

## **Abstract**

*This thesis explores heuristic search methods for solving Cryptarithmic problems, focusing on the implementation and evaluation of Constraint Satisfaction Problem (CSP) techniques. Cryptarithmic problems are mathematical puzzles where digits are represented by letters of the alphabet, posing a significant challenge for computational algorithms. Traditional bruteforce methods quickly become unmanageable as the problem size increases, leading to inefficiencies in time and space complexity. Our study leverages the inherent constraints within these puzzles to reduce the search space and enhance computational efficiency. We review existing literature on heuristic search methods and implement various algorithms to analyze their performance. Our experiments demonstrate that the heuristic CSP method significantly outperforms the brute-force approach, yielding faster and more effective solutions. This research aims to contribute to the field by providing a more efficient approach to solving Cryptarithmic problems, especially as the size and complexity of the problems increase.*