets and extract patterns has broadened our understanding of tribology. This collaboration between traditional methods and computational techniques has enabled researchers to uncover insights previously inaccessible. From predicting frictional behavior to optimizing lubricant compositions, machine learning's applications in tribology are diverse.

The nine research and two review articles, as well as one technical note, covered in this Special Issue embrace a wide range of topics, from fundamental research on friction mechanisms to practical studies improving industrial machinery performance. Predictive modeling stands out as an area of interest, allowing researchers to forecast tribological properties accurately. This includes predicting material wear rates and optimizing lubricant formulations for specific conditions. Furthermore, machine learning has facilitated the exploration of complex phenomena across different scales, providing a comprehensive understanding of tribological processes. The convergence of tribology and machine learning offers opportunities for synergy and discovery, marking a significant moment in the field's evolution.

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