

## I. INTRODUCTION

Information technology is used in economics, medical research, engineering, agriculture, technology, and bioinformatics due to its rapid progress. The curse of dimensionality has increased the time and complexity of computer processes due to the expansion of features [1]–[3]. Complex data with redundant and unimportant attributes hinders machine learning and accuracy. One must establish a rational plan to solve this problem. Most study domains rely on feature selection to carefully examine and choose relevant characteristics to solve problems. A reasonable method is needed to solve this challenge.

Choosing relevant and non-duplicative features from a dataset is called feature selection [4]. Although feature selection is computationally challenging (NP-hard), it does not guarantee the best answer [5]. This is a discrete issue, especially binary optimization [6]. Feature selection has a complexity of  $2^n - 1$  or  $O(2^n)$ , where  $n$  is the total number of accessible features [5], [7]. Liu and Motoda [8] classify feature selection methods by subset assessment and search procedure. Regarding the first, feature selection is often divided into three methods: filter, wrapper, and embedded [9].

The Komodo Mlipir Algorithm is a metaheuristic algorithm developed by Suyanto et al. [10], gaining inspiration from the hunting behavior of Komodo dragons. Similar to other metaheuristic algorithms, KMA operates inside a continuous search space, making it suboptimal for solving the binary feature selection issue. Hence, it is necessary to implement a transition from KMA in order to effectively tackle the current situation. The research will involve the continuous transformation of a search space into a discrete or binary representation using a Two-Step approach that employs a transfer function [11]. A binary version of KMA will use the Wrapper method, which uses KNN as the classification algorithm.

The contribution of this research is as follows:

- We propose BKMA, binary variant of KMA. As far as we know, this is the initial instance where KMA is being employed to address the issues by utilizing a binary search space.
- Apply a binary search space to the implementation of KMA for feature selection in order to tackle the issue of curse of dimensionality.
- Data classification was performed using 12 distinct benchmark datasets collected from the UCI repository.

The rest of this paper is split as follows: In Section II, the fundamentals of KMA and suggested binary forms for feature selection are outlined. See Section III for information on the proposed Binary KMA. In Section IV, the experiment setup, results, and findings are presented. Finally, Section V discusses conclusions and future directions.