

Multiple Reference Points MOEA/D for Feature Selection in Classification: Static and Dynamic Mechanisms

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Abstract—The abstract goes here.

Index Terms—MOEA/D, Feature Selection, Classification, Multi-objective

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I. INTRODUCTION

Nowadays, rapid advancements of technologies results in real-world datasets with exponential increment in both dimensionality and sample size. However, the growth in quantity does not necessarily lead to an improvement in quality. In fact, high-dimensionality datasets usually suffer a high level of noise caused mainly by the technologies or devices used to collect data. The noisy features (i.e. irrelevant) may even dominate true signals from relevant features. Meanwhile, redundant features do not add any new information but they cause a longer training time. Therefore, it is challenging for a machine learning algorithm to extract useful knowledge from such datasets. For example, the performance of classification is significantly deteriorated when increasing the number of features from 40 to 200 due to noise accumulation [1].

Feature selection is one of the most popular techniques to improve quality of a feature set. Specifically, for the classification problem, feature selection aims to extract a small feature subset with a high discriminating ability. Removing irrelevant and redundant features not only improves the classification performance (effectiveness and efficiency) but also yields simpler and more general classifiers [2]. However, feature selection is challenging due to its large search space, which is exponentially increased with respect to the number of features.

II. CONCLUSION

The conclusion goes here.

APPENDIX A

PROOF OF THE FIRST ZONKLAR EQUATION

Appendix one text goes here.

APPENDIX B

Appendix two text goes here.

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