**Abstract**

Task scheduling algorithms are essential for maximising task execution efficiency in distributed and parallel computing systems. List Scheduling is one of these techniques that is particularly useful and flexible for coordinating work execution across many computing resources. This paper provides a thorough introduction to List Scheduling techniques, covering algorithmic complexities, theoretical underpinnings, empirical assessments, and practical applications. List scheduling works by keeping track of a list of activities that are prioritised and dynamically assigning resources to optimise resource utilisation, minimise delay, and increase system throughput. This paper investigates the diverse field of List Scheduling research by utilising theoretical analyses, innovative algorithms, and real-world implementations. Additionally, the use of list scheduling in high-performance computing, real-time systems, cloud computing, and parallel processing is examined in this work. This paper intends to promote innovation in parallel and distributed computing paradigms and develop task scheduling approaches by synthesising existing research findings and emphasising new trends and obstacles.

Keywords- Heuristic; task dependency; scalability; performance evaluation;