Intelligent Predictive String Search Algorithm Using Two Sliding Windows in Parallel Environment

Abstract :

- String matching strategies or algorithms provide key role in various real world problems or applications. These algorithms need to make less character comparisons and pattern shifts while searching for all occurrences of a pattern in a text. A few of its imperative applications are **Bioinformatics** , natural language processing and pattern recognition .
- Many string matching algorithms are existing and work efficiently with different applications in different life scopes; one of these algorithms is the **Intelligent Predictive String Search Algorithm** .this algorithm searches through a given text to find the first occurrence of a pattern without a pre-processing phase that included in many string matching algorithms to calculate the pattern shift values which lead less computations and uses simple rules during a match or mismatch of a pattern character using one sliding window.
- In this paper we updated the Intelligent Predictive String Search Algorithm three times resulting with three versions; in the first one we reversed the search direction to be from right using one sliding window while in second version we use two sliding windows to scans the text from both sides sequentially and finally we parallelize this version using real parallel environment.

Introduction :

- many algorithms that search for a certain pattern p of length m in a text t of length n exist, but they differ from each other in some aspects such as:
  Number of sliding windows used in searching process and Shift values.
- In this paper, we made an enhancement on the Intelligent Predictive String Search Algorithm , while keeping the shift values used in the original Intelligent Predictive String Search Algorithm as it is but we use two sliding window instead of one, the window size is equal pattern size (m), but In this case the two sliding window moves according to the same shift value rules.
- Comparisons are made between the new algorithm and the original Intelligent Predictive String Search Algorithm. The experimental results section showed that the new algorithm is faster than the others in case of a number of comparisons