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### **Abstract**

At the leading edge of Artificial Intelligence, machine learning game applications use a combination of various algorithms and different types of information. Searching the large space of solutions in depth leads to better solution. In checker board game next move of disc is important to defeat the opponent. Different selection strategy can be employed to select best next move. In this paper, we present comparative performance of roulette wheel selection and tournament selection method. The focus of this paper is to incorporate systematic game playing approach by analyzing game of checkers. Expert game players reveal three major playing

strategies to make game winning moves. The game moves are divided into three stages opening game, middle stage and endgame. An evolutionary program plays game of checkers with an intention to build resilient middle stage and a set of predefined rules are incorporated to make calculated moves in an endgame. The paper is organized into the sections of Introduction, Introduction to Checkers, Game Complexity and Genetic Algorithm. The last three sections are Implementation, Result Analysis, Conclusion and references.

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### **Index Terms**

Computer Science

Communications

### **Key words**

Genetic Algorithm

Checkers  
Evolutionary Algorithm

Fitness

Roulette Wheel Selection

