

FMfI2023 Poster Session

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Poster title	Solving the Data Imbalance Problem using a Modified Whale Optimization Algorithm
Abstract	<p>The objective of this study was to create a new undersampling algorithm to tackle imbalanced data problems by integrating the concepts of the whale and binary whale optimization algorithms with K-nearest neighbor classification. To evaluate the effectiveness of the proposed algorithm, twelve datasets with varying imbalance ratios, ranging from 1.82 to 42.01, were selected from the Knowledge Extraction based on Evolutionary Learning (KEEL) repository and the imbalanced-learn repository. To begin the research, each dataset was divided into a training set and a testing set. The minority class in the training set remained unchanged, while the majority class was processed using the proposed algorithm with adjustable parameter K in K-nearest neighbor classification. The algorithm generated an optimal representative subset of the majority class, and a Random Forest classifier was then trained with the new and reduced training set to assess performance.</p>
Short Bio	<p>I'm Benjawan Rodjanadid, an Assistant Professor in Mathematics at Suranaree University of Technology in Thailand. My expertise lies in the field of Analysis, Topology, and Fixed point theory, where I have conducted valuable research. Over time, I have developed a keen interest in the fascinating realms of machine learning and artificial intelligence.</p>